

Safety data sheet Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



Karl Fischer ROTI®Hydroquant coulo AD , for KF titration, coulometric

article number: **1KPL**
Version: **2.0 en**
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance **Karl Fischer ROTI®Hydroquant coulo AD , for KF titration, coulometric**

Article number 1KPL

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Laboratory and analytical use
Laboratory chemical

Uses advised against: Do not use for products which come into direct contact with the skin. Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone:+49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: :Department Health, Safety and Environment

e-mail (competent person): **sicherheit@carlroth.de**

1.4 Emergency telephone number

| Name | Street | Postal code/city | Telephone | Website |
|---|-----------|----------------------|--------------|---------|
| National Poisons Information Service City Hospital | Dudley Rd | B187QH Birmingham | 844 892 0111 | |

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|-------------------------|-----------|---------------------------|------------------|
| 2.6 | Flammable liquid | 2 | Flam. Liq. 2 | H225 |
| 3.10 | Acute toxicity (oral) | 3 | Acute Tox. 3 | H301 |
| 3.1D | Acute toxicity (dermal) | 3 | Acute Tox. 3 | H311 |
| 3.1I | Acute toxicity (inhal.) | 3 | Acute Tox. 3 | H331 |

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| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|--|-----------|---------------------------|------------------|
| 3.2 | Skin corrosion/irritation | 1C | Skin Corr. 1C | H314 |
| 3.3 | Serious eye damage/eye irritation | 1 | Eye Dam. 1 | H318 |
| 3.7 | Reproductive toxicity | 1B | Repr. 1B | H360Df |
| 3.8 | Specific target organ toxicity - single exposure | 1 | STOT SE 1 | H370 |
| 3.9 | Specific target organ toxicity - repeated exposure | 2 | STOT RE 2 | H373 |

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis. Delayed or immediate effects can be expected after short or long-term exposure. The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling

Signal word

Danger

Pictograms

GHS02, GHS05,
GHS06, GHS08



Hazard statements

| | |
|----------------|---|
| H225 | Highly flammable liquid and vapour |
| H301+H311+H331 | Toxic if swallowed, in contact with skin or if inhaled |
| H314 | Causes severe skin burns and eye damage |
| H360Df | May damage the unborn child. Suspected of damaging fertility |
| H370 | Causes damage to organs (eye) |
| H373 | May cause damage to organs (thyroid gland, blood, kidney, liver, nervous system) through prolonged or repeated exposure |

Precautionary statements

Precautionary statements - prevention

| | |
|------|---|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking |
| P260 | Do not breathe mist/vapours/spray |
| P280 | Wear protective gloves/eye protection |

Precautionary statements - response

| | |
|----------------|---|
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower] |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing |
| P310 | Immediately call a POISON CENTER/doctor |

For professional users only

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Hazardous ingredients for labelling: Imidazole, Methanol, Diethanolamine, Iodine

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

| Name of substance | Identifier | Wt% | Classification acc. to GHS | Pictograms | Notes |
|-------------------|---|------------|--|------------|-----------------|
| Methanol | CAS No 67-56-1 EC No 200-659-6 | 50 - < 100 | Flam. Liq. 2 / H225 Acute Tox. 3 / H301 Acute Tox. 3 / H311 Acute Tox. 3 / H331 STOT SE 1 / H370 | | GHS-HC IOELV |
| Diethanolamine | CAS No 111-42-2 EC No 203-868-0 | 10 - < 25 | Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Eye Dam. 1 / H318 Repr. 2 / H361fd STOT RE 2 / H373 Aquatic Chronic 3 / H412 | | GHS-HC |
| Imidazole | CAS No 288-32-4 EC No 206-019-2 | 5 - 10 | Acute Tox. 4 / H302 Skin Corr. 1C / H314 Eye Dam. 1 / H318 Repr. 1B / H360D | | GHS-HC |
| Iodine | CAS No 7553-56-2 EC No 231-442-4 | 1 - 5 | Acute Tox. 4 / H302 Acute Tox. 4 / H312 Acute Tox. 4 / H332 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335 STOT RE 1 / H372 Aquatic Acute 1 / H400 | | GHS-HC |

