

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 04/21/2011

Reviewed on 10/29/2008

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

Product identifier

Product name: Formaldehyde, 37% in Aqueous Solution

Stock number: A16163, L14190

CAS Number:

50-00-0

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

Sector of Use SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Hazards identification

Classification of the substance or mixture



GHS02 Flame

H226 Flammable liquid and vapour.



GHS06 Skull and crossbones

H300 Fatal if swallowed.

H310 Fatal in contact with skin.

H330 Fatal if inhaled.



GHS08 Health hazard

H351 Suspected of causing cancer.



GHS05 Corrosion

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.



GHS07

H317 May cause an allergic skin reaction.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



T; Toxic

R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.



C; Corrosive

R34: Causes burns.



Xn; Harmful

R40: Limited evidence of a carcinogenic effect.

(Contd. on page 2)

USA

Material Safety Data Sheet
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Reviewed on 10/29/2008

Product name: Formaldehyde, 37% in Aqueous Solution

(Contd. of page 1)

X Xi; Irritant

R43: May cause sensitization by skin contact.

Label elements**Labelling according to EU guidelines:****Code letter and hazard designation of product:**

T Toxic

Risk phrases:

23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

34 Causes burns.

40 Limited evidence of a carcinogenic effect.

43 May cause sensitization by skin contact.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

51 Use only in well-ventilated areas.

Special labelling of certain preparations:

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

Hazard description:**WHMIS classification****Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	2	Health (acute effects) = 2
FIRE	2	Flammability = 2
REACTIVITY	1	Reactivity = 1

Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients**Chemical characterization: Substances****(CAS#) Description:**

Formaldehyde (CAS# 50-00-0): 37%

Methyl alcohol (CAS# 67-56-1): 7-8%

Water (CAS# 7732-18-5): Balance

4 First aid measures**Description of first aid measures****General information**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

(Contd. on page 3)

USA

Material Safety Data Sheet
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Printing date 04/21/2011

Reviewed on 10/29/2008

Product name: Formaldehyde, 37% in Aqueous Solution

(Contd. of page 2)

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

Information for doctor**Most important symptoms and effects, both acute and delayed**

Headache

Gastric or intestinal disorders.

Unconsciousness

Breathing difficulty

5 Firefighting measures**Extinguishing media****Suitable extinguishing agents**CO₂, extinguishing powder or water spray. Fight larger fire with alcohol resistant foam.**Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires:

Keep ignition sources away.

Protect from heat.

Conditions for safe storage, including any incompatibilities**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Do not store together with alkalies (caustic solutions).

Do not store together with acids.

Further information about storage conditions:

Keep container tightly sealed.

(Contd. on page 4)

USA

Material Safety Data Sheet
According to OSHA and ANSI

Printing date 04/21/2011

Reviewed on 10/29/2008

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Store in cool, dry conditions in well sealed containers.

(Contd. of page 3)

8 Exposure controls/personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace:

Formaldehyde

	ppm
ACGIH TLV	0.3 (ceiling); Suspected human carcinogen
Austria MAK	0.5; Suspected carcinogen
Belgium TWA	1; 2-STEL (carcinogen)
Denmark TWA	0.3
France VME	0.5; 1-VLE (C3 carcinogen)
Germany MAK	0.5; Carcinogen
Hungary	0.6-STEL; Carcinogen
Netherlands TWA	1; 2-STEL
Japan OEL	0.5; 2A carcinogen
Korea TLV	0.3 (ceiling); Suspected human carcinogen
Netherlands MAC-TGG	1; 2-MAC-K
Norway TWA	0.5
Poland TWA	0.5 mg/m3; 1 mg/m3-STEL
Russia TWA	0.5; 0.5-STEL (skin)
Sweden NGV	0.5; 1-TGV (skin)
Switzerland MAK-W	0.5; 1-KZG-W
United Kingdom TWA	2; Carcinogen
USA PEL	0.75; 2-STEL

Methyl alcohol

	ppm
ACGIH TLV	200; 250-STEL (skin)
Austria MAK	200 (skin)
Belgium TWA	200; 250-STEL, (skin)
Denmark TWA	200 (skin)
Finland TWA	200; 250-STEL (skin)
France VME	200; 1000-VLE
Hungary TWA	50 mg/m3; 100 mg/m3-STEL (skin)
Japan OEL	200 (skin)
Korea TLV	200; 250-STEL (skin)
Netherlands MAC-TGG	200 (skin)
Norway TWA	100
Poland TWA	100 mg/m3; 300 mg/m3-STEL
Russia TWA	200; 5 mg/m3-STEL (skin)
Sweden NGV	200; 250-KTV (skin)
United Kingdom TWA	200; 250-STEL (skin)
OSHA PEL	200

Additional information: No data

Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves

Eye protection:

Safety glasses

Tightly sealed goggles

Full face protection

(Contd. on page 5)

USA

Material Safety Data Sheet
According to OSHA and ANSI

Printing date 04/21/2011

Reviewed on 10/29/2008

Product name: Formaldehyde, 37% in Aqueous Solution

Body protection: Protective work clothing.

