



|               |                                    |                      |              |
|---------------|------------------------------------|----------------------|--------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 |
|               |                                    | Version:             | 3            |

| <b>SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING</b>   |  |  |
|---|--|--|
| <b>1.1. Product identifier</b>  |  |  |
| Trading name:   | LITHIUM CARBONATE, SOLUTION  |  |
| Chemical name:  | -  |  |
| Catalogue number:   | LK-OT-X**  |  |
| <b>1.2. Relevant identified uses of the substance or mixture and uses advised against</b> |  |  |
| Uses:   | For use with Von-Kossa staining kit.   |  |
| Uses advised against:   | Only the identified uses are advised.  |  |
| Reason why uses advised against:  | The product is intended for use only as an <i>in vitro</i> diagnostic medical device, registered at the Agency for Medicinal Products and Medical Devices and there is no reason to use it for other purposes. |  |
| <b>1.3. Details of the supplier of the safety data sheet</b>                              |  |  |
| Supplier:   | BioGnost Ltd.  |  |
| Address:  | Medjugorska 59, Zagreb   |  |
| Telephone number:   | +385 1 2409997   |  |
| Fax no.:  | +385 1 2404039   |  |
| e-mail of competent person:   | <a href="mailto:msds@biognost.hr">msds@biognost.hr</a>   |  |
| National contact:   | -  |  |
| <b>1.4. Emergency telephone number</b>  |  |  |
| National Protection and Rescue Directorate:   | 112  |  |
| Medical information:  | +385 1 2348 342  |  |
| Other information:  | -  |  |

| <b>SECTION 2 HAZARDS INFORMATION</b>                                    |  |                     |
|---|--|---------------------|
| <b>2.1. Classification of the substance or mixture</b>                  |  |                     |
| <b>2.1.1. Classification (REGULATION (EC) No. 1272/2008 (CLP))</b>      |  |                     |
|   | Hazard class and category code:        | Hazard statements*: |
|   | Not identified as hazardous substance. | -                   |
| <b>2.1.2. Additional information</b>                                    |  |                     |
| -   |  |                     |
| *For full text of Hazard- and EU Hazard-statements: see Section 16      |  |                     |
| <b>2.2. Classification according to EC Directive Nr. 1272/2008 CLP)</b> |  |                     |
| Product identification:   | LITHIUM CARBONATE, SOLUTION            |                     |
| Identification number:  | -                                      |                     |
| Authorization no.:  | -                                      |                     |
| Hazard pictograms:  | -                                      |                     |
| Signal word:  | -                                      |                     |

|               |                                    |                      |              |            |
|---------------|------------------------------------|----------------------|--------------|------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |            |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 | Version: 3 |

|                           |   |
|---------------------------|---|
| Hazard statements:        | - |
| Precautionary statements: | - |
| Further information:      | - |
| <b>2.3. Other hazards</b> |   |
| -                         |   |

**SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS**

| CAS/<br>EC/<br>Index no.     | REACH<br>Registration No | Weight % content<br>(or range) | Identification name | Classification according to<br>Regulation (EC) No 1272/2008<br>(CLP) |
|------------------------------|--------------------------|--------------------------------|---------------------|--|
| 554-13-2/<br>209-062-5/<br>- | -                        | < 2 %                          | lithium carbonate   | Acute Tox. 4; H302<br>Eye Irr. 2; H319                               |

**SECTION 4 FIRST AID MEASURES**

|  |   |
|--|---|
| <b>4.1. Description of first aid measures</b>  |   |
| General notes:   | -   |
| Following inhalation:  | Carry the afflicted person out of the contaminated area into a well-ventilated area or out for fresh air. If breathing becomes erratic or it stops, immediately apply artificial respiration (other than mouth-to-mouth) and contact a physician. |
| Following skin contact:  | Remove contaminated clothing. Immediately wash with plenty of water and soap. Seek medical assistance if the symptoms of irritation remain.   |
| Following eye contact:   | Rinse out with plenty of water with the eyelid held wide open using clean fingers. If the symptoms remain, immediately call a physician.  |
| Following ingestion:   | Do not induce vomiting. Make the afflicted person drink a glass of water. If spontaneous vomiting occurs, wash the mouth with water, then make the person drink 100-200 ml of water and seek medical attention.                                   |
| Self-protection of the first aider:  | Treat symptomatically.  |
| <b>4.2. Most important symptoms and effects, both acute and delayed</b>                |   |
| Following inhalation:  | No information available  |
| Following skin contact:  | No information available  |
| Following eye contact:   | No information available  |
| Following ingestion:   | No information available  |
| <b>4.3. Indication of any immediate medical attention and special treatment needed</b> |   |
| -  |   |

**SECTION 5 FIREFIGHTING MEASURES**

|                                 |
|---------------------------------|
| <b>5.1. Extinguishing media</b> |
|---------------------------------|

|               |                                    |                      |              |
|---------------|------------------------------------|----------------------|--------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 |
|               |                                    | Version:             | 3            |

|      |  |  |
|------|--|--|
|      | Suitable extinguishing media:  | Water spray, dry powder, CO <sub>2</sub> or alcohol-resistant foam |
|      | Unsuitable extinguishing media:  | No information available   |
| 5.2. | Special hazards arising from the substance or mixture  |  |
|      | Hazardous combustion products:   | No information available   |
| 5.3. | Advice for firefighters  |  |
|      | Use a self-contained open-circuit compressed air breathing apparatus and fireproof clothing. Cool closed containers exposed to fire with water spray or vapor. |  |
| 5.4. | Additional information   |  |
|      | Remove sources of heat and ignition.<br>Do not contaminate the environment with extinguishing media.   |  |

|  |  |  |
|--|--|--|
| <b>SECTION 6 ACCIDENTAL RELEASE MEASURES</b> |  |  |
| 6.1.   | Personal precautions, protective equipment and emergency procedures  |  |
| 6.1.1.                                       | For non-emergency personnel  |  |
|  | Protective equipment:  | Use personal protective equipment (see Section 8).   |
|  | Accident prevention methods:   | Evacuate members of all non-essential personnel and those members without protective equipment. Remove all sources of sparks and ignition. Do not smoke. |
|  | Emergency procedures:  | Mark the area using proper signs.  |
| 6.1.2.                                       | For emergency responders:  |  |
|  | Wear protective equipment (see Section 8).   |  |
| 6.2.   | Environmental precautions:   |  |
|  | Do not dispose of in sewage, drainage system and waterways. In case of large spillage contact National Protection and Rescue Directorate (NPRD) on 112.        |  |
| 6.3.   | Methods and material for containment and cleaning up   |  |
| 6.3.1.                                       | Bunding, covering of drains; capping procedures:   | Sand or clay barriers.   |
| 6.3.2.                                       | Cleaning up:   | Sawdust, sand, mineral adsorbents.   |
| 6.3.3.                                       | Other information:   | -  |
| 6.4.   | Reference to other sections  |  |
|  | See Section 7 for information on safe handling.<br>See Section 8 for information on personal protection equipment.<br>See Section 13 for disposal information. |  |

|                                      |                               |  |
|--------------------------------------|-------------------------------|--|
| <b>SECTION 7 HANDLING AN STORAGE</b> |                               |  |
| 7.1.                                 | Precautions for safe handling |  |
| 7.1.1.                               | Protection measures           |  |

|               |                                    |                      |              |
|---------------|------------------------------------|----------------------|--------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 |
|               |                                    | Version:             | 3            |

|        |  |   |
|--------|--|---|
|        | Measures to prevent fire:  | Keep away from sources of heat and ignition. Do not smoke.  |
|        | Measures to prevent aerosol and dust generation:   | Secure proper ventilation.  |
|        | Measures to protect the environment:   | Prevent spilling into the sewage system and waterways.  |
|        | Other measures:  | -   |
| 7.1.2. | Advice on general occupational hygiene:  |   |
|        | Do not eat, drink or smoke in the workspace. Thoroughly wash hands after work and before eating. |   |
| 7.2.   | Conditions for safe storage, including any incompatibilities                                     |   |
|        | Technical measures and storage conditions:   | Keep in tightly closed and upright set containers in a well ventilated storage rooms, and away from sources of heat, sunlight, and other incompatible substances.           |
|        | Packaging materials:   | Manufacturer's original packaging.  |
|        | Requirements for storage rooms and vessels:  | Keep away from food and drink. Keep the containers tightly closed.  |
|        | Advices for storage equipment:   | The storage must be made of hard material; floors must be resistant to chemicals. There must be no drain that directly leads into sewage system. Secure proper ventilation. |
|        | Further information on storage conditions:   | Do not place the unused material in the storage room and do not use empty containers for storing other chemicals. Do not store with incompatible materials (see Section 9). |
| 7.3.   | Specific end use(s)  |   |
|        | Recommendations:   | -   |
|        | Industrial sector specific solutions:  | -   |

| SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION |        |  |                   |                          |
|---|--------|--|-------------------|--------------------------|
| 8.1. Control parameters                         |        |  |                   |                          |
| Substance                                       | CAS No | Occupational exposure limit values/short term values |                   | Biological limit values  |
|   |        | ppm  | mg/m <sup>3</sup> |                          |
| -   | -      | -  | -                 | No information available |
| Substance name:                                 | -      |  |                   |                          |
| EC No:  | -      | CAS No:  | -                 |                          |
| <b>DNEL</b>                                     |        |  |                   |                          |
| <b>Industrial</b>                               |        |  |                   |                          |

|               |                                    |                      |              |          |   |
|---------------|------------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |          |   |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 | Version: | 3 |

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

Critical physical parameters: solubility, flammability, corrosivity: -

**Consumer**

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

**PNEC**

| Environmental protection target    | PNEC                     |
|------------------------------------|--------------------------|
| Fresh water                        | No information available |
| Freshwater sediments               | No information available |
| Marine water                       | No information available |
| Marine sediments                   | No information available |
| Food chain                         | No information available |
| Microorganisms in sewage treatment | No information available |
| Soil (agricultural)                | No information available |
| Air                                | No information available |

**8.2. Exposure controls**

**8.2.1. Engineering measures**

|  |   |
|--|---|
| Substance/mixture related measures to prevent exposure during identified uses: | Use the product in well ventilated rooms. Use personal protective equipment. Do not eat, drink or smoke in the workspace. |
| Structural measures to prevent exposure:                                       | No information available  |
| Organisational measures to prevent exposure:                                   | Organization of work in order to reduce other worker's influence during work process.                                     |
| Technical measures to prevent exposure:  | Secure proper workspace ventilation in order to keep concentration levels in air below permitted levels.                  |

**8.2.2. Personal protection equipment**

|                                   |   |
|-----------------------------------|---|
| 8.2.2.1. Eye and face protection: | Safety glasses that stick to face (preventing splashing) (EN 166) or visor. |
| 8.2.2.2. Skin protection          |   |

|               |                                    |                      |              |
|---------------|------------------------------------|----------------------|--------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 |
|               |                                    | Version:             | 3            |

|          |   |  |
|----------|---|--|
|          | Hand protection:  | Protective gloves must be according to the EU Directive 2016/425/EEC and standard EN 374.<br>Glove material: nitrile rubber<br>Glove thickness: $\geq 0.50$ mm<br>Break through time: >480 min       |
|          | Other skin protection:                                  | Wear antistatic clothing made of natural fibers (such as cotton) with long sleeves (EN 13034), and shoes that cover the entire foot (EN 10335).  |
| 8.2.2.3. | Respiratory protection:                                 | Protective full face mask (EN 136) or half mask (EN 140) equipped with a filter for organic vapors, type "A" (boiling point >65°C) according to EN 14387) used when concentration levels exceed GVI. |
| 8.2.2.4. | Thermal hazards:  | No information available   |
| 8.2.3.   | Environmental exposure controls                         |  |
|          | Substance/mixture related measures to prevent exposure: | See Section 6  |
|          | Structural measures to prevent exposure:                | Use modern equipment.  |
|          | Organisational measures to prevent exposure:            | Adapt the work process to the required working conditions of the workplace.  |
|          | Technical measures to prevent exposure:                 | See Section 6  |

| SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES                 |   |                          |                          |
|--|---|--------------------------|--------------------------|
| 9.1. Information on basic physical and chemical properties |   |                          |                          |
|  |   | Value                    | Method                   |
|  | Physical state:                               | liquid                   | No information available |
|  | Color:  | colourless               | No information available |
|  | Odor:   | No information available | No information available |
|  | Odor threshold:                               | No information available | No information available |
|  | pH:   | No information available | No information available |
|  | Melting point / freezing point;               | No information available | No information available |
|  | Initial boiling point and boiling range:      | No information available | No information available |
|  | Flash point:                                  | No information available | No information available |
|  | Evaporation rate:                             | No information available | No information available |
|  | Flammability (solid, gas):                    | No information available | No information available |
|  | Upper/lower flammability or explosive limits: | No information available | No information available |
|  | Vapor pressure:                               | No information available | No information available |
|  | Vapor density:                                | No information available | No information available |
|  | Relative density:                             | No information available | No information available |

|               |                                    |                      |              |
|---------------|------------------------------------|----------------------|--------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 |
|               |                                    | Version:             | 3            |

|   |                          |                          |
|---|--------------------------|--------------------------|
| Bulk density:                                     | No information available | No information available |
| Solubility(ies):                                  | Soluble in water (20 °C) | No information available |
| Partition coefficient: n-octanol/water (log Kow): | No information available | No information available |
| Auto-ignition temperature:                        | No information available | No information available |
| Decomposition temperature:                        | No information available | No information available |
| Viscosity:  | No information available | No information available |
| Explosive properties:                             | No information available | No information available |
| Oxidising properties:                             | No information available | No information available |
| 9.2. Other information                            | -                        |                          |

| SECTION 10 STABILITY AND REACTIVITY       |  |  |
|---|--|--|
| 10.1. Reactivity:                         | See subsections 10.3 through 10.5.   |  |
| 10.2. Chemical stability:                 | The product is chemically stable under standard ambient conditions of storing and using. |  |
| 10.3. Possibility of hazardous reactions: | No information available   |  |
| 10.4. Conditions to avoid:                | No information available   |  |
| 10.5. Incompatible materials:             | No information available   |  |
| 10.6. Hazardous decomposition products:   | No information available   |  |

| SECTION 11 TOXICOLOGICAL INFORMATION                        |                          |         |   |               |                                 |
|---|--------------------------|---------|---|---------------|---------------------------------|
| 11.1. Information on toxicological effects                  |                          |         |   |               |                                 |
| Acute toxicity:   |                          |         |   |               |                                 |
| Route of exposure:  | Method                   | Species | Effective dose LD <sub>50</sub> /LC <sub>50</sub> or ATE <sub>mixture</sub> | Exposure time | Results                         |
| Oral exposure:  | No information available | rat     | LD <sub>50</sub>  | -             | 525 mg/kg (lithium carbonate)   |
| Dermal exposure:  | No information available | rat     | LD <sub>50</sub>  | -             | 2.000 mg/kg (lithium carbonate) |
| Inhalation exposure:  | No information available | rat     | LC <sub>50</sub>  | 4h            | >2.17 mg/l (lithium carbonate)  |
| Specific target organ toxicity – single exposure (STOT SE): |                          |         |   |               |                                 |
|   | Specific effects         |         | Target organ  |               | Note                            |
| Oral exposure:  | No information available |         | No information available  |               | -                               |
| Dermal exposure:  | No information available |         | No information available  |               | -                               |



|               |                                    |                      |              |          |   |
|---------------|------------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |          |   |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 | Version: | 3 |

|   |                          |                          |                          |                          |                          |      |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Inhalation exposure:  | No information available |                          | No information available |                          | -                        |      |
| <b>Respiratory irritation:</b>  |                          |                          |                          |                          |                          |      |
|   |                          | No information available |                          |                          |                          |      |
| <b>Irritation and corrosion</b>   |                          |                          |                          |                          |                          |      |
|   | Exposure time            | Species                  | Evaluation               | Method                   | Note                     |      |
| Skin irritation:  | -                        | -                        | -                        | -                        | -                        |      |
| Eye irritation:   | -                        | -                        | -                        | -                        | -                        |      |
| <b>Sensitization</b>  |                          |                          |                          |                          |                          |      |
| Dermal exposure:  | No information available |                          |                          |                          |                          |      |
| Inhalation exposure:  | No information available |                          |                          |                          |                          |      |
| <b>Symptoms related to the physical, chemical and toxicological characteristics</b> |                          |                          |                          |                          |                          |      |
| Oral exposure:  | No information available |                          |                          |                          |                          |      |
| Dermal exposure:  | No information available |                          |                          |                          |                          |      |
| Inhalation exposure:  | No information available |                          |                          |                          |                          |      |
| Eye exposure:   | No information available |                          |                          |                          |                          |      |
| <b>Repeated dose toxicity (subacute, subchronic, chronic)</b>                       |                          |                          |                          |                          |                          |      |
|   | Dose                     | Exposure time            | Species                  | Method                   | Evaluation               | Note |
| Subacute oral   | No information available | No information available | No information available | No information available | No information available | -    |
| Subacute dermal   | No information available | No information available | No information available | No information available | No information available | -    |
| Subacute inhalation   | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic oral   | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic dermal   | No information available | No information available | No information available | No information available | No information available | -    |

|               |                                    |                      |              |          |   |  |
|---------------|------------------------------------|----------------------|--------------|----------|---|--|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |          |   |  |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 | Version: | 3 |  |

|                       |                          |                          |                          |                          |                          |   |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|
| Subchronic inhalation | No information available | No information available | No information available | No information available | No information available | - |
| Chronic oral          | No information available | No information available | No information available | No information available | No information available | - |
| Chronic dermal        | No information available | No information available | No information available | No information available | No information available | - |
| Chronic inhalation    | No information available | No information available | No information available | No information available | No information available | - |

Specific target organ toxicity – repeated exposure (STOT RE):

|                       | Specific effects         | Target organ             | Note |
|-----------------------|--------------------------|--------------------------|------|
| Subacute oral         | No information available | No information available | -    |
| Subacute dermal       | No information available | No information available | -    |
| Subacute inhalation   | No information available | No information available | -    |
| Subchronic oral       | No information available | No information available | -    |
| Subchronic dermal     | No information available | No information available | -    |
| Subchronic inhalation | No information available | No information available | -    |
| Chronic oral          | No information available | No information available | -    |
| Chronic dermal        | No information available | No information available | -    |
| Chronic inhalation    | No information available | No information available | -    |

CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

|                                |                          |
|--------------------------------|--------------------------|
| Carcinogenicity:               | No information available |
| Mutagenicity <i>in-vitro</i> : | No information available |
| Genotoxicity:                  | No information available |
| Mutagenicity <i>in-vivo</i> :  | No information available |
| Germ cell mutagenicity:        | No information available |
| Reproductive toxicity:         | No information available |

Summary of evaluation of the CMR properties: -

|                                      |                          |
|--------------------------------------|--------------------------|
| <b>11.2. Practical experiences:</b>  |                          |
| Remarks relevant for classification: | No information available |
| Other remarks:                       | No information available |

|               |                                    |                      |              |            |
|---------------|------------------------------------|----------------------|--------------|------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |            |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 | Version: 3 |

|       |                |
|-------|----------------|
| 11.3. | General notes: |
|       | -              |