Notes

GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)

IOELV: Substance with a community indicative occupational exposure limit value

| Name of substance | Identifier | Specific Conc. Limits | M-Factors | ATE | Exposure route |
|-------------------|---|--|-----------|-------------------------------------|--------------------------------------|
| Methanol | CAS No 67-56-1 EC No 200-659-6 | STOT SE 1; H370: C ≥ 10 % STOT SE 2; H371: 3 % ≤ C < 10 % | - | 100 mg/kg 300 mg/kg 3 mg/l/4h | oral dermal inhalation: vapour |

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| Name of substance | Identifier | Specific Conc. Limits | M-Factors | ATE | Exposure route |
|-------------------|---|-----------------------|-----------|--|---|
| Diethanolamine | CAS No 111-42-2 EC No 203-868-0 | - | - | 1.100 mg/kg | oral |
| Imidazole | CAS No 288-32-4 EC No 206-019-2 | - | - | 970 mg/kg | oral |
| Iodine | CAS No 7553-56-2 EC No 231-442-4 | - | - | 1.500 mg/kg 1.100 mg/kg >4,588 mg/l/ 4h | oral dermal inhalation: dust/ mist |

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off immediately all contaminated clothing. Self-protection of the first aider.

Following inhalation

Call a physician immediately. If breathing is irregular or stopped, administer artificial respiration.

Following skin contact

After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a physician immediately. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects). In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.2 Most important symptoms and effects, both acute and delayed

Following inhalation: Cough, Vertigo, Headache,

Following skin contact: Has degreasing effect on the skin,

After eye contact: Conjunctival redness of the eyes, Conjunctivitis (pink eye),

Following ingestion: Abdominal pain, Malaise, Vomiting, Poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness, Loss of righting reflex, and ataxia, Serious physical decay of vision, Risk of blindness, Large doses may result in coma and death, Corrosion, Gastric perforation, Risk of serious damage to eyes

4.3 Indication of any immediate medical attention and special treatment needed

none

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SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings
water spray, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours may form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂), May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Danger of explosion.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

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6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation. Use extractor hood (laboratory). Handle and open container with care. Avoid exposure. Clear contaminated areas thoroughly.

Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge. Due to danger of explosion, prevent leakage

of vapours into cellars, flues and ditches.

Advice on general occupational hygiene

When using do not eat or drink. Thorough skin-cleansing after handling the product. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Store locked up. Ground/bond container and receiving equipment.

Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

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National limit values

Occupational exposure limit values (Workplace Exposure Limits)

| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
|---------|---------------|-----------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|----------|------------|
| EU | methanol | 67-56-1 | IOELV | 200 | 260 | | | | | H | 2006/15/EC |
| GB | methanol | 67-56-1 | WEL | 200 | 266 | 250 | 333 | | | | EH40/2005 |
| GB | iodine | 7553-56-2 | WEL | | | 0,1 | 1,1 | | | | EH40/2005 |

Notation

Ceiling-C Ceiling value is a limit value above which exposure should not occur

H Absorbed through the skin

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components of the mixture

| Name of substance | CAS No | End-point | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
|-------------------|-----------|-----------|------------------------|------------------------------------|-------------------|----------------------------|
| Methanol | 67-56-1 | DNEL | 130 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m ³ | human, inhalatory | worker (industry) | acute - systemic effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |
| Methanol | 67-56-1 | DNEL | 130 mg/m ³ | human, inhalatory | worker (industry) | acute - local effects |
| Methanol | 67-56-1 | DNEL | 20 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Methanol | 67-56-1 | DNEL | 20 mg/kg bw/day | human, dermal | worker (industry) | acute - systemic effects |
| Diethanolamine | 111-42-2 | DNEL | 0,75 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Diethanolamine | 111-42-2 | DNEL | 0,5 mg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |
| Diethanolamine | 111-42-2 | DNEL | 0,13 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Imidazole | 288-32-4 | DNEL | 10,6 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Imidazole | 288-32-4 | DNEL | 1,5 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| Iodine | 7553-56-2 | DNEL | 0,07 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Iodine | 7553-56-2 | DNEL | 0,01 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |

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| Relevant PNECs of components of the mixture | | | | | | |
|---|-----------|-----------|-----------------|-----------------------|------------------------------|------------------------------|
| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| Methanol | 67-56-1 | PNEC | 20,8 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 2,08 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 100 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 77 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 7,7 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Methanol | 67-56-1 | PNEC | 100 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Diethanolamine | 111-42-2 | PNEC | 0,021 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Diethanolamine | 111-42-2 | PNEC | 0,002 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Diethanolamine | 111-42-2 | PNEC | 100 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Diethanolamine | 111-42-2 | PNEC | 0,096 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Diethanolamine | 111-42-2 | PNEC | 0,009 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Diethanolamine | 111-42-2 | PNEC | 1,63 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Imidazole | 288-32-4 | PNEC | 0,13 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Imidazole | 288-32-4 | PNEC | 0,013 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Imidazole | 288-32-4 | PNEC | 10 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Imidazole | 288-32-4 | PNEC | 0,336 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Imidazole | 288-32-4 | PNEC | 0,034 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Imidazole | 288-32-4 | PNEC | 0,043 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| Iodine | 7553-56-2 | PNEC | 18,13 µg/l | aquatic organisms | freshwater | short-term (single instance) |
| Iodine | 7553-56-2 | PNEC | 60,01 µg/l | aquatic organisms | marine water | short-term (single instance) |
| Iodine | 7553-56-2 | PNEC | 11 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Iodine | 7553-56-2 | PNEC | 3,99 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |

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| Relevant PNECs of components of the mixture | | | | | | |
|---|-----------|-----------|-----------------|-----------------------|---------------------------|------------------------------|
| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| Iodine | 7553-56-2 | PNEC | 20,22 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Iodine | 7553-56-2 | PNEC | 5,95 mg/kg | terrestrial organisms | soil | short-term (single instance) |

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection. Wear face protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

Butyl caoutchouc (butyl rubber)

• material thickness

0,7mm

• breakthrough times of the glove material

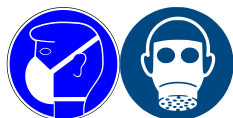
>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Flame-retardant protective clothing.

Respiratory protection



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Respiratory protection necessary at: Aerosol or mist formation. Type: AX (gas filters and combined filters against low-boiling point organic compounds, colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|--|
| Physical state | liquid |
| Colour | light yellow |
| Odour | characteristic |
| Melting point/freezing point | not determined |
| Boiling point or initial boiling point and boiling range | 65 °C at 1.013 hPa |
| Flammability | flammable liquid in accordance with GHS criteria |
| Lower and upper explosion limit | 2,1 vol% (LEL) - 44 vol% (UEL) |
| Flash point | 10 °C |
| Auto-ignition temperature | 370 °C |
| Decomposition temperature | not relevant |
| pH (value) | 5 – 6,5 (in aqueous solution: 100 g/l, 20 °C) |
| Kinematic viscosity | not determined |

Solubility(ies)

Water solubility (soluble)

Partition coefficient

Partition coefficient n-octanol/water (log value): this information is not available

Vapour pressure 128 hPa at 20 °C

Density and/or relative density

Density 0,91 g/cm³ at 20 °C

Relative vapour density information on this property is not available

Particle characteristics not relevant (liquid)

Other safety parameters

Oxidising properties none

9.2 Other information

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Information with regard to physical hazard classes:

There is no additional information.

Other safety characteristics:

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

The mixture contains reactive substance(s). Risk of ignition. Vapours may form explosive mixtures with air.

