

Material Safety Data Sheet

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Version 1.5

According to 91/155/EEC

1 - Product and Company Information

Product Name HYDRANAL—SOLVENT, SOLVENT-COMPONENT
FOR VOLUMETRIC KARL FISCHER TITRATION
Product Number 34800
Company Sigma-Aldrich Company Ltd.
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2 - Composition/Information on Ingredients

| Product Name | CAS # | EC no | Annex I Index Number |
|------------------|-------|-------|-------------------------|
| HYDRANAL SOLVENT | None | None | None |

| Ingredient Name | Percent | CAS # | EC no | Annex I Index Number |
|-----------------|---------|---------|-----------|-------------------------|
| METHANOL | >= 60 | 67-56-1 | 200-659-6 | 603-001-00-X |

Symbols: F T

R-Phrases: 11 23/24/25 39/23/24/25

Highly flammable. Toxic by inhalation, in contact with skin and if
swallowed. Toxic: danger of very serious irreversible effects
through inhalation, in contact with skin and if swallowed.

| | | | | |
|-----------|----------------|----------|-----------|------|
| IMIDAZOLE | >= 10 <= 30 | 288-32-4 | 206-019-2 | None |
|-----------|----------------|----------|-----------|------|

Symbols: C

R-Phrases: 22 34

Harmful if swallowed. Causes burns.

| | | | | |
|----------------|---------------|-----------|-----------|------|
| SULFUR DIOXIDE | >= 5 <= 15 | 7446-09-5 | 231-195-2 | None |
|----------------|---------------|-----------|-----------|------|

Symbols: T

R-Phrases: 23 34

Toxic by inhalation. Causes burns.

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Highly flammable. Toxic by inhalation, in contact with skin and if
swallowed. Toxic: danger of very serious irreversible effects
through inhalation, in contact with skin and if swallowed. Risk of
serious damage to eyes.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

ENVIRONMENTAL PRECAUTION(S)

Do not allow material to enter drains or water courses. Avoid contaminating sewers and waterways with this material.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Do not use if skin is cut or scratched. Wash thoroughly after handling.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Discard contaminated clothing and shoes.

EXPOSURE LIMITS

| Country | Source | Type | Value |
|---------|--------|-------|-----------|
| Poland | | NDS | 100 MG/M3 |
| Poland | | NDSch | 300 MG/M3 |
| Poland | | NDSP | - |

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

| | | |
|-----------------------|-----------------------------|----------------------------|
| Appearance | Physical State: Liquid | |
| Property | Value | At Temperature or Pressure |
| pH | N/A | |
| BP/BP Range | 65 °C | |
| MP/MP Range | N/A | |
| Flash Point | 11 °C | Method: closed cup |
| Flammability | N/A | |
| Autoignition Temp | N/A | |
| Oxidizing Properties | N/A | |
| Explosive Properties | N/A | |
| Explosion Limits | Lower: 5.5 % Upper: 31 % | |
| Vapor Pressure | 128 mmHg | 20 °C |
| SG/Density | 0.89 g/cm3 | |
| Partition Coefficient | N/A | |
| Viscosity | N/A | |
| Vapor Density | N/A | |
| Saturated Vapor Conc. | N/A | |
| Evaporation Rate | N/A | |
| Bulk Density | N/A | |
| Decomposition Temp. | N/A | |
| Solvent Content | N/A | |
| Water Content | N/A | |
| Surface Tension | N/A | |
| Conductivity | N/A | |
| Miscellaneous Data | N/A | |
| Solubility | N/A | |

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Acids, Acid chlorides, Acid anhydrides,

Oxidizing agents, Alkali metals, Reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Sulfur oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

IRRITATION DATA

Skin

Rabbit

Remarks: No irritation effect

Eyes

Rabbit

Remarks: Severe irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE

Methyl alcohol may be fatal or cause blindness if swallowed.

Cannot be made non-poisonous. Ingestion can cause: Nausea, headache, and vomiting. Gastrointestinal disturbances.

Dizziness. Weakness. Confusion. Drowsiness. Unconsciousness.

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: Toxic if absorbed through skin.

Eye Contact: Causes severe eye irritation.

Inhalation: Toxic if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: Toxic if swallowed.

TARGET ORGAN INFORMATION

Eyes. Kidneys. Liver. Heart. Blood.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1230
Class: 3
PG: II
Proper Shipping Name: Methanol solution

IMDG

UN#: 1230
Class: 3
PG: II
Subrisk: 6.1
Proper Shipping Name: Methanol solution
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1230
Class: 3
PG: II
Subrisk: 6.1
Proper Shipping Name: Methanol solution
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: F T

Highly Flammable. Toxic.

R-PHRASES: 11 23/24/25 39/23/24/25 41

Highly flammable. Toxic by inhalation, in contact with skin and if swallowed. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Risk of serious damage to eyes.

S-PHRASES: 16 26 36/37/39 45

Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1

NORWAY

Labelling for organic solvents where the package is 1 liter or more.

YL-tall m3/l: >5105

YL-group: 5

16 - Other Information

WARRANTY

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 Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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