

## Material Safety Data Sheet

Date Printed: 29/SEP/2005

Date Updated: 06/JAN/2005

Version 1.12

According to 91/155/EEC

---

1 - Product and Company Information

---

Product Name                    FORMALDEHYDE, 35 WT. % SOLUTION IN WATER  
Product Number                433284

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

---

2 - Composition/Information on Ingredients

---

Product Name	CAS #	EC no	Annex I Index Number
FORMALDEHYDE SOLUTION >35% (10-15% MEOH)	None	None	None

Ingredient Name	Percent	CAS #	EC no	Annex I Index Number
FORMALDEHYDE Carc. Cat.3	>= 35	50-00-0	200-001-8	605-001-00-5

Symbols: T

R-Phrases: 23/24/25-34-40-43

Toxic by inhalation, in contact with skin and if swallowed. Causes  
burns. Limited evidence of a carcinogenic effect. May cause  
sensitization by skin contact.

WATER	7732-18-5	231-791-2	None
-------	-----------	-----------	------

Formula                    CH<sub>2</sub>O  
Molecular Weight        30.03 AMU

---

3 - Hazards Identification

---

## SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Toxic by inhalation, in contact with skin and if swallowed. Causes  
burns. Toxic: danger of very serious irreversible effects through  
inhalation, in contact with skin and if swallowed. Limited  
evidence of a carcinogenic effect. May cause sensitization by skin  
contact.

---

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. Do not induce vomiting.

---

### 5 - Fire Fighting Measures

---

#### EXTINGUISHING MEDIA

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

#### SPECIAL RISKS

Specific Hazard(s): Combustible liquid. Emits toxic fumes 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.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

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

#### METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

---

### 7 - Handling and Storage

---

#### HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place.

---

### 8 - Exposure Controls / Personal Protection

---

#### ENGINEERING CONTROLS

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

#### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

#### EXPOSURE LIMITS

Country	Source	Type	Value
---------	--------	------	-------

ACGIH TLV 0.3 ppm

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	0.6 mg/m3 0.5 ppm

Remarks: =1=

Remarks: Y,H, formaldehyde

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.  
Hand Protection: Compatible chemical-resistant gloves.  
Eye Protection: Chemical safety goggles.  
Special Protective Measures: Faceshield (8-inch minimum).

---

9 - Physical and Chemical Properties

---

Appearance Physical State: Clear liquid  
Color: Colorless  
Odor: Pungent

Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	100 °C	
MP/MP Range	N/A	
Flash Point	56.0 - 63.0 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	420 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 7 % Upper: 70 %	
Vapor Pressure	40 mmHg	39 °C
SG/Density	1.09 g/cm3	
Partition Coefficient	Log Kow: 0.35	
Viscosity	N/A	
Vapor Density	1 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	1	
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: Complete	

---

10 - Stability and Reactivity

---

STABILITY

Stable: Stable.

Materials to Avoid: Acid chlorides, Acid anhydrides, Alkali metals, Reducing agents, Peroxides, Strong oxidizing agents  
Incompatible with: aniline, phenol, isocyanates, anhydrides, Strong acids, Strong bases, Amines.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

## 11 - Toxicological Information

---

### SENSITIZATION

Skin: May cause allergic skin reaction.

### SIGNS AND SYMPTOMS OF EXPOSURE

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

### ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: Toxic if absorbed through skin. Readily absorbed through skin.

Eye Contact: Causes burns.

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Toxic if inhaled.

Ingestion: Toxic if swallowed.

### TARGET ORGAN INFORMATION

Eyes. Kidneys. Liver. Heart.

### CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

### CHRONIC EXPOSURE - MUTAGEN

Result: May alter genetic material.

CMR CAT.: Carc. Cat.3

---

## 12 - Ecological Information

---

N/A

### ADDITIONAL ECOLOGICAL INFORMATION

BOD5: 60 %

---

## 13 - Disposal Considerations

---

### SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

---

## 14 - Transport Information

---

### RID/ADR

UN#: 1198

Class: 3

PG: III  
Proper Shipping Name: Formaldehyde solution, flammable

IMDG

UN#: 1198  
Class: 3  
PG: III  
Subrisk: 8  
Proper Shipping Name: FORMALDEHYDE SOLUTION, FLAMMABLE  
Marine Pollutant: No  
Severe Marine Pollutant: No

IATA

UN#: 1198  
Class: 3  
PG: III  
Subrisk: 8  
Proper Shipping Name: Formaldehyde solution, flammable  
Inhalation Packing Group I: No

---

15 - Regulatory Information

---

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: T

Toxic.

R-PHRASES: 23/24/25-34-39/23/24/25-40-43

Toxic by inhalation, in contact with skin and if swallowed.  
Causes burns. Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. May cause sensitization by skin contact.

S-PHRASES: 26-36/37/39-45-51

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). Use only in well ventilated areas.

---

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.

DISCLAIMER

For R&D use only. Not for drug, household or other uses.