SAFETY DATA SHEET

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

1.1 Product identifiers
   Product name: HYDRANAL®-Coulomat AG
   Product Number: 34836
   Brand: Fluka

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet
   Company: Sigma-Aldrich Inc.
   3050 SPRUCE ST
   ST. LOUIS MO  63103
   UNITED STATES
   Telephone: +1 314 771-5765
   Fax: +1 800 325-5052

1.4 Emergency telephone
   Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
   Flammable liquids (Category 2), H225
   Acute toxicity, Oral (Category 3), H301
   Acute toxicity, Inhalation (Category 3), H331
   Acute toxicity, Dermal (Category 3), H311
   Serious eye damage (Category 1), H318
   Carcinogenicity (Category 2), H351
   Reproductive toxicity (Category 1B), H360
   Specific target organ toxicity - single exposure (Category 1), Eyes, Central nervous system, H370
   Specific target organ toxicity - repeated exposure (Category 2), H373
   For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
Fluka - 34836

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

2.3 **Hazards not otherwise classified (HNOC) or not covered by GHS** - none
### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methanol</strong></td>
<td></td>
<td>&gt;= 70 - &lt; 90%</td>
</tr>
<tr>
<td>CAS-No. 67-56-1</td>
<td>Flam. Liq. 2; Acute Tox. 3;</td>
<td></td>
</tr>
<tr>
<td>EC-No. 200-659-6</td>
<td>STOT SE 1; H225, H301,</td>
<td></td>
</tr>
<tr>
<td>Index-No. 603-001-00-X</td>
<td>H331, H311, H370</td>
<td></td>
</tr>
<tr>
<td>Registration number XXXX</td>
<td>Concentration limits:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;= 10 %: STOT SE 1, H370; 3 - &lt; 10 %: STOT SE 2, H371;</td>
<td></td>
</tr>
<tr>
<td><strong>Diethanolamine</strong></td>
<td></td>
<td>&gt;= 5 - &lt; 10%</td>
</tr>
<tr>
<td>CAS-No. 111-42-2</td>
<td>Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; Carc. 2;</td>
<td></td>
</tr>
<tr>
<td>EC-No. 203-868-0</td>
<td>Repr. 2; STOT RE 2;</td>
<td></td>
</tr>
<tr>
<td>Index-No. 603-071-00-1</td>
<td>Aquatic Acute 2; H302,</td>
<td></td>
</tr>
<tr>
<td>Registration number XXXX</td>
<td>H315, H318, H351, H361, H373, H401</td>
<td></td>
</tr>
<tr>
<td><strong>Imidazole</strong></td>
<td></td>
<td>&gt;= 5 - &lt; 10%</td>
</tr>
<tr>
<td>CAS-No. 288-32-4</td>
<td>Acute Tox. 4; Skin Corr. 1C; Eye Dam. 1; Repr. 1B;</td>
<td></td>
</tr>
<tr>
<td>EC-No. 206-019-2</td>
<td>H302, H314, H318, H360</td>
<td></td>
</tr>
<tr>
<td>Registration number XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sulphur dioxide</strong></td>
<td></td>
<td>&gt;= 5 - &lt; 10%</td>
</tr>
<tr>
<td>CAS-No. 7446-09-5</td>
<td>Press. Gas Liquefied gas; Acute Tox. 3; Skin Corr. 1B;</td>
<td></td>
</tr>
<tr>
<td>EC-No. 231-195-2</td>
<td>Eye Dam. 1; H280,</td>
<td></td>
</tr>
<tr>
<td>Index-No. 016-011-00-9</td>
<td>H331, H314, H318</td>
<td></td>
</tr>
<tr>
<td><strong>1H-Imidazole, monohydriodide</strong></td>
<td>Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Aquatic Acute 2; H302, H315, H319, H401</td>
<td>&gt;= 5 - &lt; 10%</td>
</tr>
<tr>
<td>CAS-No. 68007-08-9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
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: fresh air. Make victim drink ethanol (e.g. 1 drinking glass of a 40% alcoholic beverage). Call a doctor immediately (mention methanol ingestion). Only in exceptional cases, if no medical care is available within one hour, induce vomiting (only in fully conscious persons) and make victim drink ethanol again (approx. 0.3 ml of a 40% alcoholic beverage/kg body weight/hour).