If heated

Risk of ignition.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Danger of explosion: Oxidisers, Perchlorates, Nitrogen oxides (NOx), Chlorates, Halogenated hydrocarbons, Hydrogen peroxide, Nitric acid, Sulphuric acid,

Exothermic reaction with: Reducing agents, Acids, Chlorine, Chloroform, Acid chlorides, inorganic,

Dangerous/dangerous reactions with: Fluorine, Alkali metals, Alkaline earth metal, strong oxidiser

10.4 Conditions to avoid

UV-radiation/sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

aluminium, iron, zinc, different plastics, Rubber articles

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.

Acute toxicity estimate (ATE) of components of the mixture

| Name of substance | CAS No | Exposure route | ATE |
|-------------------|---------|--------------------|-----------|
| Methanol | 67-56-1 | oral | 100 mg/kg |
| Methanol | 67-56-1 | dermal | 300 mg/kg |
| Methanol | 67-56-1 | inhalation: vapour | 3 mg/l/4h |

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| Acute toxicity estimate (ATE) of components of the mixture | | | |
|--|-----------|-----------------------|----------------|
| Name of substance | CAS No | Exposure route | ATE |
| Diethanolamine | 111-42-2 | oral | 1.100 mg/kg |
| Imidazole | 288-32-4 | oral | 970 mg/kg |
| Iodine | 7553-56-2 | oral | 1.500 mg/kg |
| Iodine | 7553-56-2 | dermal | 1.100 mg/kg |
| Iodine | 7553-56-2 | inhalation: dust/mist | >4,588 mg/l/4h |

| Acute toxicity of components of the mixture | | | | | |
|---|-----------|-----------------------|----------|----------------|---------------|
| Name of substance | CAS No | Exposure route | Endpoint | Value | Species |
| Methanol | 67-56-1 | inhalation: vapour | LC50 | 131 mg/l/4h | rat |
| Methanol | 67-56-1 | oral | LD50 | 5.628 mg/kg | rat |
| Methanol | 67-56-1 | oral | LDLo | 143 mg/kg | human |
| Methanol | 67-56-1 | dermal | LD50 | 15.800 mg/kg | rabbit |
| Diethanolamine | 111-42-2 | oral | LD50 | 1.100 mg/kg | rat |
| Imidazole | 288-32-4 | oral | LD50 | 970 mg/kg | rat |
| Iodine | 7553-56-2 | oral | LD50 | 14.000 mg/kg | not specified |
| Iodine | 7553-56-2 | inhalation: dust/mist | LC50 | >4,588 mg/l/4h | rat |
| Iodine | 7553-56-2 | dermal | LD50 | >2.000 mg/kg | rabbit |

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

May damage the unborn child. Suspected of damaging fertility.

Specific target organ toxicity - single exposure

Causes damage to organs (eye).

| Hazard category | Target organ | Exposure route |
|-----------------|--------------|----------------|
| 1 | eye | if exposed |

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Specific target organ toxicity - repeated exposure

May cause damage to organs (thyroid gland, blood, kidney, liver, nervous system) through prolonged or repeated exposure.

| Hazard category | Target organ | Exposure route |
|-----------------|----------------|----------------|
| 2 | thyroid gland | if swallowed |
| 2 | blood | if exposed |
| 2 | kidney | if exposed |
| 2 | liver | if exposed |
| 2 | nervous system | if exposed |

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

abdominal pain, vomiting, loss of righting reflex, and ataxia, poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness, risk of blindness, large doses may result in coma and death, If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects)

• If in eyes

conjunctivitis (pink eye), causes burns, Causes serious eye damage, risk of blindness

• If inhaled

vertigo, cough, headache

• If on skin

has degreasing effect on the skin, causes severe burns, causes poorly healing wounds

• Other information

none

11.2 Endocrine disrupting properties

None of the ingredients are listed.