**SECTION 12 ECOLOGICAL INFORMATION:**

12.1. Toxicity

| Acute toxicity       | Dose             | Exposure time | Species                  | Method                   | Evaluation               | Note |
|----------------------|------------------|---------------|--------------------------|--------------------------|--------------------------|------|
| Fish                 | LC <sub>50</sub> | 96 hours      | No information available | No information available | No information available | -    |
| Crustacea:           | EC <sub>50</sub> | 48 hours      | No information available | No information available | No information available | -    |
| Algae/aquatic plants | IC <sub>50</sub> | 8 days        | No information available | No information available | No information available | -    |
| Microorganisms       | LC <sub>50</sub> | 72 hours      | -                        | -                        | -                        | -    |
| Chronic toxicity     | Dose             | Exposure time | Species                  | Method                   | Evaluation               | Note |
| Fish                 | LC <sub>50</sub> | 96 hours      | No information available | No information available | No information available | -    |
| Crustacea:           | EC <sub>50</sub> | 48 hours      | No information available | No information available | No information available | -    |
| Algae/aquatic plants | IC <sub>50</sub> | 72 hours      | No information available | No information available | No information available | -    |
| Other organisms      | -                | -             | -                        | -                        | -                        | -    |

12.2. Persistence and degradability

| Abiotic degradation |                          |                          |                          |      |
|---------------------|--------------------------|--------------------------|--------------------------|------|
|                     | Degradation half-lives   | Method                   | Evaluation               | Note |
| Marine water        | No information available | No information available | No information available | -    |
| Fresh water         | No information available | No information available | No information available | -    |
| Air                 | No information available | No information available | No information available | -    |
| Soil                | No information available | No information available | No information available | -    |

|               |                                    |                      |              |            |
|---------------|------------------------------------|----------------------|--------------|------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |            |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 | Version: 3 |

| Biodegradation           |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| % Degradation            | Time (days)              | Method                   | Evaluation               | Note                     |
| No information available | No information available | No information available | No information available | No information available |
|                          |                          |                          |                          |                          |
|                          |                          |                          |                          |                          |

**12.3. Bioaccumulative potential**

| Partition coefficient: n-octanol/water (log Kow): |                          |    |    |                          |                          |      |
|---|--------------------------|----|----|--------------------------|--------------------------|------|
| Value   | Concentration            | pH | °C | Method                   | Evaluation               | Note |
| -   | No information available | -  | -  | No information available | No information available | -    |
|   |                          |    |    |                          |                          |      |
|   |                          |    |    |                          |                          |      |

**Bioconcentration factor (BCF)**

| Value                    | Species                  | Method                   | Evaluation               | Note                     |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| No information available | No information available | No information available | No information available | No information available |
|                          |                          |                          |                          |                          |
|                          |                          |                          |                          |                          |

**Chronic ecotoxicity**

| Value  | Dose             | Exposure time            | Species                  | Method                   | Evaluation               | Note |
|--|------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Chronic toxicity on fish                         | LC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |
| Chronic toxicity on crustacea ( <i>Daphnia</i> ) | EC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |
|  |                  |                          |                          |                          |                          |      |

**12.4. Mobility in soil**

| Known or predicted distribution in environmental compartments: |    |               |        |      |
|--|----|---------------|--------|------|
| No information available                                       |    |               |        |      |
| Surface tension:   |    |               |        |      |
| Value  | °C | Concentration | Method | Note |
|  |    |               |        |      |

|               |                                    |                      |              |          |   |
|---------------|------------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |          |   |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 | Version: | 3 |

|                          |                          |                          |                          |   |
|--------------------------|--------------------------|--------------------------|--------------------------|---|
| No information available | No information available | No information available | No information available | - |
|                          |                          |                          |                          |   |
|                          |                          |                          |                          |   |

Adsorption / desorption

| Transport  | A/D coefficient Henry's constant | log Kow                  | Evaporation rate         | Method                   | Note |
|------------|----------------------------------|--------------------------|--------------------------|--------------------------|------|
| Soil-water | No information available         | No information available | No information available | No information available | -    |
| Water-air  | No information available         | No information available | No information available | No information available | -    |
| Soil-air   | No information available         | No information available | No information available | No information available | -    |

**12.5. Results of PBT and vPvB assessment**

No information available

**12.6. Other adverse effects**

No information available

**SECTION 13 DISPOSAL CONSIDERATIONS**

**13.1. Waste treatment methods**

**13.1.1. Product/Packaging disposal:**

Submit for disposal to the legal person authorized by the Ministry of Environmental and Nature Protection.

**13.1.2. Waste codes/waste designations according to Law:**

No information available

**13.1.3. Waste treatment – relevant information:**

No information available

**13.1.4. Sewage disposal – relevant information:**

Waste must not be disposed of into the sewage system.

|               |                                    |                      |              |          |   |
|---------------|------------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |          |   |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 | Version: | 3 |

|         |   |
|---------|---|
| 13.1.5. | Other disposal recommendations:   |
|         | Do not dispose of the product's remains into the sewage system. Submit the remains to the collectors authorized by the ministry in charge. Do not dispose of the packaging into the sewage system. Submit the packaging to the collectors authorized by the ministry in charge. Do not dispose of in places where ignition may occur. |

|         |                                |
|---------|--------------------------------|
| 13.1.6. | Relevant Community provisions: |
|         | -                              |

**SECTION 14 TRANSPORT INFORMATION**

|                               |                                       |
|-------------------------------|---------------------------------------|
|                               | Transporting/shipment by road (ADR)   |
| UN number:                    | Not subject to transport regulations. |
| UN proper shipping name:      | -                                     |
| Transport hazard class(es):   | -                                     |
| Packing group:                | -                                     |
| Environmentally hazardous:    | -                                     |
| Special precautions for user: | -                                     |

|                               |                                       |
|-------------------------------|---------------------------------------|
|                               | Transporting/shipment by rail (RID)   |
| UN number:                    | Not subject to transport regulations. |
| UN proper shipping name:      | -                                     |
| Transport hazard class(es):   | -                                     |
| Packing group:                | -                                     |
| Environmentally hazardous:    | -                                     |
| Special precautions for user: | -                                     |

|                               |                                       |
|-------------------------------|---------------------------------------|
|                               | Inland waterway transport (ADN)       |
| UN number:                    | Not subject to transport regulations. |
| UN proper shipping name:      | -                                     |
| Transport hazard class(es):   | -                                     |
| Packing group:                | -                                     |
| Environmentally hazardous:    | -                                     |
| Special precautions for user: | -                                     |

|                               |                                       |
|-------------------------------|---------------------------------------|
|                               | Transporting/shipment by sea (IMDG)   |
| UN number:                    | Not subject to transport regulations. |
| UN proper shipping name:      | -                                     |
| Transport hazard class(es):   | -                                     |
| Packing group:                | -                                     |
| Environmentally hazardous:    | -                                     |
| Special precautions for user: | -                                     |

|               |                                    |                      |              |
|---------------|------------------------------------|----------------------|--------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 |
|               |                                    | Version:             | 3            |

|  |                                       |
|--|---------------------------------------|
| Transporting/shipment by air (ICAO-TI/IATA-DGR)                    |                                       |
| UN number:   | Not subject to transport regulations. |
| UN proper shipping name:   | -                                     |
| Transport hazard class(es):  | -                                     |
| Packing group:   | -                                     |
| Environmentally hazardous:   | -                                     |
| Special precautions for user:                                      | -                                     |
| Further information: The product is not subject to classification. |                                       |

| <b>SECTION 15 REGULATORY INFORMATION</b> |   |
|--|---|
| 15.1.                                    | Safety, health and environmental regulations/legislation specific for the substance or mixture  |
|  | EU regulations  |
|  | Authorization and/or restrictions of use  |
|  | Authorizations: -   |
|  | Restrictions: -   |
|  | Other EU regulations: EC Regulation No. 1906/2007 and EC Regulation No. 1272/2008 of the European Parliament and the European Council;<br>The European Commission Regulation No. 453/2006 of 2010 on changes and amendments to the Regulation (EC) No. 1907/2006 of the European Parliament and Council on registration, evaluation, authorization and restriction of chemical substances (REACH);<br>EC Regulation No. 2037/2000 of the European Parliament and Council from 29 June 2000 on substances that damage the ozone layer;<br>EC Regulation No. 689/2008 of the European Parliament and Council from 17 June 2008 concerning the export and import of dangerous chemicals;<br>EC Regulation No. 850/2004 of the European Parliament and Council from 29 April 2004 about persistent organic pollutants;<br>Directive 2008/98/EC of the European Parliament and Council of 19 November 2008 on waste and repealing certain Directives |
|  | Information according 1999/13/EC about limitation of emissions of volatile organic compounds (VOC-guideline)  |
|  | National legislation: Chemicals Act, Regulation on classification, packaging and labeling of dangerous substances, Ordinance on occupational exposure limit values and on biological limit values, Regulation on categories, types and classification of waste with a waste catalog and list of hazardous waste, Ordinance on writing Material safety data sheet, Transport of Hazardous Substances Act   |
| 15.2.                                    | Chemical safety assessment  |
|  | None  |

|               |                                    |                      |              |
|---------------|------------------------------------|----------------------|--------------|
| Trading name: | <b>LITHIUM CARBONATE, SOLUTION</b> |                      |              |
| Product code: | LK-OT-X**                          | Date of compilation: | 03 July 2019 |
|               |                                    | Version:             | 3            |

| <b>SECTION 16 Other information</b> |  |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
|-------------------------------------|--|-------------------------------|-----------------------------------|-----------------------|---|------------------|-------------------------------|------------------|---------------------------|---------|--|
| 16.1.                               | Indication of changes: -   |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| 16.2.                               | Abbreviations and acronyms: <table border="0" style="width: 100%;"> <tr> <td style="width: 30%;">PBT</td> <td>Stable, bioaccumulative and toxic</td> </tr> <tr> <td>vPvB</td> <td>Strongly stable and strongly bioaccumulative.</td> </tr> <tr> <td>LD<sub>50</sub></td> <td>Lethal dose, 50%</td> </tr> <tr> <td>LC<sub>50</sub></td> <td>Lethal concentration, 50%</td> </tr> <tr> <td>STOT-SE</td> <td>Specific target organ toxicity - single exposure</td> </tr> </table> | PBT                           | Stable, bioaccumulative and toxic | vPvB                  | Strongly stable and strongly bioaccumulative. | LD <sub>50</sub> | Lethal dose, 50%              | LC <sub>50</sub> | Lethal concentration, 50% | STOT-SE | Specific target organ toxicity - single exposure |
| PBT                                 | Stable, bioaccumulative and toxic  |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| vPvB                                | Strongly stable and strongly bioaccumulative.  |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| LD <sub>50</sub>                    | Lethal dose, 50%   |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| LC <sub>50</sub>                    | Lethal concentration, 50%  |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| STOT-SE                             | Specific target organ toxicity - single exposure   |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| 16.3.                               | Key literature references and source of data: -  |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| 16.4.                               | Classification and procedure used to derive the classification for mixture according to Regulation (EC) 1272/2008 (CLP)  |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
|                                     | <table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 30%;">Classification</th> <th>Classification procedure</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>-</td> </tr> </tbody> </table>   | Classification                | Classification procedure          | -                     | -   |                  |                               |                  |                           |         |  |
| Classification                      | Classification procedure   |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| -                                   | -  |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| 16.5.                               | Relevant H statements (number and full text)   |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
|                                     | <table border="0" style="width: 100%;"> <tr> <td style="width: 10%;">H:</td> <td style="width: 20%;">H302</td> <td>Harmful if swallowed.</td> </tr> <tr> <td></td> <td>H319</td> <td>Causes serious eye irritation</td> </tr> </table>   | H:                            | H302                              | Harmful if swallowed. |   | H319             | Causes serious eye irritation |                  |                           |         |  |
| H:                                  | H302   | Harmful if swallowed.         |                                   |                       |   |                  |                               |                  |                           |         |  |
|                                     | H319   | Causes serious eye irritation |                                   |                       |   |                  |                               |                  |                           |         |  |
| 16.6.                               | Training advice: -   |                               |                                   |                       |   |                  |                               |                  |                           |         |  |
| 16.7.                               | Further information: <p>** "X" in the product code marks different volumes (different packagings of the product)</p> <p>We are not responsible for consequences in case of failure to comply with instructions for use or improper use of the product described in this material safety data sheet.</p>  |                               |                                   |                       |   |                  |                               |                  |                           |         |  |

|  |
|--|
| <b>ANNEX:</b>  |
| <b>EXPOSURE SCENARIO RESULTING TO CHEMICAL SAFETY ASSESSMENT</b> |
| -  |



|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

|     |   |  |
|-----|---|--|
| 1.1 | Product identifier  |  |
|     | Trading name:   | SILVER AMMONIA REAGENT   |
|     | Chemical name:  | -  |
|     | Catalogue number:   | SAR-OT-X**   |
| 1.2 | Relevant identified uses of the substance or mixture and uses advised against |  |
|     | Uses:   | For use with Von Kossa ana Masson Fontana staining kits.   |
|     | Uses advised against:   | Only the identified uses are advised.  |
|     | Reason why uses advised against:  | The product is intended for use only as an <i>in vitro</i> diagnostic medical device, registered at the Agency for Medicinal Products and Medical Devices and there is no reason to use it for other purposes. |
| 1.3 | Details of the supplier of the safety data sheet                              |  |
|     | Supplier:   | BioGnost Ltd.  |
|     | Address:  | Medjugorska 59, Zagreb   |
|     | Telephone number:   | +385 1 2409997   |
|     | Telefax.:   | +385 1 2404039   |
|     | e-mail of competent person:   | <a href="mailto:msds@biognost.hr">msds@biognost.hr</a>   |
|     | National contact:   | -  |
| 1.4 | Emergency telephone number  |  |
|     | National Protection and Rescue Directorate:                                   | 112  |
|     | Medical information:  | +385 1 2348 342  |
|     | Other information:  | -  |

**SECTION 2. Hazards identification**

|  |  |                         |
|--|--|-------------------------|
| 2.1  | Classification of the substance or mixture                     |                         |
| 2.1.1  | Classification according to Regulation (EC) No 1272/2008 (CLP) |                         |
|  | Hazard class and category code:                                | Hazard statements*:     |
|  | Aquatic Chronic 3  | H412                    |
| 2.1.2.   | Additional information   |                         |
|  | -  |                         |
| *For full text of Hazard- and EU Hazard-statements: see SECTION 16 |  |                         |
| 2.2  | Label elements   |                         |
|  | Product identification:  | SILVER AMMONIA SOLUTION |
|  | Identification number:   | -                       |
|  | Authorization number:  | -                       |
|  | Hazard pictograms:   | -                       |
|  | Signal word:   | -                       |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|                                       |   |
|---------------------------------------|---|
| Hazard statements:                    | H412 Harmful to aquatic life with long lasting effects.   |
| Precautionary statements:             | P273 Avoid release to the environment<br>P501 Dispose of contents/container in accordance with local regulations. |
| Supplemental hazard information (EU): | -   |
| 2.3                                   | Other hazards   |
|                                       | -   |

| SECTION 3. Composition/information on ingredients |                       |                             |                     |   |
|---|-----------------------|-----------------------------|---------------------|---|
| CAS/EC/ Index number                              | REACH Registration No | Weight % content (or range) | Identification name | Classification according to Regulation (EC) No 1272/2008 (CLP)                              |
| 7761-88-8/<br>231-853-9/<br>047-001-00-2          | -                     | < 1 %                       | silver nitrate      | Ox. Sol. 2; H272<br>Skin Corr. 1B; H314<br>Aquatic Acute 1; H400<br>Aquatic Chronic 1; H410 |
| 1336-21-6/<br>215-647-6/<br>007-001-01-2          | -                     | < 2 %                       | ammonia             | Skin Corr. 1B; H314<br>Aquatic Acute 1; H400  |

| SECTION 4. First aid measures       |  |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
|-------------------------------------|--|-----------------------|---|-----------------------|---|-------------------------|--|------------------------|---|----------------------|---|-------------------------------------|---|
| 4.1                                 | Description of first aid measures  |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
|                                     | <table border="1"> <tr> <td>General notes:</td> <td>If the suggested first aid measures do not prove sufficient, seek medical attention.</td> </tr> <tr> <td>Following inhalation:</td> <td>Carry the afflicted person out of the contaminated area into a well-ventilated area or out for fresh air. In case of difficult breathing, provide the afflicted person with oxygen.</td> </tr> <tr> <td>Following skin contact:</td> <td>Remove contaminated clothing. Immediately wash with plenty of water for at least 20 minutes. Seek medical assistance if the symptoms of irritation remain.</td> </tr> <tr> <td>Following eye contact:</td> <td>Rinse out with plenty of water with the eyelid held wide open for at least 20 minutes. If the symptoms remain, immediately call in ophthalmologist.</td> </tr> <tr> <td>Following ingestion:</td> <td>Rinse the oral cavity, drink 1-2 glasses of water. Immediately consult a physician and show the container or label. In case of swallowing large quantities, transport the afflicted person to the hospital.</td> </tr> <tr> <td>Self-protection of the first aider:</td> <td>-</td> </tr> </table> | General notes:        | If the suggested first aid measures do not prove sufficient, seek medical attention.                | Following inhalation: | Carry the afflicted person out of the contaminated area into a well-ventilated area or out for fresh air. In case of difficult breathing, provide the afflicted person with oxygen. | Following skin contact: | Remove contaminated clothing. Immediately wash with plenty of water for at least 20 minutes. Seek medical assistance if the symptoms of irritation remain. | Following eye contact: | Rinse out with plenty of water with the eyelid held wide open for at least 20 minutes. If the symptoms remain, immediately call in ophthalmologist. | Following ingestion: | Rinse the oral cavity, drink 1-2 glasses of water. Immediately consult a physician and show the container or label. In case of swallowing large quantities, transport the afflicted person to the hospital. | Self-protection of the first aider: | - |
| General notes:                      | If the suggested first aid measures do not prove sufficient, seek medical attention.   |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
| Following inhalation:               | Carry the afflicted person out of the contaminated area into a well-ventilated area or out for fresh air. In case of difficult breathing, provide the afflicted person with oxygen.  |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
| Following skin contact:             | Remove contaminated clothing. Immediately wash with plenty of water for at least 20 minutes. Seek medical assistance if the symptoms of irritation remain.   |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
| Following eye contact:              | Rinse out with plenty of water with the eyelid held wide open for at least 20 minutes. If the symptoms remain, immediately call in ophthalmologist.  |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
| Following ingestion:                | Rinse the oral cavity, drink 1-2 glasses of water. Immediately consult a physician and show the container or label. In case of swallowing large quantities, transport the afflicted person to the hospital.  |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
| Self-protection of the first aider: | -  |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
| 4.2                                 | Most important symptoms and effects, both acute and delayed  |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |
|                                     | <table border="1"> <tr> <td>Following inhalation:</td> <td>Depending on concentration and exposure time, it may lead to mucosa irritation, cough, and dyspnea.</td> </tr> </table>   | Following inhalation: | Depending on concentration and exposure time, it may lead to mucosa irritation, cough, and dyspnea. |                       |   |                         |  |                        |   |                      |   |                                     |   |
| Following inhalation:               | Depending on concentration and exposure time, it may lead to mucosa irritation, cough, and dyspnea.  |                       |   |                       |   |                         |  |                        |   |                      |   |                                     |   |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|     |  |   |
|-----|--|---|
|     | Following skin contact:  | Depending on concentration and exposure time, it may lead to irritation, rash, skin drying and skin cracking. |
|     | Following eye contact:   | Depending on concentration and exposure time, it may lead to irritation, tearing, redness and pain.           |
|     | Following ingestion:   | Danger of gastric perforation.  |
| 4.3 | Indication of any immediate medical attention and special treatment needed |   |
|     | -  |   |

|   |  |   |
|---|--|---|
| <b>SECTION 5. Firefighting measures</b> |  |   |
| 5.1                                     | Extinguishing media  |   |
|   | Suitable extinguishing media:  | Water spray, foam, dry powder, CO <sub>2</sub> or alcohol resistant foam.                           |
|   | Unsuitable extinguishing media:  | Water with full jet.  |
| 5.2                                     | Special hazards arising from the substance or mixture  |   |
|   | Hazardous combustion products:   | Nitrogen oxides (NO <sub>x</sub> ). During heating or in case of fire poisonous gases are produced. |
| 5.3                                     | Advice for firefighters  |   |
|   | Use a self-contained open-circuit compressed air breathing apparatus and fireproof clothing. |   |
| 5.4                                     | Additional information   |   |
|   | Do not contaminate the environment with extinguishing media.                                 |   |

