

## Material Safety Data Sheet

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Version 1.3

According to 91/155/EEC

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1 - Product and Company Information

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Product Name HYDRANAL—TITRANT 2, TITRANT COMPONENT  
F OR VOLUMETRIC KARL FISCHER TITRATION

Product Number 34811

Company Sigma-Aldrich Company Ltd.  
The Old Brickyard  
New Road, Gillingham SP8 4XT  
United Kingdom

Technical Phone # 44-(0)-1747-833000  
Fax 44-(0)-1747-833313  
Emergency Phone # 44-(0)-1747-833100

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2 - Composition/Information on Ingredients

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Product Name	CAS #	EC no	Annex I Index Number
HYDRANAL TITRANT 2	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.

IODINE	>= 1 <= 5	7553-56-2	231-442-4	053-001-00-3
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Symbols: Xn N

R-Phrases: 20/21 50

Harmful by inhalation and in contact with skin. Very toxic to aquatic organisms.

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3 - Hazards Identification

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## 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.

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4 - First Aid Measures

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## 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.

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### 5 - Fire Fighting Measures

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#### EXTINGUISHING MEDIA

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

#### SPECIAL RISKS

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

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.

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### 6 - Accidental Release Measures

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#### 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.

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### 7 - Handling and Storage

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#### 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.

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### 8 - Exposure Controls / Personal Protection

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#### 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.

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### 9 - Physical and Chemical Properties

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Appearance	Physical State: Liquid Liquid	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	65 °C	
MP/MP Range	-98 °C	
Flash Point	11 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	450 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 5.5 % Upper: 31 %	
Vapor Pressure	N/A	
SG/Density	0.8 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	Solubility in Water: Miscible. Other Solvents: IN ALMOST ALL ORGANIC SOLVENTS	

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### 10 - Stability and Reactivity

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#### 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, Iodine, Hydrogen iodide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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11 - Toxicological Information

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SENSITIZATION

Sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

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. 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: May cause 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. Thyroid.

CHRONIC EXPOSURE - TERATOGEN

Result: Exposure to excessive amounts of iodine during pregnancy is capable of producing fetal hypothyroidism. Iodine-containing drugs have been associated with fetal goiter.

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12 - Ecological Information

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No data available.

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13 - Disposal Considerations

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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.

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14 - Transport Information

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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

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15 - Regulatory Information

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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

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.

S-PHRASES: 7 16 36/37 45

Keep container tightly closed. Keep away from sources of ignition - no smoking. Wear suitable protective clothing and gloves. 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 1liter or more.

YL-tall m3/1: 5105-8508

YL-group: 5

Safety phrases: 38 42 210

In case of insufficient ventilation, wear suitable respiratory equipment. During fumigation/spraying wear suitable respiratory equipment. Use compressed air- or fresh air line breathing apparatus in confined spaces.

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16 - Other Information

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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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