11.3 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

| Aquatic toxicity (acute) of components of the mixture | | | | | |
|---|---------|----------|-------------|---------|---------------|
| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
| Methanol | 67-56-1 | LC50 | 15.400 mg/l | fish | 96 h |
| Methanol | 67-56-1 | ErC50 | 22.000 mg/l | algae | 96 h |

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Aquatic toxicity (acute) of components of the mixture

| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
|-------------------|-----------|----------|------------|-----------------------|---------------|
| Diethanolamine | 111-42-2 | LC50 | 460 mg/l | fish | 96 h |
| Diethanolamine | 111-42-2 | EC50 | 30,1 mg/l | aquatic invertebrates | 48 h |
| Diethanolamine | 111-42-2 | ErC50 | 9,5 mg/l | algae | 72 h |
| Imidazole | 288-32-4 | LC50 | 283,6 mg/l | fish | 48 h |
| Imidazole | 288-32-4 | EC50 | 341,5 mg/l | aquatic invertebrates | 48 h |
| Imidazole | 288-32-4 | ErC50 | 133 mg/l | algae | 72 h |
| Iodine | 7553-56-2 | LC50 | 1,67 mg/l | fish | 96 h |
| Iodine | 7553-56-2 | ErC50 | 0,13 mg/l | algae | 72 h |

Aquatic toxicity (chronic) of components of the mixture

| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
|-------------------|-----------|----------|-------------|-----------------------|---------------|
| Diethanolamine | 111-42-2 | EC50 | 11,82 mg/l | aquatic invertebrates | 21 d |
| Imidazole | 288-32-4 | EC50 | >1.000 mg/l | microorganisms | 30 min |
| Iodine | 7553-56-2 | EC50 | 280 mg/l | microorganisms | 3 h |

Biodegradation

Data are not available.

12.2 Process of degradability

Degradability of components of the mixture

| Name of substance | CAS No | Process | Degradation rate | Time | Method | Source |
|-------------------|----------|------------------|------------------|------|--------|--------|
| Methanol | 67-56-1 | biotic/abiotic | 99 % | 30 d | | |
| Methanol | 67-56-1 | oxygen depletion | 69 % | 5 d | | ECHA |
| Diethanolamine | 111-42-2 | oxygen depletion | 5 % | 5 d | | ECHA |
| Imidazole | 288-32-4 | biotic/abiotic | 86 % | 19 d | | |
| Imidazole | 288-32-4 | DOC removal | 90 - 100 % | 18 d | | ECHA |

12.3 Bioaccumulative potential

Data are not available.

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| Bioaccumulative potential of components of the mixture | | | | |
|--|-----------|------|---------------|----------|
| Name of substance | CAS No | BCF | Log KOW | BOD5/COD |
| Methanol | 67-56-1 | | -0,77 | |
| Diethanolamine | 111-42-2 | 2,69 | -2,46 (25 °C) | |
| Imidazole | 288-32-4 | | 0,0586 | |
| Iodine | 7553-56-2 | | 2,49 (20 °C) | |

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

None of the ingredients are listed.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Waste catalogue ordinance (Germany).

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number or ID number

| | |
|-----------|---------|
| ADRRID | UN 3286 |
| IMDG-Code | UN 3286 |
| ICAO-TI | UN 3286 |

14.2 UN proper shipping name

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| | |
|--|--|
| ADRRID | FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. |
| IMDG-Code | FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. |
| ICAO-TI | Flammable liquid, toxic, corrosive, n.o.s. |
| Technical name (hazardous ingredients) | Methanol, Imidazole |

14.3 Transport hazard class(es)

| | |
|-----------|----------------|
| ADRRID | 3 (6.1) (8) |
| IMDG-Code | 3 (6.1) (8) |
| ICAO-TI | 3 (6.1) (8) |

14.4 Packing group

| | |
|-----------|----|
| ADRRID | II |
| IMDG-Code | II |
| ICAO-TI | II |

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user


Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

| | |
|---|---|
| Proper shipping name | FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. |
| Particulars in the transport document | UN3286, FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S., (contains: Methanol, Imidazole), 3 (6.1+8), II, (D/E) |
| Classification code | FTC |
| Danger label(s) | 3+6.1+8 |
|  | |
| Special provisions (SP) | 274, 802(ADN) |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| Transport category (TC) | 2 |
| Tunnel restriction code (TRC) | D/E |
| Hazard identification No | 368 |
| Emergency Action Code | 3WE |