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

Suitable extinguishing media
Foam Carbon dioxide (CO2) Dry powder

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
Nitrogen oxides (NOx)
Sulfur oxides
Hydrogen iodide
Hydrogen cyanide (hydrocyanic acid)
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures

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
Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. 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. Keep away from heat and sources of ignition. 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. Risk of explosion.

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 carefully 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
Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Protect from moisture. Close bottle tightly immediately after use.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

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
<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>TWA 200 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL 250 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 250 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Potential for dermal absorption</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA 200 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL 200 ppm</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Potential for dermal absorption</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA 200 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL 200 ppm</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin notation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL 250 ppm</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin notation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA 200 ppm</td>
<td>USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL 250 ppm</td>
<td>USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)</td>
<td></td>
</tr>
<tr>
<td>Diethanolamine</td>
<td>111-42-2</td>
<td>TWA 1 mg/m3</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Confirmed animal carcinogen with unknown relevance to humans</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Danger of cutaneous absorption</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA 3 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL 0.46 ppm</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin notation</td>
<td></td>
</tr>
</tbody>
</table>
Sulphur dioxide 7446-09-5 STEL 0.25 ppm USA, ACGIH Threshold Limit Values (TLV)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL</td>
<td>0.25 ppm</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
</tbody>
</table>

Not classifiable as a human carcinogen

TWA 2 ppm 5 mg/m3 USA, NIOSH Recommended Exposure Limits

ST 5 ppm 13 mg/m3 USA, NIOSH Recommended Exposure Limits

TWA 5 ppm 13 mg/m3 USA, Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

PEL 2 ppm 5 mg/m3 California permissible exposure limits for chemical contaminants (Title 8, Article 107)

STEL 5 ppm 10 mg/m3 California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>Methanol</td>
<td>15 mg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

| Remarks | End of shift (As soon as possible after exposure ceases) |

#### 8.2 Exposure controls

**Appropriate engineering controls**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/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.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: > 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 42 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)
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**
Flame retardant antistatic 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.

**Control of environmental exposure**
Do not let product enter drains. Risk of explosion.

---

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Appearance</td>
</tr>
<tr>
<td>b)</td>
<td>Odor</td>
</tr>
<tr>
<td>c)</td>
<td>Odor Threshold</td>
</tr>
<tr>
<td>d)</td>
<td>pH</td>
</tr>
<tr>
<td>e)</td>
<td>Melting point/freezing point</td>
</tr>
<tr>
<td>f)</td>
<td>Initial boiling point and boiling range</td>
</tr>
<tr>
<td>g)</td>
<td>Flash point</td>
</tr>
<tr>
<td>h)</td>
<td>Evaporation rate</td>
</tr>
<tr>
<td>i)</td>
<td>Flammability (solid, gas)</td>
</tr>
<tr>
<td>j)</td>
<td>Upper/lower flammability or explosive limits</td>
</tr>
<tr>
<td>k)</td>
<td>Vapor pressure</td>
</tr>
<tr>
<td>l)</td>
<td>Vapor density</td>
</tr>
<tr>
<td>m)</td>
<td>Density</td>
</tr>
<tr>
<td></td>
<td>Relative density</td>
</tr>
<tr>
<td>n)</td>
<td>Water solubility</td>
</tr>
<tr>
<td>o)</td>
<td>Partition coefficient: n-octanol/water</td>
</tr>
</tbody>
</table>
9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapors may form explosive mixture with air.

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
Warming.

10.5 Incompatible materials
Zinc, Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Iron, Copper, Acid chlorides, Acid anhydrides, Reducing agents, acids, Strong reducing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity
Oral: No data available

Inhalation: No data available

Acute toxicity estimate Inhalation - 4 h - 3.99 mg/l - vapor (Calculation method)

Symptoms: Possible symptoms: mucosal irritations
Dermal: No data available

Acute toxicity estimate Dermal - 428.71 mg/kg (Calculation method)
No data available
Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
Remarks: Preparation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
Remarks: Preparation
Remarks: Mixture causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Evidence of a carcinogenic effect.
IARC: 2B - Group 2B: Possibly carcinogenic to humans (Diethanolamine)
NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

Reproductive toxicity
No data available
May harm the unborn child.
No data available
May impair fertility.