|   |   |  |
|---|---|--|
| <b>SECTION 6. Accidental release measures</b> |   |  |
| 6.1   | Personal precautions, protective equipment and emergency procedures   |  |
| 6.1.1.  | For non-emergency personnel   |  |
|   | Protective equipment:   | Use personal protective equipment (see Section 8).   |
|   | Accident prevention methods:  | Evacuate members of all non-essential personnel and those members without protective equipment. Avoid breathing vapors and avoid contact with skin and eyes. Do not smoke. |
|   | Emergency procedures:   | Mark the area using proper signs.  |
| 6.1.2.  | For emergency responders:   |  |
|   | Use protective equipment; in case of inadequate ventilation use adequate airways protective equipment (see Section 8).                                  |  |
| 6.2   | Environmental precautions:  |  |
|   | Do not dispose of in sewage, drainage system and waterways. In case of large spillage contact National Protection and Rescue Directorate (NPRD) on 112. |  |
| 6.3   | Methods and material for containment and cleaning up  |  |
| 6.3.1.  | Bunding, covering of drains; capping procedures:  | Sand or clay barriers.   |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|        |  |   |
|--------|--|---|
| 6.3.2. | Cleaning up:   | Where possible, the substance can be absorbed by using absorbing material. Place the waste material in tightly closed impermeable containers. Store the substance in well ventilated storage rooms until disposal. Submit for disposal to the legal persons authorized by the Ministry of Environmental and Nature Protection. After disposal of the products, wash the area and involved materials with water. |
| 6.3.3. | Other information:   | Do not use incompatible materials (see Section 10).   |
| 6.4    | Reference to other sections  |   |
|        | See Section 7 for information on safe handling.<br>See Section 8 for information on personal protection equipment.<br>See Section 13 for disposal information. |   |

| <b>SECTION 7. Handling and storage</b> |  |  |
|--|--|--|
| 7.1                                    | Precautions for safe handling  |  |
| 7.1.1.                                 | Protection measures  |  |
|  | Measures to prevent fire:  | Use in well ventilated storage rooms. Keep away from sources of ignition and heat.   |
|  | Measures to prevent aerosol and dust generation:   | Secure proper ventilation.   |
|  | Measures to protect the environment:   | Prevent spilling into the sewage system and waterways.   |
|  | Other measures:  | -  |
| 7.1.2.                                 | Advice on general occupational hygiene:  |  |
|  | Do not eat, drink or smoke in the workspace. Thoroughly wash hands after work and before eating. |  |
| 7.2                                    | Conditions for safe storage, including any incompatibilities                                     |  |
|  | Technical measures and storage conditions:   | Keep in tightly closed and upright set containers at temperatures ranging from +2 to +8 °C.  |
|  | Packaging materials:   | Manufacturer's original packaging. Avoid metal containers.   |
|  | Requirements for storage rooms and vessels:  | Keep away from food and drink. Keep the containers tightly closed.   |
|  | Advices for storage equipment:   | The storage must be made of hard material; floors must be resistant to chemicals. There must be no drain that directly leads into sewage system. Secure proper ventilation.  |
|  | Further information on storage conditions:   | Do not place the unused material in the storage room and do not use empty containers for storing other chemicals. Do not store with incompatible materials (see Section 10). |
| 7.3                                    | Specific end use(s)  |  |
|  | Recommendations:   | -  |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|                                       |   |
|---------------------------------------|---|
| Industrial sector specific solutions: | - |
|---------------------------------------|---|

**SECTION 8. Exposure controls/personal protection**

**8.1 Control parameters**

| Substance      | CAS No    | Occupational exposure limit values/short term values |                   | Biological limit values |
|----------------|-----------|--|-------------------|-------------------------|
|                |           | ppm  | mg/m <sup>3</sup> |                         |
| Silver (as Ag) | -         | -  | 0.01              | -                       |
| Ammonia        | 1336-21-6 | 20/50  | 14/36             |                         |

Substance name: -

EC No: - CAS No: -

**DNEL**

**Industrial**

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

Critical physical parameters: solubility, flammability, corrosivity: -

**Consumer**

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

**PNEC**

| Environmental protection target    | PNEC                     |
|------------------------------------|--------------------------|
| Fresh water                        | no information available |
| Freshwater sediments               | no information available |
| Marine water                       | no information available |
| Marine sediments                   | no information available |
| Food chain                         | no information available |
| Microorganisms in sewage treatment | no information available |
| Soil (agricultural)                | no information available |
| Air                                | no information available |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|   |  |  |
|---|--|--|
| 8.2 Exposure controls                   |  |  |
| 8.2.1. Appropriate engineering controls |  |  |
|   | Substance/mixture related measures to prevent exposure during identified uses: | Use the product in well ventilated rooms. Use personal protective equipment. Do not eat, drink or smoke in the workspace.  |
|   | Structural measures to prevent exposure:                                       | In accordance with Section 7.  |
|   | Organisational measures to prevent exposure:                                   | Organization of work in order to reduce other worker's influence during work process.  |
|   | Technical measures to prevent exposure:  | Secure proper workspace ventilation in order to keep concentration levels in air below permitted levels. Secure stations for rinsing eyes and showering.   |
| 8.2.2. Personal protection equipment    |  |  |
| 8.2.2.1.                                | Eye and face protection:   | Safety glasses that stick to face (EN 166) or visor in case of lower levels of concentration in air; protective gas mask that covers the entire face in case of higher levels of concentration in air. |
| 8.2.2.2.                                | Skin protection  |  |
|   | Hand protection:   | Protective nitrile gloves, >0.11 mm thick (EN 374).  |
|   | Other skin protection:   | Wear antistatic clothing made of natural fibers (such as cotton) with long sleeves (EN 340) and shoes that cover the entire foot.  |
| 8.2.2.3.                                | Respiratory protection:  | Not required under normal conditions of use. Use suitable respiratory protective device when high concentrations are present.  |
| 8.2.2.4.                                | Thermal hazards:   | No information available   |
| 8.2.3. Environmental exposure controls  |  |  |
|   | Substance/mixture related measures to prevent exposure:                        | See Section 6  |
|   | Structural measures to prevent exposure:                                       | Use modern equipment.  |
|   | Organisational measures to prevent exposure:                                   | Adapt the work process to the required working conditions of the workplace.  |
|   | Technical measures to prevent exposure:  | See Section 6  |

|   |                 |        |                          |
|---|-----------------|--------|--------------------------|
| <b>SECTION 9. Physical and chemical properties</b>        |                 |        |                          |
| 9.1 Information on basic physical and chemical properties |                 |        |                          |
|   |                 | Value  | Method                   |
|   | Physical state: | liquid | No information available |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|   |                          |                          |
|---|--------------------------|--------------------------|
| Colour:   | colourless               | No information available |
| Odour:  | mild ammonia like        | No information available |
| Odor threshold:                                   | No information available | No information available |
| pH:   | No information available | No information available |
| Melting point / freezing point;                   | No information available | No information available |
| Initial boiling point and boiling range:          | No information available | No information available |
| Flash point:                                      | No information available | No information available |
| Evaporation rate:                                 | No information available | No information available |
| Flammability (solid, gas):                        | No information available | No information available |
| Upper/lower flammability or explosive limits:     | No information available | No information available |
| Vapour pressure:                                  | No information available | No information available |
| Vapour density:                                   | No information available | No information available |
| Relative density:                                 | No information available | No information available |
| Bulk density:                                     | No information available | No information available |
| Solubility(ies):                                  | No information available | No information available |
| Partition coefficient: n-octanol/water (log Kow): | No information available | No information available |
| Auto-ignition temperature:                        | No information available | No information available |
| Decomposition temperature:                        | No information available | No information available |
| Viscosity:  | No information available | No information available |
| Explosive properties:                             | No information available | No information available |
| Oxidising properties:                             | No information available | No information available |

|     |                   |
|-----|-------------------|
| 9.2 | Other information |
|     | -                 |

**SECTION 10. Stability and reactivity**

|      |                                     |   |
|------|-------------------------------------|---|
| 10.1 | Reactivity:                         | See subsections 10.3 through 10.5.  |
| 10.2 | Chemical stability:                 | The product is chemically stable under standard ambient conditions of storing and using (room temperature). |
| 10.3 | Possibility of hazardous reactions: | No dangerous reactions known.   |
| 10.4 | Conditions to avoid:                | No information available  |
| 10.5 | Incompatible materials:             | No information available  |
| 10.6 | Hazardous decomposition products:   | No information available  |

**SECTION 11. Toxicological information**

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|   |                           |               |   |               |            |      |
|---|---------------------------|---------------|---|---------------|------------|------|
| <b>11.1 Information on toxicological effects</b>                                    |                           |               |   |               |            |      |
| <b>Acute toxicity:</b>  |                           |               |   |               |            |      |
| Route of exposure:  | Method                    | Species       | Dose LD <sub>50</sub> /LC <sub>50</sub> or ATE <sub>mix</sub> | Exposure time | Results    |      |
| Oral:   | -                         | -             | -   | -             | -          |      |
| Dermal:   | -                         | -             | -   | -             | -          |      |
| Inhalation:   | -                         | -             | -   | -             | -          |      |
| <b>Specific target organ toxicity – single exposure (STOT SE):</b>                  |                           |               |   |               |            |      |
|   | Specific effects          |               | Target organ  |               | Note       |      |
| Oral:   | No information available  |               | No information available                                      |               | -          |      |
| Dermal:   | No information available  |               | No information available                                      |               | -          |      |
| Inhalation:   | No information available  |               | No information available                                      |               | -          |      |
| <b>Aspiration hazard:</b>   |                           |               |   |               |            |      |
|   |                           |               | No information available.                                     |               |            |      |
| <b>Irritation and corrosion</b>   |                           |               |   |               |            |      |
|   | Exposure time             | Species       | Evaluation  | Method        | Note       |      |
| Skin corrosion/irritation:  | -                         | -             | -   | -             | -          |      |
| Serious eye damage/irritation   | -                         | -             | -   | -             | -          |      |
| <b>Sensitization</b>  |                           |               |   |               |            |      |
| Skin sensitization:   | -                         |               |   |               |            |      |
| Respiratory sensitization:  | -                         |               |   |               |            |      |
| <b>Symptoms related to the physical, chemical and toxicological characteristics</b> |                           |               |   |               |            |      |
| Oral exposure:  | No information available. |               |   |               |            |      |
| Dermal exposure:  | No information available. |               |   |               |            |      |
| Inhalation exposure:  | No information available. |               |   |               |            |      |
| Eye exposure:   | No information available. |               |   |               |            |      |
| <b>Repeated dose toxicity (subacute, subchronic, chronic)</b>                       |                           |               |   |               |            |      |
|   | Dose                      | Exposure time | Species   | Method        | Evaluation | Note |



|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|                       |                          |                          |                          |                          |                          |   |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|
| Subacute oral         | No information available | No information available | No information available | No information available | No information available | - |
| Subacute dermal       | No information available | No information available | No information available | No information available | No information available | - |
| Subacute inhalation   | No information available | No information available | No information available | No information available | No information available | - |
| Subchronic oral       | No information available | No information available | No information available | No information available | No information available | - |
| Subchronic dermal     | No information available | No information available | No information available | No information available | No information available | - |
| Subchronic inhalation | No information available | No information available | No information available | No information available | No information available | - |
| Chronic oral          | No information available | No information available | No information available | No information available | No information available | - |
| Chronic dermal        | No information available | No information available | No information available | No information available | No information available | - |
| Chronic inhalation    | No information available | No information available | No information available | No information available | No information available | - |

Specific target organ toxicity – repeated exposure (STOT RE):

|                       | Specific effects         | Target organ             | Note |
|-----------------------|--------------------------|--------------------------|------|
| Subacute oral         | No information available | No information available | -    |
| Subacute dermal       | No information available | No information available | -    |
| Subacute inhalation   | No information available | No information available | -    |
| Subchronic oral       | No information available | No information available | -    |
| Subchronic dermal     | No information available | No information available | -    |
| Subchronic inhalation | No information available | No information available | -    |
| Chronic oral          | No information available | No information available | -    |
| Chronic dermal        | No information available | No information available | -    |
| Chronic inhalation    | No information available | No information available | -    |

CMR effects (carcinogenicity; mutagenicity; reproductive toxicity)

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|             |  |                           |
|-------------|--|---------------------------|
|             | Carcinogenicity:                             | No information available. |
|             | Mutagenicity <i>in vitro</i> :               | No information available. |
|             | Genotoxicity:                                | No information available. |
|             | Mutagenicity <i>in vivo</i> :                | No information available. |
|             | Germ cell mutagenicity:                      | No information available. |
|             | Reproductive toxicity:                       | No information available. |
|             | Summary of evaluation of the CMR properties: | No information available. |
| <b>11.2</b> | <b>Practical experiences:</b>                |                           |
|             | Classification observations:                 | -                         |
|             | Other observations:                          | -                         |
| <b>11.3</b> | <b>General notes:</b>                        |                           |
|             | -  |                           |

| <b>SECTION 12. Ecological information</b> |                  |               |   |                          |                          |                              |
|---|------------------|---------------|---|--------------------------|--------------------------|------------------------------|
| <b>12.1 Toxicity</b>                      |                  |               |   |                          |                          |                              |
| Acute (short-term) toxicity               | Dose             | Exposure time | Species                                       | Method                   | Evaluation               | Note                         |
| Fish                                      | LC <sub>50</sub> | 96 hours      | Leuciscus idus (Golden orfe)                  | -                        | -                        | 0.011 mg/l (silver nitrate)  |
| Crustacea:                                | EC <sub>50</sub> | 48 hours      | <i>Daphnia magna</i> (Water flea)             | -                        | -                        | 0.0082 mg/l (silver nitrate) |
| Algae/aquatic plants                      | IC <sub>50</sub> | 4 days        | Pseudokirchneriella subcapitata (green algae) | -                        | -                        | 0.19 mg/l (silver nitrate)   |
| Other organisms                           | -                | -             | -   | -                        | -                        | -                            |
| Chronic (long-term) toxicity              | Dose             | Exposure time | Species                                       | Method                   | Evaluation               | Note                         |
| Fish                                      | LC <sub>50</sub> | 96 hours      | No information available                      | No information available | No information available | -                            |
| Crustacea:                                | EC <sub>50</sub> | 48 hours      | No information available                      | No information available | No information available | -                            |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|                      |                  |          |                          |                          |                          |   |
|----------------------|------------------|----------|--------------------------|--------------------------|--------------------------|---|
| Algae/aquatic plants | IC <sub>50</sub> | 72 hours | No information available | No information available | No information available | - |
| Other organisms      | -                | -        | -                        | -                        | -                        | - |

**12.2 Persistence and degradability**

Abiotic degradation

|              | Degradation half-lives   | Method                   | Evaluation               | Note |
|--------------|--------------------------|--------------------------|--------------------------|------|
| Marine water | No information available | No information available | No information available | -    |
| Fresh water  | No information available | No information available | No information available | -    |
| Air          | No information available | No information available | No information available | -    |
| Soil         | No information available | No information available | No information available | -    |

Biodegradation

| % Degradation            | Time (days)              | Method                   | Evaluation               | Note                     |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| No information available | No information available | No information available | No information available | No information available |
|                          |                          |                          |                          |                          |

**12.3 Bioaccumulative potential**

Octanol-water partition coefficient (log K<sub>ow</sub>)

| Value | Concentration | pH | °C | Method | Evaluation | Note |
|-------|---------------|----|----|--------|------------|------|
| -     | -             | -  | -  | -      | -          | -    |
|       |               |    |    |        |            |      |

Bioconcentration factor (BCF)

| Value                    | Species                  | Method                   | Evaluation               | Note |
|--------------------------|--------------------------|--------------------------|--------------------------|------|
| No information available | No information available | No information available | No information available | -    |
|                          |                          |                          |                          |      |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

| Chronic ecotoxicity                              |                  |                          |                          |                          |                          |      |
|--|------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Value  | Dose             | Exposure time            | Species                  | Method                   | Evaluation               | Note |
| Chronic toxicity on fish                         | LC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |
| Chronic toxicity on crustacea ( <i>Daphnia</i> ) | EC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |

**12.4 Mobility in soil**

| Known or predicted distribution in environmental compartments: |                          |                          |                          |  |      |  |
|--|--------------------------|--------------------------|--------------------------|--|------|--|
| No information available                                       |                          |                          |                          |  |      |  |
| Surface tension:   |                          |                          |                          |  |      |  |
| Value  | °C                       | Concentration            | Method                   |  | Note |  |
| No information available                                       | No information available | No information available | No information available |  | -    |  |

**Adsorption / desorption**

| Transport  | A/D coefficient<br>Henry's constant | log Kow                  | Evaporation rate         | Method                   | Note |
|------------|-------------------------------------|--------------------------|--------------------------|--------------------------|------|
| Soil-water | No information available            | No information available | No information available | No information available | -    |
| Water-air  | No information available            | No information available | No information available | No information available | -    |
| Soil-air   | No information available            | No information available | No information available | No information available | -    |

**12.5 Results of PBT and vPvB assessment**

|                          |  |  |  |  |  |  |
|--------------------------|--|--|--|--|--|--|
| No information available |  |  |  |  |  |  |
|--------------------------|--|--|--|--|--|--|

**12.6 Other adverse effects**

|                          |  |  |  |  |  |  |
|--------------------------|--|--|--|--|--|--|
| No information available |  |  |  |  |  |  |
|--------------------------|--|--|--|--|--|--|

**SECTION 13. Disposal considerations**

**13.1 Waste treatment methods**

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|         |   |
|---------|---|
| 13.1.1. | <b>Product/Packaging disposal:</b>  |
|         | Submit for disposal to the legal person authorized by the Ministry of Environmental and Nature Protection.  |
| 13.1.2. | <b>Waste codes/waste designations according to Law:</b>   |
|         | Packaging that contains residual hazardous substances or is contaminated with hazardous substances  |
| 13.1.3. | <b>Waste treatment – relevant information:</b>  |
|         | No information available  |
| 13.1.4. | <b>Sewage disposal – relevant information:</b>  |
|         | Waste must not be disposed of into the sewage system.   |
| 13.1.5. | <b>Other disposal recommendations:</b>  |
|         | Do not dispose of the product's remains into the sewage system. Submit the remains to the collectors authorized by the ministry in charge. Do not dispose of the packaging into the sewage system. Submit the packaging to the collectors authorized by the ministry in charge. |
| 13.1.6. | <b>Relevant Community provisions:</b>   |
|         | -   |

**SECTION 14 TRANSPORT INFORMATION**

|                               |   |
|-------------------------------|---|
|                               | <b>Transporting/shipment by road (ADR)</b>                            |
| UN number:                    | 3082  |
| UN proper shipping name:      | Environmentally hazardous substance, liquid, n.o.s. (silver ammonium) |
| Transport hazard class(es):   | 9   |
| Packing group:                | III   |
| Environmentally hazardous:    | -   |
| Special precautions for user: | -   |

|                               |   |
|-------------------------------|---|
|                               | <b>Transporting/shipment by rail (RID)</b>                            |
| UN number:                    | 3082  |
| UN proper shipping name:      | Environmentally hazardous substance, liquid, n.o.s. (silver ammonium) |
| Transport hazard class(es):   | 9   |
| Packing group:                | III   |
| Environmentally hazardous:    | -   |
| Special precautions for user: | -   |

|  |  |
|--|--|
|  | <b>Inland waterway transport (ADN)</b> |
|--|--|

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|                               |   |
|-------------------------------|---|
| UN number:                    | 3082  |
| UN proper shipping name:      | Environmentally hazardous substance, liquid, n.o.s. (silver ammonium) |
| Transport hazard class(es):   | 9   |
| Packing group:                | III   |
| Environmentally hazardous:    | -   |
| Special precautions for user: | -   |

