

|               |                             |                      |              |            |
|---------------|-----------------------------|----------------------|--------------|------------|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |            |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: 5 |

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

|     |                                                                               |                                                                                                                                                                                                                |
|-----|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1 | Product identifier                                                            |                                                                                                                                                                                                                |
|     | Trading name:                                                                 | ACID ALCOHOL, ORCEIN                                                                                                                                                                                           |
|     | Chemical name:                                                                | -                                                                                                                                                                                                              |
|     | Catalogue number:                                                             | KAO-OT-X**                                                                                                                                                                                                     |
| 1.2 | Relevant identified uses of the substance or mixture and uses advised against |                                                                                                                                                                                                                |
|     | Uses:                                                                         | For use with Orcein 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. |
| 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*:  |
|                                                                    | Flam. Liq. 2                                                   | H225                 |
| 2.1.2.                                                             | Additional information                                         |                      |
|                                                                    | -                                                              |                      |
| *For full text of Hazard- and EU Hazard-statements: see SECTION 16 |                                                                |                      |
| 2.2                                                                | Label elements                                                 |                      |
|                                                                    | Product identification:                                        | ACID ALCOHOL, ORCEIN |
|                                                                    | Identification number:                                         | -                    |
|                                                                    | Authorization number:                                          | -                    |

|               |                             |                      |              |            |
|---------------|-----------------------------|----------------------|--------------|------------|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |            |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: 5 |

|                                       |                                                                                                                                                                                                     |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard pictograms:                    |                                                                                                                    |
| Signal word:                          | Danger                                                                                                                                                                                              |
| Hazard statements:                    | H225 Highly flammable liquid and vapor.                                                                                                                                                             |
| Precautionary statements:             | P210 Keep away from heat/sparks/open flames/hot surfaces. - Do not smoke.<br>P233 Keep container tightly closed.<br>P280 Wear protective gloves/protective clothing/eye/protection/face protection. |
| Supplemental hazard information (EU): | -                                                                                                                                                                                                   |
| 2.3                                   | Other hazards                                                                                                                                                                                       |
|                                       | -                                                                                                                                                                                                   |

| SECTION 3. Composition/information on ingredients |                           |                                |                        |                                                                      |
|---------------------------------------------------|---------------------------|--------------------------------|------------------------|----------------------------------------------------------------------|
| CAS/<br>EC/<br>Index number                       | REACH Registration<br>No  | Weight % content<br>(or range) | Identification name    | Classification according to<br>Regulation (EC) No<br>1272/2008 (CLP) |
| 64-17-5/<br>200-578-6/<br>603-002-00-5            | 01-2119457610-43-<br>xxxx | ≥ 50%                          | ethanol                | Flam. Liq. 2; H225                                                   |
| 7647-01-0/<br>231-595-7/<br>017-002-00-2          | 01-2119484862-27-<br>xxxx | < 1%                           | hydrochloric acid, 37% | Skin Corr. 1A; H314<br>Acute Tox. 3; H331                            |

| 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.                                 |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

|     |                                                                            |                                                                                                                                                                                                                |
|-----|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 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:                                                      | Depending on concentration and exposure time, it may lead to mucosa irritation, cough, and dyspnea.                                                                                                            |
|     | 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:                                                       | Depending on concentration and exposure time, it may lead to stinging and digestive mucus damage, abdominal pain, nausea, vomiting.                                                                            |
| 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:                                                                                                                                   | Small fire - water spray, dry powder, CO <sub>2</sub><br>Large fire - water spray or alcohol resistant foam |
|                                         | Unsuitable extinguishing media:                                                                                                                                 | Water with full jet                                                                                         |
| 5.2                                     | Special hazards arising from the substance or mixture                                                                                                           |                                                                                                             |
|                                         | Hazardous combustion products:                                                                                                                                  | Formation of toxic gases is possible during heating or in case of fire.                                     |
| 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. |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

|        |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | 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 protective barrier or barriers made of similar materials.                                                                                                                                                                                                                                                                                                                                                  |
| 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. |                                                                                                                                                                                                                                                                                                                                                                                                                 |

| SECTION 7. Handling and storage |                                                                                                  |                                                                                                                                                                       |
|---------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |

|               |                             |                      |              |            |
|---------------|-----------------------------|----------------------|--------------|------------|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |            |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: 5 |

|     |                                             |                                                                                                                                                                              |
|-----|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 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). |
| 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>    |                                 |
| Ethanol                                                              | 64-17-5            | 1000/-                                               | 1900/-               | -                               |
| Hydrogen chloride                                                    | 7647-01-0          | 5/10                                                 | 8/15                 | -                               |
|                                                                      |                    |                                                      |                      |                                 |
| 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                                                           | -                  | -                                                    | -                    | 950 mg/m <sup>3</sup> (ethanol) |
| Dermal                                                               | -                  | -                                                    | -                    | 343 mg/kg (ethanol)             |
| Critical physical parameters: solubility, flammability, corrosivity: |                    |                                                      | -                    |                                 |
| Consumer                                                             |                    |                                                      |                      |                                 |
| Route of exposure:                                                   | Acute effect local | Acute effect systemic                                | Chronic effect local | Chronic effect systemic         |
| Oral                                                                 | -                  | -                                                    | -                    | -                               |
| Inhalation                                                           | -                  | -                                                    | -                    | 114 mg/m <sup>3</sup> (ethanol) |
| Dermal                                                               | -                  | -                                                    | -                    | 206 mg/kg (ethanol)             |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

| <b>PNEC</b>                        |                          |
|------------------------------------|--------------------------|
| Environmental protection target    | <b>PNEC</b>              |
| Fresh water                        | 0.96 mg/l (ethanol)      |
| Freshwater sediments               | 3.6 mg/kg (ethanol)      |
| Marine water                       | 0.79 mg/l (ethanol)      |
| Marine sediments                   | no information available |
| Food chain                         | no information available |
| Microorganisms in sewage treatment | no information available |
| Soil (agricultural)                | 0.63 mg/kg (ethanol)     |
| Air                                | no information available |

## 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:                  | <p>The protective gloves have to satisfy the specification of Regulation (EU) 2016/425 and the related standard EN 374.</p> <p>Glove material: nitrile rubber</p> <p>Glove thickness: 0.40 mm</p> <p>Time until perforation: &gt; 480 min</p>                                                                                   |
| 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. |

|               |                             |                      |              |            |
|---------------|-----------------------------|----------------------|--------------|------------|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |            |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: 5 |

|          |                                                         |                                                                                                                                                                                                      |
|----------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |
|                                             | Colour:                                               | colourless               | No information available |
|                                             | Odour:                                                | ethanol like             | No information available |
|                                             | Odor threshold:                                       | No information available | No information available |
|                                             | pH:                                                   | 1.3 -1.5                 | 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:                                          | 21 °C                    | 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 |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

|     |                            |                          |                          |
|-----|----------------------------|--------------------------|--------------------------|
|     | 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:                | Avoid heat, sparks, open flames and other ignition sources.                                                 |
| 10.5                                 | Incompatible materials:             | No further relevant information available.                                                                  |
| 10.6                                 | Hazardous decomposition products:   | No dangerous decomposition products known.                                                                  |

| 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:                                 | -                                                           | rat (ethanol) | LD <sub>50</sub>                                              | -             | 7.060 mg/kg |
| Dermal:                               | -                                                           | -             | -                                                             | -             | -           |
| Inhalation:                           | -                                                           | rat (ethanol) | LC <sub>50</sub>                                              | 4 h           | 20.000 mg/l |
|                                       |                                                             |               |                                                               |               |             |
|                                       | 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:            | -                                                           | -             | -                                                             | -             | -           |



|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

|                               |   |   |   |   |   |
|-------------------------------|---|---|---|---|---|
| Serious eye damage/irritation | - | - | - | - | - |
|-------------------------------|---|---|---|---|---|

|               |
|---------------|
| Sensitization |
|---------------|

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

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

|                      |                           |
|----------------------|---------------------------|
| Oral exposure:       | No information available. |
| Dermal exposure:     | No information available. |
| Inhalation exposure: | No information available. |
| Eye exposure:        | No information available. |