(Contd. of page 4)

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form:	Solution
Color:	Clear
	Colorless
Odor:	Pungent
Odour threshold:	Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range:	-15°C (5 °F)
Boiling point/Boiling range:	96°C (205 °F)
Sublimation temperature / start:	Not determined

Flash point: Not determined

Flammability (solid, gaseous) Not applicable.

Ignition temperature: 300°C (572 °F)

Decomposition temperature: Not determined

Auto igniting: Not determined.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower:	7 Vol %
Upper:	73 Vol %

Vapor pressure at 39°C (102 °F): 53 hPa (40 mm Hg)

Density at 20°C (68 °F): 1.083 g/cm³ (9.038 lbs/gal)

Relative density Not determined.

Vapour density Not determined.

Evaporation rate Not determined.

Solubility in / Miscibility with

Water: Fully miscible

Segregation coefficient (n-octanol/water): Not determined.

Viscosity:

dynamic: Not determined.

kinematic: Not determined.

Other information No further relevant information available.

10 Stability and reactivity

Reactivity

Chemical stability

Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions Reacts violently with oxidizing agents

Incompatible materials:

Oxidizing agents

Acids

Bases

Hydrogen peroxide

Hazardous decomposition products:

Carbon monoxide and carbon dioxide

Formaldehyde

USA

(Contd. on page 6)

Material Safety Data Sheet
According to OSHA and ANSI

Printing date 04/21/2011

Reviewed on 10/29/2008

Product name: Formaldehyde, 37% in Aqueous Solution

(Contd. of page 5)

11 Toxicological information**Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:**

ORL-RAT LD50: 800 MG/KG (FORMALDEHYDE)

ORL-MUS LD50: 42 MG/KG (FORMALDEHYDE)

SKN-RBT LD50: 270 MG/KG (FORMALDEHYDE)

ORL-RAT LD50: 5628 MG/KG (METHANOL)

ORL-MUS LD50: 7300 MG/KG (METHANOL)

SKN-RBT LD50: 15800 MG/KG (METHANOL)

ORL-HMN LDLo: 143 MG/KG (METHANOL)

Primary irritant effect:**on the skin:**

Corrosive effect on skin and mucous membranes.

Irritant to skin and mucous membranes.

on the eye:

Strong corrosive effect.

Irritating effect.

Sensitization: Sensitization possible through skin contact.

Other information (about experimental toxicology):

Mutagenic effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with bacteria.

Tumorigenic effects have been observed on tests with laboratory animals.

Reproductive effects have been observed on tests with laboratory animals.

Carcinogenic effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:

Formaldehyde solutions are highly irritating to the skin, eyes and mucous membranes.

Ingestion may cause vomiting and diarrhea. May cause sensitization reactions by skin contact. May cause pulmonary edema and pneumonitis. Mutagenic, tumorigenic, carcinogenic and reproductive data has been reported.

Symptoms of methanol overexposure may include intoxication, headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma and death. It is a defatting agent and can cause skin and eye irritation. Absorption through the skin is possible. Chronic exposure may cause liver and eye injury.

Additional toxicological information:

Danger through skin absorption.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies.

IARC-2A: Probably carcinogenic to humans: limited human evidence; sufficient evidence in experimental animals

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

Carcinogen as defined by OSHA.

ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

12 Ecological information**Toxicity**

Acquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:**General notes:**

Do not allow product to reach ground water, water course or sewage system.

(Contd. on page 7)

USA

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(Contd. of page 6)

Danger to drinking water if even small quantities leak into the ground.
Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.**13 Disposal considerations****Waste treatment methods****Recommendation** Consult state, local or national regulations to ensure proper disposal.**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**Recommended cleansing agent:** Water, if necessary with cleansing agents.**14 Transport information****DOT regulations:**

Hazard class: 3
Identification number: UN1198
Packing group: III
Hazardous substance: 100 lbs, 45.4 kg
Proper shipping name (technical name): FORMALDEHYDE SOLUTION, FLAMMABLE
Label: 3+8

Land transport ADR/RID (cross-border)

ADR/RID class: 3 (FC) Flammable liquids
Danger code (Kemler): 38
UN-Number: 1198
Packaging group: III
UN proper shipping name: 1198 FORMALDEHYDE SOLUTION, FLAMMABLE

Maritime transport IMDG:

IMDG Class: 3
UN Number: 1198
Label: 3+8
Packaging group: III
Marine pollutant: No
Proper shipping name: FORMALDEHYDE SOLUTION, FLAMMABLE

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 3
UN/ID Number: 1198
Label: 3+8

(Contd. on page 8)

USA

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(Contd. of page 7)

Packaging group: III
Proper shipping name: FORMALDEHYDE SOLUTION, FLAMMABLE

UN "Model Regulation": UN1198, FORMALDEHYDE SOLUTION, FLAMMABLE, 3 (8), III
Special precautions for user Warning: Flammable liquids
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

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

Product related hazard informations:

Hazard symbols:

T Toxic

Risk phrases:

23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

34 Causes burns.

40 Limited evidence of a carcinogenic effect.

43 May cause sensitization by skin contact.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

51 Use only in well-ventilated areas.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact:

Zachariah C. Holt

Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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