Transporting/shipment by sea (IMDG)

|   |   |
|---|---|
| UN number:  | 3082  |
| UN proper shipping name:  | Environmentally hazardous substance, liquid, n.o.s. (silver ammonium) |
| Transport hazard class(es):   | 9   |
| Packing group:  | III   |
| Environmentally hazardous:  | -   |
| Special precautions for user:   | -   |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: | -   |

Transporting/shipment by air (ICAO-TI/IATA-DGR)

|                               |   |
|-------------------------------|---|
| UN number:                    | 3082  |
| UN proper shipping name:      | Environmentally hazardous substance, liquid, n.o.s. (silver ammonium) |
| Transport hazard class(es):   | 9   |
| Packing group:                | III   |
| Environmentally hazardous:    | -   |
| Special precautions for user: | -   |

Further information: Packages smaller than or equal to 5 kg / L, not dangerous goods of Class 9.

| <b>SECTION 15. Regulatory information</b> |  |
|---|--|
| 15.1                                      | Safety, health and environmental regulations/legislation specific for the substance or mixture |
|   | EU regulations   |
|   | Authorization and/or restrictions of use   |
|   | Authorizations: -  |
|   | Restrictions: -  |

|               |                               |                      |              |          |   |
|---------------|-------------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |          |   |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: | 5 |

|  |  |
|--|--|
| Other EU regulations:  | <p>EC Regulation No. 1906/2007 and EC Regulation No. 1272/2008 of the European Parliament and the European Council;</p> <p>The European Commission Regulation No. 453/2006 of 2010 on changes and amendments to the Regulation (EC) No. 1907/2006 of the European Parliament and Council on registration, evaluation, authorization and restriction of chemical substances (REACH);</p> <p>EC Regulation No. 2037/2000 of the European Parliament and Council from 29 June 2000 on substances that damage the ozone layer;</p> <p>EC Regulation No. 689/2008 of the European Parliament and Council from 17 June 2008 concerning the export and import of dangerous chemicals;</p> <p>EC Regulation No. 850/2004 of the European Parliament and Council from 29 April 2004 about persistent organic pollutants;</p> <p>Directive 2008/98/EC of the European Parliament and Council of 19 November 2008 on waste and repealing certain Directives</p> |
| Information according 1999/13/EC about limitation of emissions of volatile organic compounds (VOC-guideline) |  |
| National legislation:  | <p>Chemicals Act, Regulation on classification, packaging and labeling of dangerous substances, Ordinance on occupational exposure limit values and on biological limit values, Regulation on categories, types and classification of waste with a waste catalog and list of hazardous waste, Ordinance on writing Material safety data sheet, Transport of Hazardous Substances Act</p>   |
| 15.2   | Chemical safety assessment   |
|  | None   |

| SECTION 16. Other information |  |                |                                   |      |   |                  |                  |                  |                           |      |  |
|-------------------------------|--|----------------|-----------------------------------|------|---|------------------|------------------|------------------|---------------------------|------|--|
| 16.1                          | Indication of changes: -   |                |                                   |      |   |                  |                  |                  |                           |      |  |
| 16.2                          | <table border="0"> <tr> <td>PBT</td> <td>Stable, bioaccumulative and toxic</td> </tr> <tr> <td>vPvB</td> <td>Strongly stable and strongly bioaccumulative.</td> </tr> <tr> <td>LD<sub>50</sub></td> <td>Lethal dose, 50%</td> </tr> <tr> <td>LC<sub>50</sub></td> <td>Lethal concentration, 50%</td> </tr> <tr> <td>TCOJ</td> <td>Specific target organ toxicity - single exposure</td> </tr> </table> | PBT            | Stable, bioaccumulative and toxic | vPvB | Strongly stable and strongly bioaccumulative. | LD <sub>50</sub> | Lethal dose, 50% | LC <sub>50</sub> | Lethal concentration, 50% | TCOJ | Specific target organ toxicity - single exposure |
| PBT                           | Stable, bioaccumulative and toxic  |                |                                   |      |   |                  |                  |                  |                           |      |  |
| vPvB                          | Strongly stable and strongly bioaccumulative.  |                |                                   |      |   |                  |                  |                  |                           |      |  |
| LD <sub>50</sub>              | Lethal dose, 50%   |                |                                   |      |   |                  |                  |                  |                           |      |  |
| LC <sub>50</sub>              | Lethal concentration, 50%  |                |                                   |      |   |                  |                  |                  |                           |      |  |
| TCOJ                          | Specific target organ toxicity - single exposure   |                |                                   |      |   |                  |                  |                  |                           |      |  |
| 16.3                          | Key literature references and source of data: -  |                |                                   |      |   |                  |                  |                  |                           |      |  |
| 16.4                          | Classification and procedure used to derive the classification for mixture according to Regulation (EC) 1272/2008 (CLP)  |                |                                   |      |   |                  |                  |                  |                           |      |  |
|                               | <table border="0"> <tr> <td>Classification</td> <td>Classification procedure</td> </tr> <tr> <td>-</td> <td>-</td> </tr> </table>  | Classification | Classification procedure          | -    | -   |                  |                  |                  |                           |      |  |
| Classification                | Classification procedure   |                |                                   |      |   |                  |                  |                  |                           |      |  |
| -                             | -  |                |                                   |      |   |                  |                  |                  |                           |      |  |
| 16.5                          | Relevant H statements (number and full text)   |                |                                   |      |   |                  |                  |                  |                           |      |  |

|               |                               |                      |              |            |
|---------------|-------------------------------|----------------------|--------------|------------|
| Trading name: | <b>SILVER AMMONIA REAGENT</b> |                      |              |            |
| Product code: | SAR-OT-X**                    | Date of compilation: | 09 July 2019 | Version: 5 |

|       |                      |   |
|-------|----------------------|---|
|       | H272                 | May intensify fire; oxidiser.   |
|       | H314                 | Causes severe skin burns and eye damage.  |
| H:    | H400                 | Very toxic to aquatic life.   |
|       | H410                 | Very toxic to aquatic life with long lasting effects.   |
|       | H412                 | Harmful to aquatic life with long lasting effects   |
| 16.6. | Training advice:     | -   |
| 16.7. | Further information: | ** "X" in the product code marks different volumes (different packagings of the product)<br>We are not responsible for consequences in case of failure to comply with instructions for use or improper use of the product described in this material safety data sheet. |

|   |  |
|---|--|
| <b>ANNEX: Exposure scenario resulting to chemical safety assessment</b> |  |
| -   |  |





|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

| <b>SECTION 1: Identification of the substance/mixture and of the company/undertaking</b>  |  |  |
|---|--|--|
| <b>1.1. Product identifier</b>  |  |  |
| Trade name:   | REDUCING BUFFER, SOLUTION  |  |
| Chemical name:  | -  |  |
| Catalogue number:   | RP-OT-X**  |  |
| <b>1.2. Relevant identified uses of the substance or mixture and uses advised against</b> |  |  |
| Uses:   | For use with Von Kossa kit.  |  |
| Uses advised against:   | Only the identified uses are advised   |  |
| Reason why uses advised against:  | The product is intended for use only as an <i>in vitro</i> diagnostic medical device and there is no reason to use it for other purposes |  |
| <b>1.3. Details of the supplier of the safety data sheet</b>                              |  |  |
| Supplier:   | BioGnost Ltd.  |  |
| Address:  | Medjugorska 59, Zagreb   |  |
| Telephone number:   | +385 1 2409997   |  |
| Telefax:  | +385 1 2404039   |  |
| e-mail of competent person:   | <a href="mailto:msds@biognost.hr">msds@biognost.hr</a>   |  |
| National contact:   | -  |  |
| <b>1.4. Emergency telephone numbers</b>   |  |  |
| National Protection and Rescue Directorate:   | 112  |  |
| Medical information:  | +385 1 2348 342  |  |
| Other information:  | -  |  |

| <b>SECTION 2. HAZARDS IDENTIFICATION</b>                                     |                                 |                    |
|--|---------------------------------|--------------------|
| <b>2.1. Classification of the substance or mixture</b>                       |                                 |                    |
| <b>2.1.1. Classification according to Regulation (EC) No 1272/2008 (CLP)</b> |                                 |                    |
|  | Hazard class and category code: | Hazard statement*: |
|  | Skin Sens. 1                    | H317               |
|  | Resp. Sens. 1                   | H334               |
| <b>2.1.2. Additional information</b>   |                                 |                    |
| -  |                                 |                    |
| * For full text of Hazard- and EU Hazard-statements: see SECTION 16          |                                 |                    |
| <b>2.2. Label elements</b>   |                                 |                    |
| Product identification:  | REDUCING BUFFER, SOLUTION       |                    |
| Identification number:   | -                               |                    |
| Authorisation number:  | -                               |                    |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|                                       |  |
|---------------------------------------|--|
| Hazard pictograms:                    |    |
|                                       | GHS07                      GHS08   |
| Signal word:                          | Danger   |
| Hazard statement:                     | H317 May cause an allergic skin reaction.<br>H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.   |
| Precautionary statements:             | P280 Wear protective gloves/protective clothing/eye/protection/face protection.<br>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>P308+P313 IF exposed or concerned: Call a POISON CENTER or doctor. |
| Supplemental hazard information (EU): | -  |
| 2.3. Other hazards                    | -  |

**SECTION 3. Composition/information on ingredients**

| CAS/<br>EC/<br>Index number    | REACH<br>Registration No | Weight % content<br>(or range) | Identification name | Classification according to<br>Regulation (EC) No 1272/2008<br>(CLP)   |
|--------------------------------|--------------------------|--------------------------------|---------------------|--|
| 30525-89-4/<br>605-494-5/<br>- | -                        | ≤ 5 %                          | paraformaldehyde    | Acute Tox. 4; H302<br>Skin Irr. 2; H315<br>Skin Sens. 1; H317<br>Eye Dam. 1; H318<br>Acute Tox. 4; H332<br>Resp. Sens. 1; H334 |

**SECTION 4. First aid measures**

|  |  |
|--|--|
| 4.1. Description of first aid measures |  |
| General notes:                         | Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident. Immediately remove any clothing soiled by the product.                   |
| Following inhalation:                  | Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation. |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|                                    |   |
|------------------------------------|---|
| Following skin contact:            | Remove contaminated clothing. Immediately wash with plenty of water and soap and rinse thoroughly. If symptoms persist, consult a doctor. |
| Following eye contact:             | Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.  |
| Following ingestion:               | DO NOT induce vomiting. If symptoms persist, consult a doctor.  |
| Self-protection of the first aider | Avoid direct contact with the chemical; use appropriate protective equipment described in Section 8.                                      |

|                         |   |  |
|-------------------------|---|--|
| 4.2.                    | <b>Most important symptoms and effects, both acute and delayed</b>  |  |
| Following inhalation:   | High concentration vapor inhalation may cause headache, dizziness, difficult breathing and unconsciousness.   |  |
| Following skin contact: | Causes skin irritation, redness, swelling. Prolonged or repeated contact causes defatting and dry skin.   |  |
| Following eye contact:  | Vapors irritate eyes. Splashing may cause irritation and redness.   |  |
| Following ingestion:    | Nausea, vomiting (danger of aspiration), diarrhoea. Aspiration may cause headache, vertigo, nausea, dazed feeling-unconsciousness/coma, possible hypothermia, reactions to the heart/circulatory system such as vasodilation (flush), hypotension, arrhythmia (possible ventricular fibrillation through cardiac sensitization), danger of central respiratory paralysis or of cardiac arrest; functional disturbance to the liver and kidneys and persistent disturbance to the CNS as sequelae. |  |
| 4.3.                    | <b>Indication of any immediate medical attention and special treatment needed</b>   |  |
|                         | No further relevant information available.  |  |

|   |   |  |
|---|---|--|
| <b>SECTION 5. Firefighting measures</b> |   |  |
| 5.1.                                    | <b>Extinguishing media</b>  |  |
| Suitable extinguishing media:           | CO <sub>2</sub> , powder or water spray. Fight larger fires with water spray or alcohol resistant foam.             |  |
| Unsuitable extinguishing media:         | water with full jet   |  |
| 5.2.                                    | <b>Special hazards arising from the substance or mixture</b>  |  |
| Hazardous by products of fire:          | Incomplete combustion of the product.   |  |
| 5.3.                                    | <b>Advice for firefighters</b>  |  |
|   | Use a self-contained open-circuit compressed air breathing apparatus and fireproof clothing.                        |  |
| 5.4.                                    | <b>Additional information</b>   |  |
|   | Collect contaminated firefighting water separately.<br>Do not contaminate the environment with extinguishing media. |  |

|   |  |  |
|---|--|--|
| <b>SECTION 6. Accidental release measures</b> |  |  |
| 6.1.  | <b>Personal precautions, protective equipment and emergency procedures</b> |  |
| 6.1.1.  | For non-emergency personnel  |  |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|        |  |  |
|--------|--|--|
|        | Protective equipment:  | Use personal protective equipment (see Section 8). Keep unprotected persons away.  |
|        | Accident prevention methods:   | Evacuate members of all non-essential personnel and those members without protective equipment. Do not breathe in vapor, ensure adequate ventilation and avoid contact with skin and eyes. Remove all sources of sparks and ignition. Do not smoke.  |
|        | Emergency procedures:  | Mark the area using proper signs.  |
| 6.1.2. | For emergency responders:  |  |
|        | Use protective equipment; in case of inadequate ventilation use adequate airways protective equipment (see Section 8).   |  |
| 6.2.   | Environmental precautions:   |  |
|        | Do not dispose of in sewage, drainage system and waterways. In case of large spillage contact National Protection and Rescue Directorate (NPRD) on 112.        |  |
| 6.3.   | Methods and materials for containment and cleaning up  |  |
| 6.3.1. | Bunding, covering of drains; capping procedures:   | Sand or clay barriers.   |
| 6.3.2. | Cleaning up:   | Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place the waste material in tightly closed impermeable containers. Store the substance in well ventilated storage rooms until disposal. Submit for disposal to the legal persons authorized by the Ministry of Environmental and Nature Protection. After disposal of the products, wash the area and involved materials with water. |
| 6.3.3. | Other information:   | Do not use tools that may cause sparks.  |
| 6.4.   | Reference to other sections  |  |
|        | See Section 7 for information on safe handling.<br>See Section 8 for information on personal protection equipment.<br>See Section 13 for disposal information. |  |

|  |  |  |
|--|--|--|
| <b>SECTION 7. Handling and storage</b> |  |  |
| 7.1.                                   | Precautions for safe handling                    |  |
| 7.1.1.                                 | Protection measures                              |  |
|  | Measures to prevent fire:                        | Use in well ventilated storage rooms. Keep away from sources of heat and ignition. Carry out measures for preventing static electricity. |
|  | Measures to prevent aerosol and dust generation: | Secure proper ventilation.   |
|  | Measures to protect the environment:             | Prevent spilling into the sewage system and waterways.   |
|  | Other measures:                                  | -  |
| 7.1.2.                                 | Advice on general occupational hygiene:          |  |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|  |  |
|--|--|
| Do not eat, drink or smoke in the workspace. Thoroughly wash hands after work and before eating. |  |
| <b>7.2. Conditions for safe storage, including any incompatibilities</b>                         |  |
| Technical measures and storage conditions:   | Keep in tightly closed and upright set containers in a well ventilated storage rooms, and away from sources of heat, sunlight, and other incompatible substances.            |
| Packaging materials:   | Manufacturer's original packaging.   |
| Requirements for storage rooms and vessels:  | Keep away from food and drink. Keep the containers tightly closed.   |
| Advices for storage equipment:   | The storage must be made of hard material; floors must be resistant to chemicals. There must be no drain that directly leads into sewage system. Secure proper ventilation.  |
| Further information on storage conditions:   | Do not place the unused material in the storage room and do not use empty containers for storing other chemicals. Do not store with incompatible materials (see Section 10). |
| <b>7.3. Specific end use(s)</b>  |  |
| Recommendations:   | -  |
| Industrial sector specific solutions:  | -  |

| <b>SECTION 8. Exposure controls/personal protection</b>              |                    |  |                      |                         |
|--|--------------------|--|----------------------|-------------------------|
| <b>8.1. Control parameters</b>                                       |                    |  |                      |                         |
| Substance  | CAS No             | Occupational exposure limit values/short term values |                      | Biological limit values |
|  |                    | ppm  | mg/m <sup>3</sup>    |                         |
| -  | -                  | -  | -                    | -                       |
| Substance: -   |                    |  |                      |                         |
| EC No: -   |                    | CAS No: -  |                      |                         |
| <b>DNEL</b>  |                    |  |                      |                         |
| <b>Industrial</b>  |                    |  |                      |                         |
| Route of exposure:   | Acute effect local | Acute effect systemic                                | Chronic effect local | Chronic effect systemic |
| Oral   | -                  | -  | -                    | -                       |
| Inhalation   | -                  | -  | -                    | -                       |
| Dermal   | -                  | -  | -                    | -                       |
| Critical physical parameters: solubility, flammability, corrosivity: |                    |  | -                    |                         |
| <b>Consumer</b>  |                    |  |                      |                         |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

| <b>PNEC</b>                        |                          |
|------------------------------------|--------------------------|
| Environmental protection target    | <b>PNEC</b>              |
| Fresh water                        | No information available |
| Freshwater sediments               | No information available |
| Marine water                       | No information available |
| Marine sediments                   | No information available |
| Food chain                         | No information available |
| Microorganisms in sewage treatment | No information available |
| Soil (agricultural)                | No information available |
| Air                                | No information available |

|                 |  |   |
|-----------------|--|---|
| <b>8.2.</b>     | <b>Exposure controls</b>   |   |
| <b>8.2.1.</b>   | <b>Appropriate engineering controls</b>  |   |
|                 | Substance/mixture related measures to prevent exposure during identified uses: | Use personal protective equipment. Do not eat, drink or smoke in the workspace.   |
|                 | Structural measures to prevent exposure:                                       | No information available  |
|                 | Organisational measures to prevent exposure:                                   | Organization of work in order to reduce other worker's influence during work process.   |
|                 | Technical measures to prevent exposure:  | Secure proper workspace ventilation in order to keep concentration levels in air below permitted levels.                                      |
| <b>8.2.2.</b>   | <b>Personal protection equipment:</b>  |   |
| <b>8.2.2.1.</b> | Eye and face protection:   | Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as EN 166(EU) |
| <b>8.2.2.2.</b> | Skin protection  |   |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|          |   |  |
|----------|---|--|
|          | Hand protection:  | <p>Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.</p> <p>Full contact:</p> <p style="padding-left: 40px;">Glove material: Viton<br/>                     Glove thickness: 0.7 mm<br/>                     Break through time: 480 min</p> <p>Splash contact:</p> <p style="padding-left: 40px;">Glove material: Nitrile rubber<br/>                     Glove thickness: 0.4 mm<br/>                     Break through time: 35 min</p> |
|          | Other skin protection:                                  | Complete suit protecting against chemicals, flame retardant antistatic protective clothing (EN 13688). The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.   |
| 8.2.2.3. | Respiratory protection:                                 | Where risk assessment shows air-purifying respirators are appropriate use type ABEK (EN 14387) respirator cartridges as a backup to engine protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as CEN (EU).  |
| 8.2.2.4. | Thermal hazards:  | No information available   |
| 8.2.3.   | Environmental exposure controls                         |  |
|          | Substance/mixture related measures to prevent exposure: | See Section 6  |
|          | Structural measures to prevent exposure:                | Use modern equipment.  |
|          | Organisational measures to prevent exposure:            | Adapt the work process to the required working conditions of the workplace.  |
|          | Technical measures to prevent exposure:                 | See Section 6  |

