OTTO CHEMIE PVT LTD

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-----ISO 9001: 2015-----

MATERIAL SAFETY DATA SHEET

SECTION 1 Product identifiers

Product name : Pyruvic acid, 99% Product Code : P 2845 CAS-No. : 127-17-3

SECTION 2: Hazards identification

| SECTION 2: Hazards identit | rication | | | | |
|--|---|--|--|--|--|
| 2.1 Classification of the subst | tance or mixture | | | | |
| Classification according to Regulation (EC) No 1272/2008 | | | | | |
| Skin corrosion (Sub-category | 1B), H314 | | | | |
| For the full text of the H-State | ements mentioned in this Section, see Section 16. | | | | |
| 2.2 Label elements | | | | | |
| Labelling according Regulation (EC) No 1272/2008 | | | | | |
| Pictogram | | | | | |
| Signal Word | Danger | | | | |
| Hazard statement(s) | | | | | |
| H314 | Causes severe skin burns and eye damage. | | | | |
| Precautionary statement(s) | | | | | |
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face | | | | |
| | protection. | | | | |
| | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. | | | | |
| P303 + P361 + P353 | IF ON SKIN (or hair): Take off immediately all contaminated | | | | |
| | clothing. Rinse skin with water. | | | | |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. | | | | |
| | Remove contact lenses, if present and easy to do. Continue | | | | |
| | rinsing. | | | | |
| | none | | | | |
| | | | | | |
| | | | | | |
| | ains no components considered to be either persistent, | | | | |
| | BT), or very persistent and very bioaccumulative (vPvB) at | | | | |
| levels of 0.1% of higher. | | | | | |
| SECTION 3: Composition/in | aformation on ingradiants | | | | |
| | | | | | |
| | acid | | | | |
| g-Ketopropionic acid | | | | | |
| | 2.1 Classification of the subst Classification according to Re Skin corrosion (Sub-category For the full text of the H-State 2.2 Label elements Labelling according Regulation Pictogram Signal Word Hazard statement(s) H314 Precautionary statement(s) P280 P301 + P330 + P331 P303 + P361 + P353 P305 + P351 + P338 Supplemental Hazard Statements 2.3 Other hazards This substance/mixture conta bioaccumulative and toxic (PI levels of 0.1% or higher. SECTION 3: Composition/ir 3.1 Substances Synonyms : 2-Oxopropionic a | | | | |

 α-Ketopropionic acid

 Formula : C3H4O3

 Molecular weight : 88,06 g/mol

 CAS-No. : 127-17-3

 EC-No. : 204-824-3

 Component

 pyruvic acid

 Over 400, 407, 472,0

| Component | Classification | Concentration | | | |
|---|-------------------------|---------------|--|--|--|
| pyruvic acid | | | | | |
| CAS-No. 127-17-3 | Skin Corr. 1B; Eye Dam. | <= 100 % | | | |
| EC-No.204-824-3 | 1; H314, H318 | | | | |
| For the full text of the H Statements mentioned in this Section, see Section 16 | | | | | |

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures
General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.
If inhaled
After inhalation: fresh air. Call in physician.
In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.
Remove contact lenses.
If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise. 4.2 Most important symptoms and effects, both acute and delayed The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11 4.3 Indication of any immediate medical attention and special treatment needed No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media Unsuitable extinguishing media For this substance/mixture no limitations of extinguishing agents are given. 5.2 Special hazards arising from the substance or mixture Carbon oxides 5.3 Advice for firefighters Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing. 5.4 Further information Prevent fire extinguishing water from contaminating surface water or the ground water system. **SECTION 6: Accidental release measures** 6.1 Personal precautions, protective equipment and emergency procedures Advice for non-emergency personnel. Do not breathe vapors, aerosols, Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area. 6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling For precautions see section 2.2. 7.2 Conditions for safe storage, including any incompatibilities Storage conditions Tightly closed. Storage stability Recommended storage temperature 2 - 8 °C Store under inert gas. Storage class Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials 7.3 Specific end use(s) Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters 8.2 Exposure controls Personal protective equipment Eve/face protection Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles Skin protection Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Full contact Material: Chloroprene Minimum layer thickness: 0,6 mm

Break through time: 480 min Material tested:Camapren® (KCL 722 / Aldrich Z677493, Size M) Splash contact Material: Nature latex/chloroprene Minimum layer thickness: 0,6 mm Break through time: 120 min Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario. **Body Protection** protective clothing Respiratory protection required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type ABEK The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented. Control of environmental exposure Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties a) Physical state b) Color c) Odor d) Melting point/freezing point e) Initial boiling point and boiling range f) Flammability (solid, gas) g) Upper/lower flammability or explosive limits h) Flash point i) Autoignition temperature i) Decomposition temperature k) pH I) Viscosity

m) Water solubility n) Partition coefficient: n-octanol/water o) Vapor pressure p) Density Relative density q) Relative vapor density r) Particle characteristics s) Explosive properties t) Oxidizing properties 9.2 Other safety information No data available

liquid No data available No data available Melting point/range: 11 - 12 °C - lit. 165 °C - lit.

No data available

No data available

No data available No data available

No data available

No data available Viscosity, kinematic: No data available Viscosity, dynamic: No data available No data available No data available

No data available 1,267 g/cm3 at 25 °C - lit No data available No data available

No data available

No data available No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available
10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).
10.3 Possibility of hazardous reactions
No data available
10.4 Conditions to avoid
no information available
10.5 Incompatible materials
Bases, Oxidizing agents, Reducing agents, Strong oxidizing agents
10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects Acute toxicity Oral: No data available Inhalation: No data available Dermal: No data available LD50 Subcutaneous - Mouse - 3.533 mg/kg Skin corrosion/irritation Remarks: No data available Serious eve damage/eve irritation Remarks: No data available Respiratory or skin sensitization No data available Germ cell mutagenicity No data available Carcinogenicity No data available Reproductive toxicity No data available Specific target organ toxicity - single exposure No data available Specific target organ toxicity - repeated exposure No data available Aspiration hazard No data available 11.2 Additional Information

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity No data available 12.2 Persistence and degradability No data available 12.3 Bioaccumulative potential No data available 12.4 Mobility in soil No data available 12.5 Results of PBT and vPvB assessment This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. 12.6 Endocrine disrupting properties No data available 12.7 Other adverse effects No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

| 14.1 UN number | | | | | | |
|-----------------------------------|--|---------------------------|------------|--|--|--|
| ADR/RID: 3265 | | IMDG: 3265 | IATA: 3265 | | | |
| 14.2 UN proper shipping name | | | | | | |
| ADR/RID: | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (pyruvic acid) | | | | | |
| IMDG: | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (pyruvic acid) | | | | | |
| IATA: | Corrosive liquid, acidic, organic, n.o.s. (pyruvic acid) | | | | | |
| 14.3 Transport hazard class(es) | | | | | | |
| ADR/RID: 8 | | IMDG: 8 | IATA: 8 | | | |
| 14.4 Packaging group | | | | | | |
| ADR/RID: II | | IMDG: II | IATA: II | | | |
| 14.5 Environmental hazards | | | | | | |
| ADR/RID: no | | IMDG Marine pollutant: no | IATA: no | | | |
| 14.6 Special precautions for user | | | | | | |
| No data available | | | | | | |

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. Other regulations Take note of Dir 94/33/EC on the protection of young people at work. 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.