Specific target organ toxicity - single exposure
Remarks: No data available
Mixture causes damage to organs. - Eyes, Central nervous system

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
Mixture may cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

Components

Methanol

**Acute toxicity**
Acute toxicity estimate Oral - 100.1 mg/kg
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Symptoms: Nausea, Vomiting
Acute toxicity estimate Inhalation - 4 h - 3.1 mg/l - vapor
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Symptoms: Irritation symptoms in the respiratory tract.
Acute toxicity estimate Dermal - 300.1 mg/kg
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Skin corrosion/irritation**
Skin - Rabbit
Result: No skin irritation
Remarks: (ECHA)
Remarks: Drying-out effect resulting in rough and chapped skin.

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: No eye irritation
Remarks: (ECHA)

**Respiratory or skin sensitization**
Sensitisation test: - Guinea pig
Result: negative
(OECD Test Guideline 406)

**Germ cell mutagenicity**
Based on available data the classification criteria are not met.
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female - Bone marrow
Result: negative

**Carcinogenicity**
Did not show carcinogenic effects in animal experiments.

**Reproductive toxicity**
Based on available data the classification criteria are not met.

**Specific target organ toxicity - single exposure**
Causes damage to organs. - Eyes, Central nervous system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute oral toxicity - Nausea, Vomiting
Acute inhalation toxicity - Irritation symptoms in the respiratory tract.

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

**Diethanolamine**

**Acute toxicity**
LD50 Oral - Rat - male and female - 1,600 mg/kg
(OECD Test Guideline 401)
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
Inhalation: No data available
Symptoms: Possible damages:, Irritation symptoms in the respiratory tract.
Dermal: No data available
No data available

**Skin corrosion/irritation**
Skin - Rabbit
Result: irritating
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Causes serious eye damage.
(OECD Test Guideline 405)

**Respiratory or skin sensitization**
Maximization Test - Guinea pig
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

Result: negative
(OECD Test Guideline 406)

**Germ cell mutagenicity**
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: rat hepatocytes
Result: negative
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female
Result: negative

**Carcinogenicity**
No data available

**Reproductive toxicity**
Suspected of damaging the unborn child.
Suspected of damaging fertility.

**Specific target organ toxicity - single exposure**
No data available
Acute oral toxicity - Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
Acute inhalation toxicity - Possible damages:, Irritation symptoms in the respiratory tract.

**Specific target organ toxicity - repeated exposure**
Ingestion - May cause damage to organs through prolonged or repeated exposure.
- Kidney, Liver, Blood
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Dermal - Kidney

**Aspiration hazard**
No data available

**Imidazole**

**Acute toxicity**
LD50 Oral - Rat - 970 mg/kg
(OECD Test Guideline 401)
Inhalation: No data available
Dermal: No data available
No data available
Skin corrosion/irritation
Skin - Rabbit
Result: Corrosive after 1 to 4 hours of exposure - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye damage.
(OECD Test Guideline 405)
Remarks: Causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Result: negative
Method: OECD Test Guideline 474
Species: Mouse - male and female - Bone marrow
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
May damage the unborn child.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

Sulphur dioxide

Acute toxicity
Oral: No data available
Acute toxicity estimate Inhalation - 4 h - 701 ppm - gas
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Dermal: No data available

Skin corrosion/irritation
Remarks: Causes skin burns.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Serious eye damage/eye irritation
Remarks: Causes serious eye damage.