| SECTION 9. Physical and chemical properties                |                  |                          |                          |
|--|------------------|--------------------------|--------------------------|
| 9.1. Information on basic physical and chemical properties |                  |                          |                          |
|  |                  | Value                    | Method                   |
|  | Physical state:  | liquid                   | No information available |
|  | Colour:          | colourless               | No information available |
|  | Odour:           | formaldehyde odor        | No information available |
|  | Odour threshold: | No information available | No information available |
|  | pH:              | 10.0 – 11.0              | No information available |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|   |                          |                          |
|---|--------------------------|--------------------------|
| Melting point / freezing point:                   | No information available | No information available |
| Initial boiling point and boiling range:          | No information available | No information available |
| Flash point:                                      | No information available | No information available |
| Evaporation rate:                                 | No information available | No information available |
| Flammability (solid, gas):                        | No information available | No information available |
| Upper/lower flammability or explosive limits:     | No information available | No information available |
| Vapour pressure:                                  | No information available | No information available |
| Vapour density:                                   | No information available | No information available |
| Relative density                                  | No information available | No information available |
| Bulk density:                                     | No information available | No information available |
| Solubility(ies):                                  | No information available | No information available |
| Partition coefficient: n-octanol/water (log Pow): | No information available | No information available |
| Auto-ignition temperature:                        | No information available | No information available |
| Decomposition temperature:                        | No information available | No information available |
| Viscosity:  | No information available | No information available |
| Explosive properties:                             | No information available | No information available |
| Oxidising properties:                             | No information available | No information available |
| <b>9.2. Other information</b>                     |                          |                          |
| -   |                          |                          |

| <b>SECTION 10.: Stability and reactivity</b> |                                     |  |
|--|-------------------------------------|--|
| 10.1.  | Reactivity:                         | No relevant information available.                                     |
| 10.2.  | Chemical stability:                 | The product is chemically stable under recommended storage conditions. |
| 10.3.  | Possibility of hazardous reactions: | No dangerous reactions known.  |
| 10.4.  | Conditions to avoid:                | No information available   |
| 10.5.  | Incompatible materials:             | No information available   |
| 10.6.  | Hazardous decomposition products:   | No information available   |

| <b>SECTION 11. Toxicological information</b> |        |         |   |               |         |
|--|--------|---------|---|---------------|---------|
| 11.1. Information on toxicological effects   |        |         |   |               |         |
| Acute toxicity:                              |        |         |   |               |         |
| Route of exposure:                           | Method | Species | Effective Dose<br>LD <sub>50</sub> /LC <sub>50</sub> or<br>ATE <sub>mixture</sub> | Exposure time | Results |
|  |        |         |   |               |         |



|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|             |                          |     |                  |                          |                               |
|-------------|--------------------------|-----|------------------|--------------------------|-------------------------------|
| Oral:       | No information available | rat | LD <sub>50</sub> | No information available | 800 mg/kg (paraformaldehyde)  |
| Dermal:     | No information available | -   | -                | No information available | No information available      |
| Inhalation: | No information available | rat | LD <sub>50</sub> | 4h                       | 1.07 mg/kg (paraformaldehyde) |

|   |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|
| Specific target organ toxicity - single exposure (STOT-SE): |                          |                          |                          |
|   | Specific effects         | Target organ             | Note                     |
| Oral:   | No information available | No information available | -                        |
| Dermal:   | No information available | No information available | -                        |
| Inhalation:   | No information available | No information available | No information available |

|                    |   |
|--------------------|---|
| Aspiration hazard: | - |
|--------------------|---|

|                               |               |         |            |        |                          |
|-------------------------------|---------------|---------|------------|--------|--------------------------|
| Irritation and corrosion      |               |         |            |        |                          |
|                               | Exposure time | Species | Evaluation | Method | Note                     |
| Skin corrosion/irritation     | -             | -       | -          | -      | No information available |
| Serious eye damage/irritation | -             | -       | -          | -      | No information available |

|                            |                          |
|----------------------------|--------------------------|
| Sensitization              |                          |
| Skin sensitization:        | No information available |
| Respiratory sensitization: | No information available |

|  |   |
|--|---|
| Symptoms related to physical, chemical, and toxicological properties |   |
| Oral exposure:   | Nausea, vomiting (danger of aspiration), diarrhoea. Aspiration may cause headache, vertigo, nausea, dazed feeling-unconsciousness/coma, possible hypothermia, reactions to the heart/circulatory system such as vasodilation (flush), hypotension, arrhythmia (possible ventricular fibrillation through cardiac sensitization), danger of central respiratory paralysis or of cardiac arrest; functional disturbance to the liver and kidneys and persistent disturbance to the CNS as sequelae. |
| Dermal exposure:   | Causes skin irritation, redness, swelling. Prolonged or repeated contact causes defatting and dry skin.   |
| Inhalation exposure:   | Vapor inhalation may cause nose and throat irritation followed by sore throat, cough, difficult breathing and suffocating. High concentration vapor inhalation may cause headache, malaise and fatigue, difficult breathing, chest tightness, coordination and CNS disorders.   |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|               |   |
|---------------|---|
| Eye exposure: | Vapors irritate eyes. Splashing may cause irritation and redness, lacrimation, pain, swelling, blurred vision, photophobia. |
|---------------|---|

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| Repeated dose toxicity (subacute, subchronic, chronic) |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

|                       | Dose                     | Exposure time            | Species                  | Method                   | Evaluation               | Note |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Subacute oral         | No information available | No information available | No information available | No information available | No information available | -    |
| Subacute dermal       | No information available | No information available | No information available | No information available | No information available | -    |
| Subacute inhalation   | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic oral       | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic dermal     | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic inhalation | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic oral          | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic dermal        | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic inhalation    | No information available | No information available | No information available | No information available | No information available | -    |

|   |  |  |  |
|---|--|--|--|
| Specific target organ toxicity - repeated exposure (STOT-RE): |  |  |  |
|---|--|--|--|

|                     | Specific effects         | Target organ             | Note |
|---------------------|--------------------------|--------------------------|------|
| Subacute oral       | No information available | No information available | -    |
| Subacute dermal     | No information available | No information available | -    |
| Subacute inhalation | No information available | No information available | -    |
| Subchronic oral     | No information available | No information available | -    |
| Subchronic dermal   | No information available | No information available | -    |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|                       |                          |                          |   |
|-----------------------|--------------------------|--------------------------|---|
| Subchronic inhalation | No information available | No information available | - |
| Chronic oral          | No information available | No information available | - |
| Chronic dermal        | No information available | No information available | - |
| Chronic inhalation    | No information available | No information available | - |

|  |                                       |
|--|---------------------------------------|
| CMR effects (carcinogenicity, mutagenicity, reproductive toxicity) |                                       |
| Carcinogenicity:   | Suspected of causing cancer.          |
| Mutagenicity <i>in-vitro</i> :                                     | No information available              |
| Genotoxicity:  | No information available              |
| Mutagenicity <i>in-vivo</i> :                                      | No information available              |
| Germ cell mutagenicity :   | Suspected of causing genetic defects. |
| Reproductive toxicity:   | No information available              |
| Summary of evaluation of the CMR properties:                       |                                       |
| No information available   |                                       |

|              |   |
|--------------|---|
| <b>11.2.</b> | <b>Practical experiences:</b>                         |
|              | Classification observations: No information available |
|              | Other observations: No information available          |

|              |                       |
|--------------|-----------------------|
| <b>11.3.</b> | <b>General notes:</b> |
|              | -                     |

**SECTION 12. Ecological information**

| <b>12.1.</b>                 | <b>Toxicity</b>  |               |         |                          |                            |      |
|------------------------------|------------------|---------------|---------|--------------------------|----------------------------|------|
| Acute (short-term) toxicity  | Dose             | Exposure time | Species | Method                   | Evaluation                 | Note |
| Fish                         | LC <sub>50</sub> | 96 hours      | fish    | No information available | 60 mg/l (paraformaldehyde) | -    |
| Crustacea:                   | EC <sub>50</sub> | 48 hours      | -       | No information available | -                          | -    |
| Algae/aquatic plants:        | IC <sub>50</sub> | 72 hours      | -       | No information available | -                          | -    |
| Other organisms:             | -                | -             | -       | -                        | -                          | -    |
| Chronic (long-term) toxicity | Doza             | Exposure time | Species | Method                   | Evaluation                 | Note |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|                       |                  |          |                          |                          |                          |   |
|-----------------------|------------------|----------|--------------------------|--------------------------|--------------------------|---|
| Fish                  | LC <sub>50</sub> | 96 hours | No information available | No information available | No information available | - |
| Crustacea:            | EC <sub>50</sub> | 48 hours | No information available | No information available | No information available | - |
| Algae/aquatic plants: | IC <sub>50</sub> | 72 hours | No information available | No information available | No information available | - |
| Other organisms:      | -                | -        | -                        | -                        | -                        | - |

**12.2. Persistence and degradability**

|                     |                          |                          |  |                          |      |
|---------------------|--------------------------|--------------------------|--|--------------------------|------|
| Abiotic degradation |                          |                          |  |                          |      |
|                     | Degradation half-lives   | Method                   |  | Evaluation               | Note |
| Marine water        | No information available | No information available |  | No information available | -    |
| Fresh water         | No information available | No information available |  | No information available | -    |
| Air                 | No information available | No information available |  | No information available | -    |
| Soil                | No information available | No information available |  | No information available | -    |

**Biodegradation**

|                          |                          |                          |  |                          |                          |
|--------------------------|--------------------------|--------------------------|--|--------------------------|--------------------------|
| % Degradation            | Time (days)              | Method                   |  | Evaluation               | Note                     |
| No information available | No information available | No information available |  | No information available | Extremely biodegradable. |
|                          |                          |                          |  |                          |                          |
|                          |                          |                          |  |                          |                          |

**12.3. Bioaccumulative potential**

**Octanol-water partition coefficient (log Pow)**

|       |                          |    |    |                          |                          |      |
|-------|--------------------------|----|----|--------------------------|--------------------------|------|
| Value | Concentration            | pH | °C | Method                   | Evaluation               | Note |
| -     | No information available | -  | -  | No information available | No information available | -    |
|       |                          |    |    |                          |                          |      |
|       |                          |    |    |                          |                          |      |

**Bioconcentration Factor (BCF)**

|                          |                          |                          |                          |      |
|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Value                    | Species                  | Method                   | Evaluation               | Note |
| No information available | No information available | No information available | No information available | -    |

|               |                                  |                      |              |          |   |  |
|---------------|----------------------------------|----------------------|--------------|----------|---|--|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |  |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |  |

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

|                     |
|---------------------|
| Chronic ecotoxicity |
|---------------------|

| Value                                   | Dose             | Exposure time            | Species                  | Method                   | Evaluation               | Note |
|---|------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Chronic toxicity on fish                | LC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |
| Chronic toxicity on crustacea (Daphnia) | EC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |

|  |
|--|
|  |
|--|

|                               |
|-------------------------------|
| <b>12.4. Mobility in soil</b> |
|-------------------------------|

|  |
|--|
| Known or predicted distribution in environmental compartments: |
|--|

|                          |
|--------------------------|
| No information available |
|--------------------------|

|                  |
|------------------|
| Surface tension: |
|------------------|

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

| Value                    | °C                       | Concentration            | Method                   | Note |
|--------------------------|--------------------------|--------------------------|--------------------------|------|
| No information available | No information available | No information available | No information available | -    |

|  |
|--|
|  |
|--|

|                         |
|-------------------------|
| Adsorption / desorption |
|-------------------------|

| Transport  | A/D coefficient Henry's constant | log Kow                  | Evaporation rate         | Method                   | Note |
|------------|----------------------------------|--------------------------|--------------------------|--------------------------|------|
| Soil-Water | No information available         | No information available | No information available | No information available | -    |
| Water-Air  | No information available         | No information available | No information available | No information available | -    |
| Soil-Air   | No information available         | No information available | No information available | No information available | -    |

|  |
|--|
|  |
|--|

|   |
|---|
| <b>12.5. Results of PBT and vPvB assessment</b> |
|---|

|                          |
|--------------------------|
| No information available |
|--------------------------|

|  |
|--|
|  |
|--|

|                                    |
|------------------------------------|
| <b>12.6. Other adverse effects</b> |
|------------------------------------|

|                          |
|--------------------------|
| No information available |
|--------------------------|

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|  |  |
|--|--|
| <b>SECTION 13. Disposal considerations</b> |  |
| 13.1.                                      | Waste processing methods   |
| 13.1.1.                                    | Product/Packaging disposal:<br>Submit for disposal to the legal person authorized by the Ministry of Environmental and Nature Protection.  |
| 13.1.2.                                    | Waste codes/waste designations according to Low:<br>Disposal must be made according to official regulations.   |
| 13.1.3.                                    | Waste treatment – relevant information<br>No information available   |
| 13.1.4.                                    | Sewage disposal – relevant information:<br>Waste must not be disposed of into the sewage system.   |
| 13.1.5.                                    | Other disposal recommendations:<br>Do not dispose of the product's remains into the sewage system. Submit the remains to the collectors authorized by the ministry in charge. Do not dispose of the packaging into the sewage system. Submit the packaging to the collectors authorized by the ministry in charge. Do not dispose of in places where ignition may occur. |
| 13.1.6.                                    | Relevant Community provisions:<br>-  |
| <b>SECTION 14. Transport information</b>   |  |
| Transporting/shipment by road (ADR)        |  |
| UN number:                                 | Not subject to transport regulations.  |
| UN proper shipping name:                   | -  |
| Transport hazard class(es):                | -  |
| Packing group:                             | -  |
| Environmental hazards:                     | -  |
| Special precautions for user:              | -  |
| Transporting/shipment by rail (RID)        |  |
| UN number:                                 | Not subject to transport regulations.  |
| UN proper shipping name:                   | -  |
| Transport hazard class(es):                | -  |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|                               |   |
|-------------------------------|---|
| Packing group:                | - |
| Environmental hazards:        | - |
| Special precautions for user: | - |

Transporting/shipment by inland waterways (ADN)

|                               |                                       |
|-------------------------------|---------------------------------------|
| UN number:                    | Not subject to transport regulations. |
| UN proper shipping name:      | -                                     |
| Transport hazard class(es):   | -                                     |
| Packing group:                | -                                     |
| Environmental hazards:        | -                                     |
| Special precautions for user: | -                                     |

Transporting/shipment by sea (IMDG)

|   |                                       |
|---|---------------------------------------|
| UN number:  | Not subject to transport regulations. |
| UN proper shipping name:  | -                                     |
| Transport hazard class(es):   | -                                     |
| Packing group:  | -                                     |
| Environmental hazards:  | -                                     |
| Special precautions for user:   | -                                     |
| Transport in bulk condition in accordance with Annex II. of MARPOL 73/78 and IBC Codex: | -                                     |

Transporting/shipment by air (ICAO-TI/IATA-DGR)

|                               |                                       |
|-------------------------------|---------------------------------------|
| UN number:                    | Not subject to transport regulations. |
| UN proper shipping name:      | -                                     |
| Transport hazard class(es):   | -                                     |
| Packing group:                | -                                     |
| Environmental hazards:        | -                                     |
| Special precautions for user: | -                                     |

|                      |   |
|----------------------|---|
| Further information: | - |
|----------------------|---|

**SECTION 15. Regulatory information**

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

|  |   |
|--|---|
| EU regulations                           |   |
| Authorisation and/or restrictions on use |   |
| Authorisations:                          | - |
| Restrictions:                            | - |

|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|  |   |
|--|---|
| Other EU regulations:  | <p>EC Regulation No. 1906/2007 and EC Regulation No. 1272/2008 of the European Parliament and the European Council;</p> <p>The European Commission Regulation No. 453/2010 on changes and amendments to the Regulation (EC) No. 1907/2006 of the European Parliament and Council on registration, evaluation, authorization and restriction of chemical substances (REACH);</p> <p>EC Regulation No. 2037/2000 of the European Parliament and Council of 29 June 2000 on ozone-depleting substances;</p> <p>EC Regulation No. 689/2008 of the European Parliament and Council of 17 June 2008 concerning the export and import of dangerous chemicals;</p> <p>EC Regulation No. 850/2004 of the European Parliament and Council of 29 April 2004 on persistent organic pollutants;</p> <p>Directive 2008/98/EC of the European Parliament and Council of 19 November 2008 on waste and repealing certain Directives</p> |
| Information according 1999/13/EC about limitation of emissions of volatile organic compounds (VOC-guideline) |   |
| National legislation:  | <p>Chemicals Act, Regulation on classification, packaging and labeling of dangerous substances, Ordinance on occupational exposure limit values and on biological limit values, Regulation on categories, types and classification of waste with a waste catalog and list of hazardous waste, Ordinance on writing Material safety data sheet, Transport of Hazardous Substances Act</p>  |
| 15.2.  | Chemical safety assessment  |
|  | None  |

| <b>SECTION 16. Other information</b> |   |                |                          |   |   |
|--------------------------------------|---|----------------|--------------------------|---|---|
| 16.1.                                | Indication of changes: -  |                |                          |   |   |
| 16.2.                                | <p>Abbreviations and acronyms:</p> <p>PBT Stable, bioaccumulative and toxic</p> <p>vPvB Strongly stable and strongly bioaccumulative</p> <p>LD<sub>50</sub> Lethal dose, 50%</p> <p>LC<sub>50</sub> Lethal concentration, 50%</p> <p>STOT – SE Specific target organ toxicity - single exposure</p> |                |                          |   |   |
| 16.3.                                | Key literature references and source of data: -   |                |                          |   |   |
| 16.4.                                | Classification and procedure used to derive the classification for mixture according to Regulation (EC) 1272/2008 (CLP)   |                |                          |   |   |
|                                      | <table border="1"> <tr> <td>Classification</td> <td>Classification procedure</td> </tr> <tr> <td>-</td> <td>-</td> </tr> </table>   | Classification | Classification procedure | - | - |
| Classification                       | Classification procedure  |                |                          |   |   |
| -                                    | -   |                |                          |   |   |
| 16.5.                                | Relevant H statements (number and full text)  |                |                          |   |   |



|               |                                  |                      |              |          |   |
|---------------|----------------------------------|----------------------|--------------|----------|---|
| Trade name:   | <b>REDUCING BUFFER, SOLUTION</b> |                      |              |          |   |
| Product code: | RP-OT-X**                        | Date of compilation: | 05 July 2019 | Version: | 3 |

|       |                      |  |  |
|-------|----------------------|--|--|
|       | H:                   | H302<br>H315<br>H317<br>H318<br>H332<br>H334 | Harmful if swallowed<br>Causes skin irritation<br>May cause an allergic skin reaction.<br>Causes serious eye damage<br>Harmful if inhaled<br>May cause allergy or asthma symptoms or breathing difficulties if inhaled.  |
| 16.6. | Training advice:     |  | -  |
| 16.7. | Further information: |  | ** "X" in the product code marks different volumes (different packaging of the product)<br>We are not responsible for consequences in case of failure to comply with instructions for use or improper use of the product described in this material safety data sheet. |

|   |  |  |
|---|--|--|
| <b>ANNEX: Exposure scenario resulting to Chemical safety assessment</b> |  |  |
| -   |  |  |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

|     |   |  |
|-----|---|--|
| 1.1 | Product identifier  |  |
|     | Trading name:   | SODIUM THIOSULFATE, 5% SOLUTION  |
|     | Chemical name:  | -  |
|     | Catalogue number:   | NT5-OT-X**   |
| 1.2 | Relevant identified uses of the substance or mixture and uses advised against |  |
|     | Uses:   | For use with special staining kits.  |
|     | Uses advised against:   | Only the identified uses are advised.  |
|     | Reason why uses advised against:  | The product is intended for use only as an <i>in vitro</i> diagnostic medical device, registered at the Agency for Medicinal Products and Medical Devices and there is no reason to use it for other purposes. |
| 1.3 | Details of the supplier of the safety data sheet                              |  |
|     | Supplier:   | BioGnost Ltd.  |
|     | Address:  | Medjugorska 59, Zagreb   |
|     | Telephone number:   | +385 1 2409997   |
|     | Telefax.:   | +385 1 2404039   |
|     | e-mail of competent person:   | <a href="mailto:msds@biognost.hr">msds@biognost.hr</a>   |
|     | National contact:   | -  |
| 1.4 | Emergency telephone number  |  |
|     | National Protection and Rescue Directorate:                                   | 112  |
|     | Medical information:  | +385 1 2348 342  |
|     | Other information:  | -  |