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

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

|                       |                                                                    |                          |                          |                                                                   |                          |      |
|-----------------------|--------------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------------------------------------|--------------------------|------|
| 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:                                                   |                          |                          | 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. |                          |      |
|                       |                                                                    |                          |                          |                                                                   |                          |      |
| 11.2                  | Practical experiences:                                             |                          |                          |                                                                   |                          |      |
|                       | Classification observations:                                       |                          |                          | No information available                                          |                          |      |
|                       | Other observations:                                                |                          |                          | No information available                                          |                          |      |
|                       |                                                                    |                          |                          |                                                                   |                          |      |
| 11.3                  | General notes:                                                     |                          |                          |                                                                   |                          |      |
|                       | -                                                                  |                          |                          |                                                                   |                          |      |

|                                           |          |
|-------------------------------------------|----------|
| <b>SECTION 12. Ecological information</b> |          |
| 12.1                                      | Toxicity |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

| 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 | -    |
| 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 |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

[illegible]

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

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

|      |                                            |
|------|--------------------------------------------|
| 12.5 | Results of PBT and vPvB assessment         |
|      | Not applicable.                            |
| 12.6 | Other adverse effects                      |
|      | No further relevant information available. |

|                                            |                                                                                                                                                                                                                                                                                 |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SECTION 13. Disposal considerations</b> |                                                                                                                                                                                                                                                                                 |
| 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:                                                                                                                                                                                                                                                  |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

Disposal must be made according to official regulations.

#### SECTION 14 TRANSPORT INFORMATION

##### Transporting/shipment by road (ADR)

|                               |                  |
|-------------------------------|------------------|
| UN number:                    | 1170             |
| UN proper shipping name:      | Ethanol solution |
| Transport hazard class(es):   | 3                |
| Packing group:                | II               |
| Environmentally hazardous:    | -                |
| Special precautions for user: | -                |

##### Transporting/shipment by rail (RID)

|                               |                  |
|-------------------------------|------------------|
| UN number:                    | 1170             |
| UN proper shipping name:      | Ethanol solution |
| Transport hazard class(es):   | 3                |
| Packing group:                | II               |
| Environmentally hazardous:    | -                |
| Special precautions for user: | -                |

##### Inland waterway transport (ADN)

|                               |                  |
|-------------------------------|------------------|
| UN number:                    | 1170             |
| UN proper shipping name:      | Ethanol solution |
| Transport hazard class(es):   | 3                |
| Packing group:                | II               |
| Environmentally hazardous:    | -                |
| Special precautions for user: | -                |

##### Transporting/shipment by sea (IMDG)

|                                                                           |                  |
|---------------------------------------------------------------------------|------------------|
| UN number:                                                                | 1170             |
| UN proper shipping name:                                                  | Ethanol solution |
| Transport hazard class(es):                                               | 3                |
| Packing group:                                                            | II               |
| 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:               | 1170             |
| UN proper shipping name: | Ethanol solution |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

|                               |    |
|-------------------------------|----|
| Transport hazard class(es):   | 3  |
| Packing group:                | II |
| Environmentally hazardous:    | -  |
| 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                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                    | Authorization and/or restrictions of use                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                    | Authorizations:                                                                                              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                    | Restrictions:                                                                                                | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                    | 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>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: | - |

|               |                             |                      |              |          |   |
|---------------|-----------------------------|----------------------|--------------|----------|---|
| Trading name: | <b>ACID ALCOHOL, ORCEIN</b> |                      |              |          |   |
| Product code: | KAO-OT-X**                  | Date of compilation: | 04 June 2019 | Version: | 5 |

|                |                                                                                                                         |      |                                                                                                                                                                                                                                                                                    |                                                  |
|----------------|-------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| 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:                                                                           |      | -                                                                                                                                                                                                                                                                                  |                                                  |
| 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:                                                                                                                      | H225 | Highly flammable liquid and vapor.                                                                                                                                                                                                                                                 |                                                  |
|                |                                                                                                                         | H314 | Causes severe skin burns and eye damage.                                                                                                                                                                                                                                           |                                                  |
|                |                                                                                                                         | H331 | Toxic if inhaled.                                                                                                                                                                                                                                                                  |                                                  |
| 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> |
| -                                                                       |