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Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)Additional information

| | |
|---|---------------|
| Classification code | FTC |
| Danger label(s) | 3+6.1+8 |
|  | |
| Special provisions (SP) | 274, 802(ADN) |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| Transport category (TC) | 2 |
| Hazard identification No | 368 |

International Maritime Dangerous Goods Code (IMDG) - Additional information

| | |
|---|---|
| Proper shipping name | FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. |
| Particulars in the shipper's declaration | UN3286, FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S., (contains: Methanol, Imidazole), 3 (6.1+8), II, 10°C c.c. |
| Marine pollutant | - |
| Danger label(s) | 3+6.1+8 |
|  | |
| Special provisions (SP) | 274 |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| EmS | F-E, S-C |
| Stowage category | B |

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

| | |
|---|--|
| Proper shipping name | Flammable liquid, toxic, corrosive, n.o.s. |
| Particulars in the shipper's declaration | UN3286, Flammable liquid, toxic, corrosive, n.o.s., (contains: Methanol, Imidazole), 3 (6.1+8), II |
| Danger label(s) | 3+6.1+8 |
|  | |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 0,5 L |

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SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Seveso Directive

| 2012/18/EU (Seveso III) | | | | |
|-------------------------|---------------------------------------|---|-------|-------|
| No | Dangerous substance/hazard categories | Qualifying quantity (tonnes) for the application of lower and upper-tier requirements | | Notes |
| 22 | methanol | 500 | 5.000 | |

Deco-Paint Directive

| | |
|-------------|-------------------|
| VOC content | 75 % 682,5 g/l |
|-------------|-------------------|

Industrial Emissions Directive (IED)

| | |
|-------------|---------|
| VOC content | 90 % |
| VOC content | 819 g/l |

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

Water Framework Directive (WFD)

| List of pollutants (WFD) | | | | |
|--------------------------|---|--------|-----------|---------|
| Name of substance | Name acc. to inventory | CAS No | Listed in | Remarks |
| Diethanolamine | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment | | a) | |
| Imidazole | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment | | a) | |

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| List of pollutants (WFD) | | | | |
|--------------------------|---|--------|-----------|---------|
| Name of substance | Name acc. to inventory | CAS No | Listed in | Remarks |
| Methanol | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment | | a) | |

Legend

A) Indicative list of the main pollutants

Regulation on the marketing and use of explosives precursors

none of the ingredients are listed

Regulation on drug precursors

none of the ingredients are listed

Regulation on substances that deplete the ozone layer (ODS)

none of the ingredients are listed

Regulation concerning the export and import of hazardous chemicals (PIC)

none of the ingredients are listed

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

National regulations(GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

none of the ingredients are listed

Restrictions according to GB REACH, Annex 17

| Dangerous substances with restrictions (GB REACH, Annex 17) | | | |
|---|--|--------|----|
| Name of substance | Name acc. to inventory | CAS No | No |
| Karl Fischer ROTI®Hydroquant coulo AD | this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC | | 3 |
| Imidazole | toxic for reproduction | | 30 |

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

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| Country | Inventory | Status |
|---------|------------|--------------------------------|
| AU | AIIC | all ingredients are listed |
| CA | DSL | all ingredients are listed |
| CN | IECSC | all ingredients are listed |
| EU | ECSI | all ingredients are listed |
| EU | REACH Reg. | all ingredients are listed |
| JP | CSCL-ENCS | not all ingredients are listed |
| KR | KECI | all ingredients are listed |
| MX | INSQ | all ingredients are listed |
| NZ | NZIoC | all ingredients are listed |
| PH | PICCS | all ingredients are listed |
| TR | CICR | all ingredients are listed |
| TW | TCSI | all ingredients are listed |
| US | TSCA | all ingredients are listed |