**SECTION 2. Hazards identification**

|  |  |                                 |
|--|--|---------------------------------|
| 2.1  | Classification of the substance or mixture                     |                                 |
| 2.1.1  | Classification according to Regulation (EC) No 1272/2008 (CLP) |                                 |
|  | Hazard class and category code:                                | Hazard statements*:             |
|  | Not identified as hazardous substance.                         | -                               |
| 2.1.2.   | Additional information   |                                 |
|  | -  |                                 |
| *For full text of Hazard- and EU Hazard-statements: see SECTION 16 |  |                                 |
| 2.2  | Label elements   |                                 |
|  | Product identification:  | SODIUM THIOSULFATE, 5% SOLUTION |
|  | Identification number:   | -                               |
|  | Authorization number:  | -                               |
|  | Hazard pictograms:   | -                               |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|                                       |                      |
|---------------------------------------|----------------------|
| Signal word:                          | -                    |
| Hazard statements:                    | -                    |
| Precautionary statements:             | -                    |
| Supplemental hazard information (EU): | -                    |
| <b>2.3</b>                            | <b>Other hazards</b> |
|                                       | -                    |

| <b>SECTION 3. Composition/information on ingredients</b> |                       |                             |                     |  |
|--|-----------------------|-----------------------------|---------------------|--|
| CAS/EC/ Index number                                     | REACH Registration No | Weight % content (or range) | Identification name | Classification according to Regulation (EC) No 1272/2008 (CLP) |
| 7772-98-7/<br>231-867-5/<br>-                            | -                     | < 5 %                       | sodium thiosulphate | not classified   |

| <b>SECTION 4. First aid measures</b> |  |
|--------------------------------------|--|
| <b>4.1</b>                           | <b>Description of first aid measures</b>   |
| General notes:                       | If the suggested first aid measures do not prove sufficient, seek medical attention.   |
| Following inhalation:                | Carry the afflicted person out of the contaminated area into a well-ventilated area or out for fresh air. In case of difficult breathing, provide the afflicted person with oxygen.                            |
| Following skin contact:              | Remove contaminated clothing. Immediately wash with plenty of water for at least 20 minutes. Seek medical assistance if the symptoms of irritation remain.   |
| Following eye contact:               | Rinse out with plenty of water with the eyelid held wide open for at least 20 minutes. If the symptoms remain, immediately call in ophthalmologist.  |
| Following ingestion:                 | Rinse the mouth thoroughly with 1-2 glasses of water. Immediately consult a physician and show the container or label. In case of swallowing large quantities, transport the afflicted person to the hospital. |
| Self-protection of the first aider:  | -  |
| <b>4.2</b>                           | <b>Most important symptoms and effects, both acute and delayed</b>   |
| Following inhalation:                | According to our findings, chemical, physical and toxicological properties of the substance have not been entirely tested.   |
| Following skin contact:              | According to our findings, chemical, physical and toxicological properties of the substance have not been entirely tested.   |
| Following eye contact:               | According to our findings, chemical, physical and toxicological properties of the substance have not been entirely tested.   |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|     |  |  |
|-----|--|--|
|     | Following ingestion:   | According to our findings, chemical, physical and toxicological properties of the substance have not been entirely tested. |
| 4.3 | Indication of any immediate medical attention and special treatment needed |  |
|     | -  |  |

| <b>SECTION 5. Firefighting measures</b> |   |  |
|---|---|--|
| 5.1                                     | Extinguishing media   |  |
|   | Suitable extinguishing media:   | water spray, dry powder, CO <sub>2</sub> or alcohol resistant foam |
|   | Unsuitable extinguishing media:   | Water with full jet  |
| 5.2                                     | Special hazards arising from the substance or mixture   |  |
|   | Hazardous combustion products:  | no information available   |
| 5.3                                     | Advice for firefighters   |  |
|   | Use a self-contained open-circuit compressed air breathing apparatus and fireproof clothing.  |  |
| 5.4                                     | Additional information  |  |
|   | Cool endangered receptacles with water spray. Collect contaminated fire fighting water separately. Do not contaminate the environment with extinguishing media. |  |

| <b>SECTION 6. Accidental release measures</b> |   |   |
|---|---|---|
| 6.1   | Personal precautions, protective equipment and emergency procedures   |   |
| 6.1.1.  | For non-emergency personnel   |   |
|   | Protective equipment:   | Use personal protective equipment (see Section 8).  |
|   | Accident prevention methods:  | Evacuate members of all non-essential personnel and those members without protective equipment. Avoid breathing vapors and avoid contact with skin and eyes. Do not smoke. Keep away from ignition sources. |
|   | Emergency procedures:   | Mark the area using proper signs.   |
| 6.1.2.  | For emergency responders:   |   |
|   | Use protective equipment; in case of inadequate ventilation use adequate airways protective equipment (see Section 8).                                  |   |
| 6.2   | Environmental precautions:  |   |
|   | Do not dispose of in sewage, drainage system and waterways. In case of large spillage contact National Protection and Rescue Directorate (NPRD) on 112. |   |
| 6.3   | Methods and material for containment and cleaning up  |   |
| 6.3.1.  | Bundling, covering of drains; capping procedures:   | Sand protective barrier or barriers made of similar materials.  |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|        |  |   |
|--------|--|---|
| 6.3.2. | Cleaning up:   | Where possible, the substance can be absorbed by using absorbing material. Place the waste material in tightly closed impermeable containers. Store the substance in well ventilated storage rooms until disposal. Submit for disposal to the legal persons authorized by the Ministry of Environmental and Nature Protection. After disposal of the products, wash the area and involved materials with water. |
| 6.3.3. | Other information:   | Secure proper ventilation. Do not use incompatible materials (see Section 10).  |
| 6.4    | Reference to other sections  |   |
|        | See Section 7 for information on safe handling.<br>See Section 8 for information on personal protection equipment.<br>See Section 13 for disposal information. |   |

| <b>SECTION 7. Handling and storage</b> |  |  |
|--|--|--|
| 7.1                                    | Precautions for safe handling  |  |
| 7.1.1.                                 | Protection measures  |  |
|  | Measures to prevent fire:  | Use in well ventilated storage rooms. Keep away from sources of ignition and heat. Do not use tools that cause sparks. Do not smoke.   |
|  | Measures to prevent aerosol and dust generation:   | Secure proper ventilation.   |
|  | Measures to protect the environment:   | Prevent spilling into the sewage system and waterways.   |
|  | Other measures:  | Protect against electrostatic charges.   |
| 7.1.2.                                 | Advice on general occupational hygiene:  |  |
|  | Do not eat, drink or smoke in the workspace. Thoroughly wash hands after work and before eating. |  |
| 7.2                                    | Conditions for safe storage, including any incompatibilities                                     |  |
|  | Technical measures and storage conditions:   | Keep in tightly closed and upright set containers in a well ventilated storage rooms at temperatures ranging from 15 to 25 °C. Protect from heat and direct sunlight.        |
|  | Packaging materials:   | Manufacturer's original packaging.   |
|  | Requirements for storage rooms and vessels:  | Keep away from food and drink. Keep the containers tightly closed.   |
|  | Advices for storage equipment:   | The storage must be made of hard material; floors must be resistant to chemicals. There must be no drain that directly leads into sewage system. Secure proper ventilation.  |
|  | Further information on storage conditions:   | Do not place the unused material in the storage room and do not use empty containers for storing other chemicals. Do not store with incompatible materials (see Section 10). |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|     |                                       |   |  |  |
|-----|---------------------------------------|---|--|--|
| 7.3 | Specific end use(s)                   |   |  |  |
|     | Recommendations:                      | - |  |  |
|     | Industrial sector specific solutions: | - |  |  |

**SECTION 8. Exposure controls/personal protection**

**8.1 Control parameters**

| Substance | CAS No | Occupational exposure limit values/short term values |                   | Biological limit values |
|-----------|--------|--|-------------------|-------------------------|
|           |        | ppm  | mg/m <sup>3</sup> |                         |
| -         | -      | -  | -                 | -                       |

Substance name: -

EC No: - CAS No: -

**DNEL**

**Industrial**

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

Critical physical parameters: solubility, flammability, corrosivity: -

**Consumer**

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

**PNEC**

| Environmental protection target    | PNEC                     |
|------------------------------------|--------------------------|
| Fresh water                        | no information available |
| Freshwater sediments               | no information available |
| Marine water                       | no information available |
| Marine sediments                   | no information available |
| Food chain                         | no information available |
| Microorganisms in sewage treatment | no information available |
| Soil (agricultural)                | no information available |
| Air                                | no information available |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|          |  |   |                                  |
|----------|--|---|----------------------------------|
| 8.2      |  |   | Exposure controls                |
| 8.2.1.   |  |   | Appropriate engineering controls |
|          | Substance/mixture related measures to prevent exposure during identified uses: | Use the product in well ventilated rooms. Use personal protective equipment. Do not eat, drink or smoke in the workspace.   |                                  |
|          | Structural measures to prevent exposure:                                       | In accordance with Section 7.   |                                  |
|          | Organisational measures to prevent exposure:                                   | Organization of work in order to reduce other worker's influence during work process.   |                                  |
|          | Technical measures to prevent exposure:  | Secure proper workspace ventilation in order to keep concentration levels in air below permitted levels. Secure stations for rinsing eyes and showering.  |                                  |
| 8.2.2.   |  |   | Personal protection equipment    |
| 8.2.2.1. | Eye and face protection:   | Safety glasses that stick to face (EN 166) or visor in case of lower levels of concentration in air; protective gas mask that covers the entire face in case of higher levels of concentration in air.  |                                  |
| 8.2.2.2. | Skin protection  |   |                                  |
|          | Hand protection:   | The protective gloves have to satisfy the specification of Regulation (EU) 2016/425 and the related standard EN 374.<br>Glove material: nitrile rubber<br>Glove thickness: 0.40 mm<br>Time until perforation: > 480 min   |                                  |
|          | Other skin protection:   | During everyday work use cotton clothing (EN 340) and suitable footwear, such as rubber boots (EN 20345) or shoes that cover the entire foot. In case of spilling hazard, use clothing made of impermeable material suitable for protection from liquid chemicals (Viton, PVC, himex) and footwear made from the same material. |                                  |
| 8.2.2.3. | Respiratory protection:  | Protective full face mask (EN 136) or half mask (EN 140) equipped with a filter for organic vapors, type "A" (boiling point >65°C) according to EN 14387) used when concentration levels exceed GVI.  |                                  |
| 8.2.2.4. | Thermal hazards:   | No information available  |                                  |
| 8.2.3.   |  |   | Environmental exposure controls  |
|          | Substance/mixture related measures to prevent exposure:                        | See Section 6   |                                  |
|          | Structural measures to prevent exposure:                                       | Use modern equipment.   |                                  |
|          | Organisational measures to prevent exposure:                                   | Adapt the work process to the required working conditions of the workplace.   |                                  |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|   |               |
|---|---------------|
| Technical measures to prevent exposure: | See Section 6 |
|---|---------------|

**SECTION 9. Physical and chemical properties**

| 9.1 | Information on basic physical and chemical properties | Value                    | Method                   |
|-----|---|--------------------------|--------------------------|
|     | Physical state:                                       | liquid                   | No information available |
|     | Colour:   | colourless               | No information available |
|     | Odour:  | No information available | No information available |
|     | Odor threshold:                                       | No information available | No information available |
|     | pH:   | No information available | No information available |
|     | Melting point / freezing point:                       | No information available | No information available |
|     | Initial boiling point and boiling range:              | No information available | No information available |
|     | Flash point:  | No information available | No information available |
|     | Evaporation rate:                                     | No information available | No information available |
|     | Flammability (solid, gas):                            | No information available | No information available |
|     | Upper/lower flammability or explosive limits:         | No information available | No information available |
|     | Vapour pressure:                                      | No information available | No information available |
|     | Vapour density:                                       | No information available | No information available |
|     | Relative density:                                     | No information available | No information available |
|     | Bulk density:   | No information available | No information available |
|     | Solubility(ies):                                      | No information available | No information available |
|     | Partition coefficient: n-octanol/water (log Kow):     | No information available | No information available |
|     | Auto-ignition temperature:                            | No information available | No information available |
|     | Decomposition temperature:                            | No information available | No information available |
|     | Viscosity:  | No information available | No information available |
|     | Explosive properties:                                 | No information available | No information available |
|     | Oxidising properties:                                 | No information available | No information available |
| 9.2 | Other information                                     |                          |                          |
|     | -   |                          |                          |

**SECTION 10. Stability and reactivity**

|      |             |                                    |
|------|-------------|------------------------------------|
| 10.1 | Reactivity: | See subsections 10.3 through 10.5. |
|------|-------------|------------------------------------|



|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|      |                                     |   |
|------|-------------------------------------|---|
| 10.2 | Chemical stability:                 | The product is chemically stable under standard ambient conditions of storing and using (room temperature). |
| 10.3 | Possibility of hazardous reactions: | No information available  |
| 10.4 | Conditions to avoid:                | No information available  |
| 10.5 | Incompatible materials:             | No information available  |
| 10.6 | Hazardous decomposition products:   | No information available  |

**SECTION 11. Toxicological information**

**11.1 Information on toxicological effects**

Acute toxicity:

| Route of exposure: | Method                   | Species | Dose LD <sub>50</sub> /LC <sub>50</sub> or ATE <sub>mix</sub> | Exposure time | Results |
|--------------------|--------------------------|---------|---|---------------|---------|
| Oral:              | No information available | -       | No information available                                      | -             | -       |
| Dermal:            | No information available | -       | No information available                                      | -             | -       |
| Inhalation:        | No information available | -       | No information available                                      | -             | -       |

Specific target organ toxicity – single exposure (STOT SE):

|             | Specific effects         | Target organ             | Note |
|-------------|--------------------------|--------------------------|------|
| Oral:       | No information available | No information available | -    |
| Dermal:     | No information available | No information available | -    |
| Inhalation: | No information available | No information available | -    |

Aspiration hazard: No information available.

Irritation and corrosion

|                               | Exposure time | Species | Evaluation | Method | Note |
|-------------------------------|---------------|---------|------------|--------|------|
| Skin corrosion/irritation:    | -             | -       | -          | -      | -    |
| Serious eye damage/irritation | -             | -       | -          | -      | -    |

Sensitization

|                            |                           |
|----------------------------|---------------------------|
| Skin sensitization:        | No information available. |
| Respiratory sensitization: | No information available. |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| Symptoms related to the physical, chemical and toxicological characteristics |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

|                      |   |
|----------------------|---|
| Oral exposure:       | Swallowing may cause discomfort in abdomen and abdominal pains.               |
| Dermal exposure:     | Allergic persons may display irritation.                                      |
| Inhalation exposure: | Allergic persons may display irritation after prolonged or repeated exposure. |
| Eye exposure:        | May cause eye irritation.   |

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| Repeated dose toxicity (subacute, subchronic, chronic) |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

|                       | Dose                     | Exposure time            | Species                  | Method                   | Evaluation               | Note |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Subacute oral         | No information available | No information available | No information available | No information available | No information available | -    |
| Subacute dermal       | No information available | No information available | No information available | No information available | No information available | -    |
| Subacute inhalation   | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic oral       | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic dermal     | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic inhalation | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic oral          | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic dermal        | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic inhalation    | No information available | No information available | No information available | No information available | No information available | -    |

|   |  |  |  |  |  |  |
|---|--|--|--|--|--|--|
| Specific target organ toxicity – repeated exposure (STOT RE): |  |  |  |  |  |  |
|---|--|--|--|--|--|--|

|                 | Specific effects         | Target organ             | Note |
|-----------------|--------------------------|--------------------------|------|
| Subacute oral   | No information available | No information available | -    |
| Subacute dermal | No information available | No information available | -    |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|                       |                          |                          |   |
|-----------------------|--------------------------|--------------------------|---|
| Subacute inhalation   | No information available | No information available | - |
| Subchronic oral       | No information available | No information available | - |
| Subchronic dermal     | No information available | No information available | - |
| Subchronic inhalation | No information available | No information available | - |
| Chronic oral          | No information available | No information available | - |
| Chronic dermal        | No information available | No information available | - |
| Chronic inhalation    | No information available | No information available | - |

|  |   |
|--|---|
| CMR effects (carcinogenicity; mutagenicity; reproductive toxicity) |   |
| Carcinogenicity:   | Based on available data, the classification criteria are not met. |
| Mutagenicity <i>in vitro</i> :                                     | Based on available data, the classification criteria are not met. |
| Genotoxicity:  | Based on available data, the classification criteria are not met. |
| Mutagenicity <i>in vivo</i> :                                      | Based on available data, the classification criteria are not met. |
| Germ cell mutagenicity:  | Based on available data, the classification criteria are not met. |
| Reproductive toxicity:   | Based on available data, the classification criteria are not met. |
| Summary of evaluation of the CMR properties:                       | Based on available data, the classification criteria are not met. |

|             |   |
|-------------|---|
| <b>11.2</b> | <b>Practical experiences:</b>                         |
|             | Classification observations: No information available |
|             | Other observations: No information available          |
| <b>11.3</b> | <b>General notes:</b>                                 |
|             | -   |

**SECTION 12. Ecological information**

|                             |                  |               |                          |                          |                          |      |
|-----------------------------|------------------|---------------|--------------------------|--------------------------|--------------------------|------|
| <b>12.1</b>                 | <b>Toxicity</b>  |               |                          |                          |                          |      |
| Acute (short-term) toxicity | Dose             | Exposure time | Species                  | Method                   | Evaluation               | Note |
| Fish                        | LC <sub>50</sub> | 96 hours      | No information available | No information available | No information available | -    |
| Crustacea:                  | EC <sub>50</sub> | 48 hours      | No information available | No information available | No information available | -    |

|               |  |                      |              |          |   |  |
|---------------|--|----------------------|--------------|----------|---|--|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |  |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |  |

|                              |                  |               |                          |                          |                          |      |
|------------------------------|------------------|---------------|--------------------------|--------------------------|--------------------------|------|
| Algae/aquatic plants         | IC <sub>50</sub> | 4 days        | No information available | No information available | No information available | -    |
| Other organisms              | -                | -             | -                        | -                        | -                        | -    |
| Chronic (long-term) toxicity | Dose             | Exposure time | Species                  | Method                   | Evaluation               | Note |
| Fish                         | LC <sub>50</sub> | 96 hours      | No information available | No information available | No information available | -    |
| Crustacea:                   | EC <sub>50</sub> | 48 hours      | No information available | No information available | No information available | -    |
| Algae/aquatic plants         | IC <sub>50</sub> | 72 hours      | No information available | No information available | No information available | -    |
| Other organisms              | -                | -             | -                        | -                        | -                        | -    |

**12.2 Persistence and degradability**

Abiotic degradation

|              | Degradation half-lives   | Method                   | Evaluation               | Note |
|--------------|--------------------------|--------------------------|--------------------------|------|
| Marine water | No information available | No information available | No information available | -    |
| Fresh water  | No information available | No information available | No information available | -    |
| Air          | No information available | No information available | No information available | -    |
| Soil         | No information available | No information available | No information available | -    |