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

1H-Imidazole, monohydriodide

Acute toxicity
LD50 Oral - Rat - > 300 mg/kg  
(OECD Test Guideline 401)
Oral: No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye 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
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
SECTION 12: Ecological information

12.1 Toxicity

Mixture
Toxicity to fish LC50 - Leuciscus idus (Golden orfe) - > 1,000 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to bacteria Remarks: No data available

12.2 Persistence and degradability
Readily biodegradable, according to appropriate OECD test.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

Components

Methanol
Toxicity to fish flow-through test LC50 - Lepomis macrochirus (Bluegill) - 15,400.0 mg/l - 96 h
(US-EPA)

Toxicity to daphnia and other aquatic invertebrates semi-static test EC50 - Daphnia magna (Water flea) - 18,260 mg/l - 96 h
(OECD Test Guideline 202)

Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata (green algae) - ca. 22,000.0 mg/l - 96 h
(OECD Test Guideline 201)

Toxicity to bacteria static test IC50 - activated sludge - > 1,000 mg/l - 3 h
(OECD Test Guideline 209)

Toxicity to fish (Chronic toxicity) NOEC - Oryzias latipes (Orange-red killifish) - 7,900 mg/l - 200 h
Remarks: (External MSDS)

Diethanolamine
Toxicity to fish static test LC50 - Oncorhynchus mykiss (rainbow trout) - 460 mg/l - 96 h
Remarks: (ECHA)

Toxicity to daphnia static test EC50 - Ceriodaphnia dubia (water flea) - 30.1 mg/l -
Toxicity to algae: static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 9.5 mg/l - 96 h (US-EPA)

Toxicity to bacteria: static test EC10 - activated sludge - > 1,000 mg/l - 30 min (OECD Test Guideline 209)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): semi-static test EC10 - Daphnia magna (Water flea) - 1.05 mg/l - 21 d (Remarks: (ECHA))

**Imidazole**

Toxicity to daphnia and other aquatic invertebrates: static test EC50 - Daphnia magna (Water flea) - 341.5 mg/l - 48 h (Regulation (EC) No. 440/2008, Annex, C.2)

Toxicity to algae: static test ErC50 - Desmodesmus subspicatus (green algae) - 133 mg/l - 72 h (DIN 38412)

Toxicity to bacteria: static test EC50 - activated sludge - > 1,000 mg/l - 30 min (OECD Test Guideline 209)

**Sulphur dioxide**

No data available

**1H-Imidazole, monohydriodide**

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia - 1.4 mg/l - 48 h (Tested according to Directive 92/69/EEC.)

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**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**Product**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

**SECTION 14: Transport information**

**DOT (US)**

UN number: 1230  Class: 3  Packing group: II  Proper shipping name: MethanolSOLUTION
Reportable Quantity (RQ): 1111 lbs
Poison Inhalation Hazard: No

**IMDG**
UN number: 1230  
Class: 3 (6.1)  
Packing group: II  
EMS-No: F-E, S-D  
Proper shipping name: METHANOLSOLUTION

**IATA**
UN number: 1230  
Class: 3 (6.1)  
Packing group: II  
Proper shipping name: MethanolSOLUTION

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**SECTION 15: Regulatory Information**

**SARA 302 Components**
Sulphur dioxide
CAS-No. 7446-09-5  
Revision Date 2008-11-03

**SARA 313 Components**
The following components are subject to reporting levels established by SARA Title III, Section 313:

Methanol
CAS-No. 67-56-1  
Revision Date 2007-07-01

Diethanolamine
CAS-No. 111-42-2  
Revision Date 2007-03-01

**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**
Methanol
CAS-No. 67-56-1  
Revision Date 2007-07-01

Diethanolamine
CAS-No. 111-42-2  
Revision Date 2007-03-01

Sulphur dioxide
CAS-No. 7446-09-5  
Revision Date 2008-11-03

**Pennsylvania Right To Know Components**
Methanol
CAS-No. 67-56-1  
Revision Date 2007-07-01

Diethanolamine
CAS-No. 111-42-2  
Revision Date 2007-03-01

Sulphur dioxide
CAS-No. 7446-09-5  
Revision Date 2008-11-03

**California Prop. 65 Components**
, which is/are known to the State of California to
cause cancer, and Diethanolamine is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. Methanol

**SECTION 16: Other information**

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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