Legend

| | |
|------------|---|
| AIIC | Australian Inventory of Industrial Chemicals |
| CICR | Chemical Inventory and Control Regulation |
| CSCL-ENCS | List of Existing and New Chemical Substances (CSCL-ENCS) |
| DSL | Domestic Substances List (DSL) |
| ECSI | EC Substance Inventory (EINECS, ELINCS, NLP) |
| IECSC | Inventory of Existing Chemical Substances Produced or Imported in China |
| INSQ | National Inventory of Chemical Substances |
| KECI | Korea Existing Chemicals Inventory |
| NZIoC | New Zealand Inventory of Chemicals |
| PICCS | Philippine Inventory of Chemicals and Chemical Substances (PICCS) |
| REACH Reg. | REACH registered substances |
| TCSI | Taiwan Chemical Substance Inventory |
| TSCA | Toxic Substance Control Act |

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Alignment to regulation:

Restructuring: section 9, section 14

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|---|---|-----------------|
| 2.1 | | Classification acc. to GHS: change in the listing (table) | yes |
| 2.2 | | Hazard statements: change in the listing (table) | yes |
| 2.2 | Labelling of packages where the contents do not exceed 125 ml: Signal word: Danger | | yes |
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |

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| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|--|---|-----------------|
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |
| 2.2 | contains: Imidazole, Methanol, Diethanolamine, Iodine | | yes |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|-----------------|---|
| 2006/15/EC | Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC |
| Acute Tox. | Acute toxicity |
| ADN | Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways) |
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| Aquatic Acute | Hazardous to the aquatic environment - acute hazard |
| Aquatic Chronic | Hazardous to the aquatic environment - chronic hazard |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| BOD | Biochemical Oxygen Demand |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| COD | Chemical oxygen demand |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| DNEL | Derived No-Effect Level |
| EC50 | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval |
| EC No | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union) |
| EH40/2005 | EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| ErC50 | ≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control |
| Eye Dam. | Seriously damaging to the eye |

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| Abbr. | Descriptions of used abbreviations |
|-------------|---|
| Eye Irrit. | Irritant to the eye |
| Flam. Liq. | Flammable liquid |
| GB REACH | The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended) |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| IOELV | Indicative occupational exposure limit value |
| LC50 | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval |
| LD50 | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval |
| LEL | Lower explosion limit (LEL) |
| log KOW | n-Octanol/water |
| NLP | No-Longer Polymer |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| Repr. | Reproductive toxicity |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| Skin Corr. | Corrosive to skin |
| Skin Irrit. | Irritant to skin |
| STEL | Short-term exposure limit |
| STOT RE | Specific target organ toxicity - repeated exposure |
| STOT SE | Specific target organ toxicity - single exposure |
| TWA | Time-weighted average |
| UEL | Upper explosion limit (UEL) |
| VOC | Volatile Organic Compounds |
| vPvB | Very Persistent and very Bioaccumulative |
| WEL | Workplace exposure limit |

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Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture. Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text |
|--------|--|
| H225 | Highly flammable liquid and vapour. |
| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H311 | Toxic in contact with skin. |
| H312 | Harmful in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H331 | Toxic if inhaled. |
| H332 | Harmful if inhaled. |
| H335 | May cause respiratory irritation. |
| H360D | May damage the unborn child. |
| H360Df | May damage the unborn child. Suspected of damaging fertility. |
| H361fd | Suspected of damaging fertility. Suspected of damaging the unborn child. |
| H370 | Causes damage to organs (eye). |
| H372 | Causes damage to organs (thyroid gland, blood, kidney, liver, nervous system) through prolonged or repeated exposure. |
| H373 | May cause damage to organs (thyroid gland, blood, kidney, liver, nervous system) through prolonged or repeated exposure. |
| H400 | Very toxic to aquatic life. |
| H412 | Harmful to aquatic life with long lasting effects. |

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.