Biodegradation

| % Degradation            | Time (days)              | Method                   | Evaluation               | Note                     |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| No information available | No information available | No information available | No information available | No information available |
|                          |                          |                          |                          |                          |

**12.3 Bioaccumulative potential**

Octanol-water partition coefficient (log K<sub>ow</sub>)

| Value | Concentration | pH | °C | Method | Evaluation | Note |
|-------|---------------|----|----|--------|------------|------|
| -     | -             | -  | -  | -      | -          | -    |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|  |                               |  |  |  |  |
|--|-------------------------------|--|--|--|--|
|  | Bioconcentration factor (BCF) |  |  |  |  |
|--|-------------------------------|--|--|--|--|

| Value                    | Species                  | Method                   | Evaluation               | Note |
|--------------------------|--------------------------|--------------------------|--------------------------|------|
| No information available | No information available | No information available | No information available | -    |
|                          |                          |                          |                          |      |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|  |                     |  |  |  |  |
|--|---------------------|--|--|--|--|
|  | Chronic ecotoxicity |  |  |  |  |
|--|---------------------|--|--|--|--|

| Value  | Dose             | Exposure time            | Species                  | Method                   | Evaluation               | Note |
|--|------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Chronic toxicity on fish                         | LC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |
| Chronic toxicity on crustacea ( <i>Daphnia</i> ) | EC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|             |                         |
|-------------|-------------------------|
| <b>12.4</b> | <b>Mobility in soil</b> |
|-------------|-------------------------|

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  | Known or predicted distribution in environmental compartments: |  |  |  |  |
|--|--|--|--|--|--|

|  |                          |  |  |  |  |
|--|--------------------------|--|--|--|--|
|  | No information available |  |  |  |  |
|--|--------------------------|--|--|--|--|

|  |                  |  |  |  |  |
|--|------------------|--|--|--|--|
|  | Surface tension: |  |  |  |  |
|--|------------------|--|--|--|--|

| Value                    | °C                       | Concentration            | Method                   | Note |
|--------------------------|--------------------------|--------------------------|--------------------------|------|
| No information available | No information available | No information available | No information available | -    |
|                          |                          |                          |                          |      |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|  |                         |  |  |  |  |
|--|-------------------------|--|--|--|--|
|  | Adsorption / desorption |  |  |  |  |
|--|-------------------------|--|--|--|--|

| Transport  | A/D coefficient Henry's constant | log Kow                  | Evaporation rate         | Method                   | Note |
|------------|----------------------------------|--------------------------|--------------------------|--------------------------|------|
| Soil-water | No information available         | No information available | No information available | No information available | -    |
| Water-air  | No information available         | No information available | No information available | No information available | -    |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|          |                          |                          |                          |                          |   |
|----------|--------------------------|--------------------------|--------------------------|--------------------------|---|
| Soil-air | No information available | No information available | No information available | No information available | - |
|----------|--------------------------|--------------------------|--------------------------|--------------------------|---|

**12.5 Results of PBT and vPvB assessment**

Not applicable.

**12.6 Other adverse effects**

No further relevant information available.

**SECTION 13. Disposal considerations**

**13.1 Waste treatment methods**

**13.1.1. Product/Packaging disposal:**

Submit for disposal to the legal person authorized by the Ministry of Environmental and Nature Protection.

**13.1.2. Waste codes/waste designations according to Law:**

15 01 10\*: Packaging that contains residual hazardous substances or is contaminated with hazardous substances

**13.1.3. Waste treatment – relevant information:**

No information available

**13.1.4. Sewage disposal – relevant information:**

Waste must not be disposed of into the sewage system.

**13.1.5. Other disposal recommendations:**

Do not dispose of the product's remains into the sewage system. Submit the remains to the collectors authorized by the ministry in charge. Do not dispose of the packaging into the sewage system. Submit the packaging to the collectors authorized by the ministry in charge.

**13.1.6. Relevant Community provisions:**

Disposal must be made according to official regulations.

**SECTION 14 TRANSPORT INFORMATION**

Transporting/shipment by road (ADR)

UN number: Not subject to transport regulations

UN proper shipping name: -

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

|   |                                      |
|---|--------------------------------------|
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Transporting/shipment by rail (RID)                                       |                                      |
| UN number:  | Not subject to transport regulations |
| UN proper shipping name:  | -                                    |
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Inland waterway transport (ADN)   |                                      |
| UN number:  | Not subject to transport regulations |
| UN proper shipping name:  | -                                    |
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Transporting/shipment by sea (IMDG)                                       |                                      |
| UN number:  | Not subject to transport regulations |
| UN proper shipping name:  | -                                    |
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: | -                                    |
| Transporting/shipment by air (ICAO-TI/IATA-DGR)                           |                                      |
| UN number:  | Not subject to transport regulations |
| UN proper shipping name:  | -                                    |
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Further information:  | -                                    |

|               |  |                      |              |          |   |
|---------------|--|----------------------|--------------|----------|---|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |          |   |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: | 3 |

| <b>SECTION 15. Regulatory information</b> |  |
|---|--|
| 15.1                                      | Safety, health and environmental regulations/legislation specific for the substance or mixture   |
|   | EU regulations   |
|   | Authorization and/or restrictions of use   |
|   | Authorizations: -  |
|   | Restrictions: -  |
|   | Other EU regulations: EC Regulation No. 1906/2007 and EC Regulation No. 1272/2008 of the European Parliament and the European Council;<br>Regulation (EC) No. 1907/2006 of the European Parliament and Council on registration, evaluation, authorization and restriction of chemical substances (REACH);<br>EC Regulation No. 2037/2000 of the European Parliament and Council from 29 June 2000 on substances that damage the ozone layer;<br>EC Regulation No. 689/2008 of the European Parliament and Council from 17 June 2008 concerning the export and import of dangerous chemicals;<br>EC Regulation No. 850/2004 of the European Parliament and Council from 29 April 2004 about persistent organic pollutants;<br>Directive 2008/98/EC of the European Parliament and Council of 19 November 2008 on waste and repealing certain Directives |
|   | Information according 1999/13/EC about limitation of emissions of volatile organic compounds (VOC-guideline)   |
|   | National legislation: Chemicals Act, Regulation on classification, packaging and labeling of dangerous substances, Ordinance on occupational exposure limit values and on biological limit values, Regulation on categories, types and classification of waste with a waste catalog and list of hazardous waste, Ordinance on writing Material safety data sheet, Transport of Hazardous Substances Act  |
| 15.2                                      | Chemical safety assessment   |
|   | None   |

| <b>SECTION 16. Other information</b> |   |                  |  |
|--------------------------------------|---|------------------|--|
| 16.1                                 | Indication of changes: -                        |                  |  |
| 16.2                                 | Abbreviations and acronyms:                     | PBT              | Stable, bioaccumulative and toxic                |
|                                      |   | vPvB             | Strongly stable and strongly bioaccumulative.    |
|                                      |   | LD <sub>50</sub> | Lethal dose, 50%                                 |
|                                      |   | LC <sub>50</sub> | Lethal concentration, 50%                        |
|                                      |   | TCOJ             | Specific target organ toxicity - single exposure |
| 16.3.                                | Key literature references and source of data: - |                  |  |



|               |  |                      |              |            |
|---------------|--|----------------------|--------------|------------|
| Trading name: | <b>SODIUM THIOSULFATE, 5% SOLUTION</b> |                      |              |            |
| Product code: | NT5-OT-X**                             | Date of compilation: | 05 July 2019 | Version: 3 |

|       |   |  |   |
|-------|---|--|---|
| 16.4. | Classification and procedure used to derive the classification for mixture according to Regulation (EC) 1272/2008 (CLP) |  |   |
|       | Classification  | Classification procedure   |   |
|       | -   | -  |   |
| 16.5. | Relevant H statements (number and full text)  |  |   |
|       | H:  | -  | - |
| 16.6. | Training advice:  |  | - |
| 16.7. | Further information:  | <p>** "X" in the product code marks different volumes (different packagings of the product)</p> <p>We are not responsible for consequences in case of failure to comply with instructions for use or improper use of the product described in this material safety data sheet.</p> |   |

|   |  |
|---|--|
| <b>ANNEX: Exposure scenario resulting to chemical safety assessment</b> |  |
| -   |  |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

| <b>SECTION 1: Identification of the substance/mixture and of the company/undertaking</b> |   |
|--|---|
| <b>1.1</b>   | Product identifier  |
|  | Trading name: NUCLEAR FAST RED (KERNECHTROT) REAGENT  |
|  | Chemical name: -  |
|  | Catalogue number: KR-OT-X**   |
| <b>1.2</b>   | Relevant identified uses of the substance or mixture and uses advised against   |
|  | Uses: Counterstain in many special staining kits.   |
|  | Uses advised against: Only the identified uses are advised.   |
|  | Reason why uses advised against: The product is intended for use only as an <i>in vitro</i> diagnostic medical device, registered at the Agency for Medicinal Products and Medical Devices and there is no reason to use it for other purposes. |
| <b>1.3</b>   | Details of the supplier of the safety data sheet  |
|  | Supplier: BioGnost Ltd.   |
|  | Address: Medjugorska 59, Zagreb   |
|  | Telephone number: +385 1 2409997  |
|  | Telefax.: +385 1 2404039  |
|  | e-mail of competent person: <a href="mailto:msds@biognost.hr">msds@biognost.hr</a>  |
|  | National contact: -   |
| <b>1.4</b>   | Emergency telephone number  |
|  | National Protection and Rescue Directorate: 112   |
|  | Medical information: +385 1 2348 342  |
|  | Other information: -  |

| <b>SECTION 2. Hazards identification</b>                           |   |                                 |                     |  |   |
|--|---|---------------------------------|---------------------|--|---|
| <b>2.1</b>   | Classification of the substance or mixture  |                                 |                     |  |   |
| <b>2.1.1</b>   | Classification according to Regulation (EC) No 1272/2008 (CLP)  |                                 |                     |  |   |
|  | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Hazard class and category code:</td> <td style="width: 50%; padding: 5px;">Hazard statements*:</td> </tr> <tr> <td style="padding: 5px;">Not identified as hazardous substance.</td> <td style="padding: 5px;">-</td> </tr> </table> | Hazard class and category code: | Hazard statements*: | Not identified as hazardous substance. | - |
| Hazard class and category code:                                    | Hazard statements*:   |                                 |                     |  |   |
| Not identified as hazardous substance.                             | -   |                                 |                     |  |   |
| <b>2.1.2.</b>  | Additional information  |                                 |                     |  |   |
|  | -   |                                 |                     |  |   |
| *For full text of Hazard- and EU Hazard-statements: see SECTION 16 |   |                                 |                     |  |   |
| <b>2.2</b>   | Label elements  |                                 |                     |  |   |
|  | Product identification: NUCLEAR FAST RED (KERNECHTROT) REAGENT  |                                 |                     |  |   |
|  | Identification number: -  |                                 |                     |  |   |
|  | Authorization number: -   |                                 |                     |  |   |
|  | Hazard pictograms: -  |                                 |                     |  |   |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|                                       |   |
|---------------------------------------|---|
| Signal word:                          | - |
| Hazard statements:                    | - |
| Precautionary statements:             | - |
| Supplemental hazard information (EU): | - |

|     |               |
|-----|---------------|
| 2.3 | Other hazards |
|     | -             |

**SECTION 3. Composition/information on ingredients**

| CAS/<br>EC/<br>Index number   | REACH<br>Registration<br>No | Weight %<br>content (or<br>range) | Identification name   | Classification<br>according to<br>Regulation (EC) No<br>1272/2008 (CLP) |
|-------------------------------|-----------------------------|-----------------------------------|---|---|
| 6409-77-4/<br>229-088-0/<br>- | -                           | ≤ 1%                              | Disodium 1-amino-2,4-dihydroxy-<br>9,10-dihydro-9,10-dioxoanthracene-<br>3-sulphonate | Skin Irr. 2; H315<br>Eye Irr. 2; H319<br>STOT SE; H335                  |

**SECTION 4. First aid measures**

|     |   |  |
|-----|---|--|
| 4.1 | Description of first aid measures                           |  |
|     | General notes:  | If the suggested first aid measures do not prove sufficient, seek medical attention.   |
|     | Following inhalation:                                       | Carry the afflicted person out of the contaminated area into a well-ventilated area or out for fresh air. In case of difficult breathing, provide the afflicted person with oxygen.                            |
|     | Following skin contact:                                     | Remove contaminated clothing. Immediately wash with plenty of water for at least 20 minutes. Seek medical assistance if the symptoms of irritation remain.   |
|     | Following eye contact:                                      | Rinse out with plenty of water with the eyelid held wide open for at least 20 minutes. If the symptoms remain, immediately call in ophthalmologist.  |
|     | Following ingestion:  | Rinse the mouth thoroughly with 1-2 glasses of water. Immediately consult a physician and show the container or label. In case of swallowing large quantities, transport the afflicted person to the hospital. |
|     | Self-protection of the first aider:                         | -  |
| 4.2 | Most important symptoms and effects, both acute and delayed |  |
|     | Following inhalation:                                       | According to our findings, chemical, physical and toxicological properties of the substance have not been entirely tested.   |
|     | Following skin contact:                                     | According to our findings, chemical, physical and toxicological properties of the substance have not been entirely tested.   |
|     | Following eye contact:                                      | According to our findings, chemical, physical and toxicological properties of the substance have not been entirely tested.   |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|     |  |  |
|-----|--|--|
|     | Following ingestion:   | According to our findings, chemical, physical and toxicological properties of the substance have not been entirely tested. |
| 4.3 | Indication of any immediate medical attention and special treatment needed |  |
|     | -  |  |

| <b>SECTION 5. Firefighting measures</b> |   |  |
|---|---|--|
| 5.1                                     | Extinguishing media   |  |
|   | Suitable extinguishing media:   | water spray, dry powder, CO <sub>2</sub> or alcohol resistant foam |
|   | Unsuitable extinguishing media:   | Water with full jet  |
| 5.2                                     | Special hazards arising from the substance or mixture   |  |
|   | Hazardous combustion products:  | no information available   |
| 5.3                                     | Advice for firefighters   |  |
|   | Use a self-contained open-circuit compressed air breathing apparatus and fireproof clothing.  |  |
| 5.4                                     | Additional information  |  |
|   | Cool endangered receptacles with water spray. Collect contaminated fire fighting water separately. Do not contaminate the environment with extinguishing media. |  |

| <b>SECTION 6. Accidental release measures</b> |   |   |
|---|---|---|
| 6.1   | Personal precautions, protective equipment and emergency procedures   |   |
| 6.1.1.  | For non-emergency personnel   |   |
|   | Protective equipment:   | Use personal protective equipment (see Section 8).  |
|   | Accident prevention methods:  | Evacuate members of all non-essential personnel and those members without protective equipment. Avoid breathing vapors and avoid contact with skin and eyes. Do not smoke. Keep away from ignition sources. |
|   | Emergency procedures:   | Mark the area using proper signs.   |
| 6.1.2.  | For emergency responders:   |   |
|   | Use protective equipment; in case of inadequate ventilation use adequate airways protective equipment (see Section 8).                                  |   |
| 6.2   | Environmental precautions:  |   |
|   | Do not dispose of in sewage, drainage system and waterways. In case of large spillage contact National Protection and Rescue Directorate (NPRD) on 112. |   |
| 6.3   | Methods and material for containment and cleaning up  |   |
| 6.3.1.  | Bundling, covering of drains; capping procedures:   | Sand protective barrier or barriers made of similar materials.  |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|        |  |   |
|--------|--|---|
| 6.3.2. | Cleaning up:   | Where possible, the substance can be absorbed by using absorbing material. Place the waste material in tightly closed impermeable containers. Store the substance in well ventilated storage rooms until disposal. Submit for disposal to the legal persons authorized by the Ministry of Environmental and Nature Protection. After disposal of the products, wash the area and involved materials with water. |
| 6.3.3. | Other information:   | Secure proper ventilation. Do not use incompatible materials (see Section 10).  |
| 6.4    | Reference to other sections  |   |
|        | See Section 7 for information on safe handling.<br>See Section 8 for information on personal protection equipment.<br>See Section 13 for disposal information. |   |

| <b>SECTION 7. Handling and storage</b> |  |  |
|--|--|--|
| 7.1                                    | Precautions for safe handling  |  |
| 7.1.1.                                 | Protection measures  |  |
|  | Measures to prevent fire:  | Use in well ventilated storage rooms. Keep away from sources of ignition and heat. Do not use tools that cause sparks. Do not smoke.   |
|  | Measures to prevent aerosol and dust generation:   | Secure proper ventilation.   |
|  | Measures to protect the environment:   | Prevent spilling into the sewage system and waterways.   |
|  | Other measures:  | Protect against electrostatic charges.   |
| 7.1.2.                                 | Advice on general occupational hygiene:  |  |
|  | Do not eat, drink or smoke in the workspace. Thoroughly wash hands after work and before eating. |  |
| 7.2                                    | Conditions for safe storage, including any incompatibilities                                     |  |
|  | Technical measures and storage conditions:   | Keep in tightly closed and upright set containers in a well ventilated storage rooms at temperatures ranging from 15 to 25 °C. Protect from heat and direct sunlight.        |
|  | Packaging materials:   | Manufacturer's original packaging.   |
|  | Requirements for storage rooms and vessels:  | Keep away from food and drink. Keep the containers tightly closed.   |
|  | Advices for storage equipment:   | The storage must be made of hard material; floors must be resistant to chemicals. There must be no drain that directly leads into sewage system. Secure proper ventilation.  |
|  | Further information on storage conditions:   | Do not place the unused material in the storage room and do not use empty containers for storing other chemicals. Do not store with incompatible materials (see Section 10). |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|     |                                       |   |
|-----|---------------------------------------|---|
| 7.3 | Specific end use(s)                   |   |
|     | Recommendations:                      | - |
|     | Industrial sector specific solutions: | - |

**SECTION 8. Exposure controls/personal protection**

**8.1 Control parameters**

| Substance | CAS No | Occupational exposure limit values/short term values |                   | Biological limit values |
|-----------|--------|--|-------------------|-------------------------|
|           |        | ppm  | mg/m <sup>3</sup> |                         |
| -         | -      | -  | -                 | -                       |

Substance name: -

EC No: - CAS No: -

**DNEL**

**Industrial**

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

Critical physical parameters: solubility, flammability, corrosivity: -

**Consumer**

| Route of exposure: | Acute effect local | Acute effect systemic | Chronic effect local | Chronic effect systemic |
|--------------------|--------------------|-----------------------|----------------------|-------------------------|
| Oral               | -                  | -                     | -                    | -                       |
| Inhalation         | -                  | -                     | -                    | -                       |
| Dermal             | -                  | -                     | -                    | -                       |

**PNEC**

| Environmental protection target    | PNEC                     |
|------------------------------------|--------------------------|
| Fresh water                        | no information available |
| Freshwater sediments               | no information available |
| Marine water                       | no information available |
| Marine sediments                   | no information available |
| Food chain                         | no information available |
| Microorganisms in sewage treatment | no information available |
| Soil (agricultural)                | no information available |
| Air                                | no information available |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|          |  |   |                                  |
|----------|--|---|----------------------------------|
| 8.2      |  |   | Exposure controls                |
| 8.2.1.   |  |   | Appropriate engineering controls |
|          | Substance/mixture related measures to prevent exposure during identified uses: | Use the product in well ventilated rooms. Use personal protective equipment. Do not eat, drink or smoke in the workspace.   |                                  |
|          | Structural measures to prevent exposure:                                       | In accordance with Section 7.   |                                  |
|          | Organisational measures to prevent exposure:                                   | Organization of work in order to reduce other worker's influence during work process.   |                                  |
|          | Technical measures to prevent exposure:  | Secure proper workspace ventilation in order to keep concentration levels in air below permitted levels. Secure stations for rinsing eyes and showering.  |                                  |
| 8.2.2.   |  |   | Personal protection equipment    |
| 8.2.2.1. | Eye and face protection:   | Safety glasses that stick to face (EN 166) or visor in case of lower levels of concentration in air; protective gas mask that covers the entire face in case of higher levels of concentration in air.  |                                  |
| 8.2.2.2. | Skin protection  |   |                                  |
|          | Hand protection:   | The protective gloves have to satisfy the specification of Regulation (EU) 2016/425 and the related standard EN 374.<br>Glove material: nitrile rubber<br>Glove thickness: 0.40 mm<br>Time until perforation: > 480 min   |                                  |
|          | Other skin protection:   | During everyday work use cotton clothing (EN 340) and suitable footwear, such as rubber boots (EN 20345) or shoes that cover the entire foot. In case of spilling hazard, use clothing made of impermeable material suitable for protection from liquid chemicals (Viton, PVC, himex) and footwear made from the same material. |                                  |
| 8.2.2.3. | Respiratory protection:  | Protective full face mask (EN 136) or half mask (EN 140) equipped with a filter for organic vapors, type "A" (boiling point >65°C) according to EN 14387) used when concentration levels exceed GVI.  |                                  |
| 8.2.2.4. | Thermal hazards:   | No information available  |                                  |
| 8.2.3.   |  |   | Environmental exposure controls  |
|          | Substance/mixture related measures to prevent exposure:                        | See Section 6   |                                  |
|          | Structural measures to prevent exposure:                                       | Use modern equipment.   |                                  |
|          | Organisational measures to prevent exposure:                                   | Adapt the work process to the required working conditions of the workplace.   |                                  |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|   |               |
|---|---------------|
| Technical measures to prevent exposure: | See Section 6 |
|---|---------------|

**SECTION 9. Physical and chemical properties**

| 9.1 Information on basic physical and chemical properties |  |                          |                          |
|---|--|--------------------------|--------------------------|
|   |  | Value                    | Method                   |
| Physical state:   |  | liquid                   | No information available |
| Colour:   |  | red                      | No information available |
| Odour:  |  | No information available | No information available |
| Odor threshold:   |  | No information available | No information available |
| pH:   |  | No information available | No information available |
| Melting point / freezing point;                           |  | No information available | No information available |
| Initial boiling point and boiling range:                  |  | No information available | No information available |
| Flash point:  |  | No information available | No information available |
| Evaporation rate:   |  | No information available | No information available |
| Flammability (solid, gas):                                |  | No information available | No information available |
| Upper/lower flammability or explosive limits:             |  | No information available | No information available |
| Vapour pressure:  |  | No information available | No information available |
| Vapour density:   |  | No information available | No information available |
| Relative density:   |  | No information available | No information available |
| Bulk density:   |  | No information available | No information available |
| Solubility(ies):  |  | No information available | No information available |
| Partition coefficient: n-octanol/water (log Kow):         |  | No information available | No information available |
| Auto-ignition temperature:                                |  | No information available | No information available |
| Decomposition temperature:                                |  | No information available | No information available |
| Viscosity:  |  | No information available | No information available |
| Explosive properties:                                     |  | No information available | No information available |
| Oxidising properties:                                     |  | No information available | No information available |
| 9.2 Other information                                     |  |                          |                          |
|   |  | -                        |                          |

**SECTION 10. Stability and reactivity**

|      |             |                                    |
|------|-------------|------------------------------------|
| 10.1 | Reactivity: | See subsections 10.3 through 10.5. |
|------|-------------|------------------------------------|



|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|      |                                     |   |
|------|-------------------------------------|---|
| 10.2 | Chemical stability:                 | The product is chemically stable under standard ambient conditions of storing and using (room temperature). |
| 10.3 | Possibility of hazardous reactions: | No information available  |
| 10.4 | Conditions to avoid:                | No information available  |
| 10.5 | Incompatible materials:             | No information available  |
| 10.6 | Hazardous decomposition products:   | No information available  |

| <b>SECTION 11. Toxicological information</b>                |                           |         |   |               |         |
|---|---------------------------|---------|---|---------------|---------|
| 11.1 Information on toxicological effects                   |                           |         |   |               |         |
| Acute toxicity:   |                           |         |   |               |         |
| Route of exposure:  | Method                    | Species | Dose LD <sub>50</sub> /LC <sub>50</sub> or ATE <sub>mix</sub> | Exposure time | Results |
| Oral:   | No information available  | -       | No information available                                      | -             | -       |
| Dermal:   | No information available  | -       | No information available                                      | -             | -       |
| Inhalation:   | No information available  | -       | No information available                                      | -             | -       |
| Specific target organ toxicity – single exposure (STOT SE): |                           |         |   |               |         |
|   | Specific effects          |         | Target organ  | Note          |         |
| Oral:   | No information available  |         | No information available                                      | -             |         |
| Dermal:   | No information available  |         | No information available                                      | -             |         |
| Inhalation:   | No information available  |         | No information available                                      | -             |         |
| Aspiration hazard:  |                           |         |   |               |         |
|   |                           |         | No information available.                                     |               |         |
| Irritation and corrosion                                    |                           |         |   |               |         |
|   | Exposure time             | Species | Evaluation  | Method        | Note    |
| Skin corrosion/irritation:                                  | -                         | -       | -   | -             | -       |
| Serious eye damage/irritation                               | -                         | -       | -   | -             | -       |
| Sensitization   |                           |         |   |               |         |
| Skin sensitization:   | No information available. |         |   |               |         |
| Respiratory sensitization:                                  | No information available. |         |   |               |         |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| Symptoms related to the physical, chemical and toxicological characteristics |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

|                      |  |
|----------------------|--|
| Oral exposure:       | Harmful if swallowed.  |
| Dermal exposure:     | Harmful if absorbed through skin. May cause skin irritation. |
| Inhalation exposure: | Harmful if inhaled. May cause respiratory tract irritation.  |
| Eye exposure:        | May cause eye irritation.                                    |

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| Repeated dose toxicity (subacute, subchronic, chronic) |  |  |  |  |  |  |
|--|--|--|--|--|--|--|

|                       | Dose                     | Exposure time            | Species                  | Method                   | Evaluation               | Note |
|-----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Subacute oral         | No information available | No information available | No information available | No information available | No information available | -    |
| Subacute dermal       | No information available | No information available | No information available | No information available | No information available | -    |
| Subacute inhalation   | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic oral       | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic dermal     | No information available | No information available | No information available | No information available | No information available | -    |
| Subchronic inhalation | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic oral          | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic dermal        | No information available | No information available | No information available | No information available | No information available | -    |
| Chronic inhalation    | No information available | No information available | No information available | No information available | No information available | -    |

|   |  |  |  |  |  |  |
|---|--|--|--|--|--|--|
| Specific target organ toxicity – repeated exposure (STOT RE): |  |  |  |  |  |  |
|---|--|--|--|--|--|--|

|                 | Specific effects         | Target organ             | Note |
|-----------------|--------------------------|--------------------------|------|
| Subacute oral   | No information available | No information available | -    |
| Subacute dermal | No information available | No information available | -    |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|                       |                          |                          |   |
|-----------------------|--------------------------|--------------------------|---|
| Subacute inhalation   | No information available | No information available | - |
| Subchronic oral       | No information available | No information available | - |
| Subchronic dermal     | No information available | No information available | - |
| Subchronic inhalation | No information available | No information available | - |
| Chronic oral          | No information available | No information available | - |
| Chronic dermal        | No information available | No information available | - |
| Chronic inhalation    | No information available | No information available | - |

|  |   |
|--|---|
| CMR effects (carcinogenicity; mutagenicity; reproductive toxicity) |   |
| Carcinogenicity:   | Based on available data, the classification criteria are not met. |
| Mutagenicity <i>in vitro</i> :                                     | Based on available data, the classification criteria are not met. |
| Genotoxicity:  | Based on available data, the classification criteria are not met. |
| Mutagenicity <i>in vivo</i> :                                      | Based on available data, the classification criteria are not met. |
| Germ cell mutagenicity:  | Based on available data, the classification criteria are not met. |
| Reproductive toxicity:   | Based on available data, the classification criteria are not met. |
| Summary of evaluation of the CMR properties:                       | Based on available data, the classification criteria are not met. |

|             |   |
|-------------|---|
| <b>11.2</b> | <b>Practical experiences:</b>                         |
|             | Classification observations: No information available |
|             | Other observations: No information available          |
| <b>11.3</b> | <b>General notes:</b>                                 |
|             | -   |

**SECTION 12. Ecological information**

|                             |                  |               |                          |                          |                          |      |
|-----------------------------|------------------|---------------|--------------------------|--------------------------|--------------------------|------|
| <b>12.1</b>                 | <b>Toxicity</b>  |               |                          |                          |                          |      |
| Acute (short-term) toxicity | Dose             | Exposure time | Species                  | Method                   | Evaluation               | Note |
| Fish                        | LC <sub>50</sub> | 96 hours      | No information available | No information available | No information available | -    |
| Crustacea:                  | EC <sub>50</sub> | 48 hours      | No information available | No information available | No information available | -    |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|                              |                  |               |                          |                          |                          |      |
|------------------------------|------------------|---------------|--------------------------|--------------------------|--------------------------|------|
| Algae/aquatic plants         | IC <sub>50</sub> | 4 days        | No information available | No information available | No information available | -    |
| Other organisms              | -                | -             | -                        | -                        | -                        | -    |
| Chronic (long-term) toxicity | Dose             | Exposure time | Species                  | Method                   | Evaluation               | Note |
| Fish                         | LC <sub>50</sub> | 96 hours      | No information available | No information available | No information available | -    |
| Crustacea:                   | EC <sub>50</sub> | 48 hours      | No information available | No information available | No information available | -    |
| Algae/aquatic plants         | IC <sub>50</sub> | 72 hours      | No information available | No information available | No information available | -    |
| Other organisms              | -                | -             | -                        | -                        | -                        | -    |

**12.2 Persistence and degradability**

**Abiotic degradation**

|              | Degradation half-lives   | Method                   | Evaluation               | Note |
|--------------|--------------------------|--------------------------|--------------------------|------|
| Marine water | No information available | No information available | No information available | -    |
| Fresh water  | No information available | No information available | No information available | -    |
| Air          | No information available | No information available | No information available | -    |
| Soil         | No information available | No information available | No information available | -    |

**Biodegradation**

| % Degradation            | Time (days)              | Method                   | Evaluation               | Note                     |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| No information available | No information available | No information available | No information available | No information available |
|                          |                          |                          |                          |                          |

**12.3 Bioaccumulative potential**

**Octanol-water partition coefficient (log K<sub>ow</sub>)**

| Value | Concentration | pH | °C | Method | Evaluation | Note |
|-------|---------------|----|----|--------|------------|------|
| -     | -             | -  | -  | -      | -          | -    |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|  |                               |  |  |  |  |
|--|-------------------------------|--|--|--|--|
|  | Bioconcentration factor (BCF) |  |  |  |  |
|--|-------------------------------|--|--|--|--|

| Value                    | Species                  | Method                   | Evaluation               | Note |
|--------------------------|--------------------------|--------------------------|--------------------------|------|
| No information available | No information available | No information available | No information available | -    |
|                          |                          |                          |                          |      |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|  |                     |  |  |  |  |
|--|---------------------|--|--|--|--|
|  | Chronic ecotoxicity |  |  |  |  |
|--|---------------------|--|--|--|--|

| Value  | Dose             | Exposure time            | Species                  | Method                   | Evaluation               | Note |
|--|------------------|--------------------------|--------------------------|--------------------------|--------------------------|------|
| Chronic toxicity on fish                         | LC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |
| Chronic toxicity on crustacea ( <i>Daphnia</i> ) | EC <sub>50</sub> | No information available | No information available | No information available | No information available | -    |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|             |                         |
|-------------|-------------------------|
| <b>12.4</b> | <b>Mobility in soil</b> |
|-------------|-------------------------|

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  | Known or predicted distribution in environmental compartments: |  |  |  |  |
|--|--|--|--|--|--|

|  |                          |  |  |  |  |
|--|--------------------------|--|--|--|--|
|  | No information available |  |  |  |  |
|--|--------------------------|--|--|--|--|

|  |                  |  |  |  |  |
|--|------------------|--|--|--|--|
|  | Surface tension: |  |  |  |  |
|--|------------------|--|--|--|--|

| Value                    | °C                       | Concentration            | Method                   | Note |
|--------------------------|--------------------------|--------------------------|--------------------------|------|
| No information available | No information available | No information available | No information available | -    |
|                          |                          |                          |                          |      |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
|--|--|--|--|--|--|

|  |                         |  |  |  |  |
|--|-------------------------|--|--|--|--|
|  | Adsorption / desorption |  |  |  |  |
|--|-------------------------|--|--|--|--|

| Transport  | A/D coefficient Henry's constant | log Kow                  | Evaporation rate         | Method                   | Note |
|------------|----------------------------------|--------------------------|--------------------------|--------------------------|------|
| Soil-water | No information available         | No information available | No information available | No information available | -    |
| Water-air  | No information available         | No information available | No information available | No information available | -    |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|   |                          |                                      |                          |                          |   |
|---|--------------------------|--------------------------------------|--------------------------|--------------------------|---|
| Soil-air  | No information available | No information available             | No information available | No information available | - |
| <b>12.5 Results of PBT and vPvB assessment</b>  |                          |                                      |                          |                          |   |
| Not applicable.   |                          |                                      |                          |                          |   |
| <b>12.6 Other adverse effects</b>   |                          |                                      |                          |                          |   |
| No further relevant information available.  |                          |                                      |                          |                          |   |
| <b>SECTION 13. Disposal considerations</b>  |                          |                                      |                          |                          |   |
| <b>13.1 Waste treatment methods</b>   |                          |                                      |                          |                          |   |
| <b>13.1.1. Product/Packaging disposal:</b>  |                          |                                      |                          |                          |   |
| Submit for disposal to the legal person authorized by the Ministry of Environmental and Nature Protection.  |                          |                                      |                          |                          |   |
| <b>13.1.2. Waste codes/waste designations according to Law:</b>   |                          |                                      |                          |                          |   |
| 15 01 10*: Packaging that contains residual hazardous substances or is contaminated with hazardous substances   |                          |                                      |                          |                          |   |
| <b>13.1.3. Waste treatment – relevant information:</b>  |                          |                                      |                          |                          |   |
| No information available  |                          |                                      |                          |                          |   |
| <b>13.1.4. Sewage disposal – relevant information:</b>  |                          |                                      |                          |                          |   |
| Waste must not be disposed of into the sewage system.   |                          |                                      |                          |                          |   |
| <b>13.1.5. Other disposal recommendations:</b>  |                          |                                      |                          |                          |   |
| Do not dispose of the product's remains into the sewage system. Submit the remains to the collectors authorized by the ministry in charge. Do not dispose of the packaging into the sewage system. Submit the packaging to the collectors authorized by the ministry in charge. |                          |                                      |                          |                          |   |
| <b>13.1.6. Relevant Community provisions:</b>   |                          |                                      |                          |                          |   |
| Disposal must be made according to official regulations.  |                          |                                      |                          |                          |   |
| <b>SECTION 14 TRANSPORT INFORMATION</b>   |                          |                                      |                          |                          |   |
| Transporting/shipment by road (ADR)   |                          |                                      |                          |                          |   |
| UN number:  |                          | Not subject to transport regulations |                          |                          |   |
| UN proper shipping name:  |                          | -                                    |                          |                          |   |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|   |                                      |
|---|--------------------------------------|
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Transporting/shipment by rail (RID)                                       |                                      |
| UN number:  | Not subject to transport regulations |
| UN proper shipping name:  | -                                    |
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Inland waterway transport (ADN)   |                                      |
| UN number:  | Not subject to transport regulations |
| UN proper shipping name:  | -                                    |
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Transporting/shipment by sea (IMDG)                                       |                                      |
| UN number:  | Not subject to transport regulations |
| UN proper shipping name:  | -                                    |
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: | -                                    |
| Transporting/shipment by air (ICAO-TI/IATA-DGR)                           |                                      |
| UN number:  | Not subject to transport regulations |
| UN proper shipping name:  | -                                    |
| Transport hazard class(es):   | -                                    |
| Packing group:  | -                                    |
| Environmentally hazardous:  | -                                    |
| Special precautions for user:   | -                                    |
| Further information:  | -                                    |

|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

| <b>SECTION 15. Regulatory information</b> |   |
|---|---|
| 15.1                                      | Safety, health and environmental regulations/legislation specific for the substance or mixture  |
|   | EU regulations  |
|   | Authorization and/or restrictions of use  |
|   | Authorizations: -   |
|   | Restrictions: -   |
|   | Other EU regulations: EC Regulation No. 1906/2007 and EC Regulation No. 1272/2008 of the European Parliament and the European Council;<br>Regulation (EC) No. 1907/2006 of the European Parliament and Council on registration, evaluation, authorization and restriction of chemical substances (REACH);<br>EC Regulation No. 2037/200 of the European Parliament and Council from 29 June 2000 on substances that damage the ozone layer;<br>EC Regulation No. 689/2008 of the European Parliament and Council from 17 June 2008 concerning the export and import of dangerous chemicals;<br>EC Regulation No. 850/2004 of the European Parliament and Council from 29 April 2004 about persistent organic pollutants;<br>Directive 2008/98/EC of the European Parliament and Council of 19 November 2008 on waste and repealing certain Directives |
|   | Information according 1999/13/EC about limitation of emissions of volatile organic compounds (VOC-guideline)  |
|   | National legislation: Chemicals Act, Regulation on classification, packaging and labeling of dangerous substances, Ordinance on occupational exposure limit values and on biological limit values, Regulation on categories, types and classification of waste with a waste catalog and list of hazardous waste, Ordinance on writing Material safety data sheet, Transport of Hazardous Substances Act   |
| 15.2                                      | Chemical safety assessment  |
|   | None  |

| <b>SECTION 16. Other information</b> |   |
|--------------------------------------|---|
| 16.1                                 | Indication of changes: -  |
| 16.2                                 | Abbreviations and acronyms: PBT Stable, bioaccumulative and toxic<br>vPvB Strongly stable and strongly bioaccumulative.<br>LD <sub>50</sub> Lethal dose, 50%<br>LC <sub>50</sub> Lethal concentration, 50%<br>TCOJ Specific target organ toxicity - single exposure |
| 16.3.                                | Key literature references and source of data: -   |



|               |   |                      |              |          |   |
|---------------|---|----------------------|--------------|----------|---|
| Trading name: | <b>NUCLEAR FAST RED (KERNECHTROT) REAGENT</b> |                      |              |          |   |
| Product code: | KR-OT-X**                                     | Date of compilation: | 03 July 2019 | Version: | 3 |

|       |   |   |
|-------|---|---|
| 16.4. | Classification and procedure used to derive the classification for mixture according to Regulation (EC) 1272/2008 (CLP) |   |
|       | Classification  | Classification procedure  |
|       | -   | -   |
| 16.5. | Relevant H statements (number and full text)  |   |
|       | H315  | Causes skin irritation.   |
|       | H: H319   | Causes serious eye irritation.  |
|       | H335  | May cause respiratory irritation.   |
| 16.6. | Training advice:  | -   |
| 16.7. | Further information:  | ** "X" in the product code marks different volumes (different packagings of the product)<br>We are not responsible for consequences in case of failure to comply with instructions for use or improper use of the product described in this material safety data sheet. |

|   |
|---|
| <b>ANNEX: Exposure scenario resulting to chemical safety assessment</b> |
| -   |