Material Safety Data Sheet

Version 4.2
Revision Date 04/19/2013
Print Date 05/06/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Formalin solution, neutral buffered, 10%
Product Number	:	HT501128
Brand	:	Sigma
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Skin sensitiser, Irritant, Corrosive

Target Organs

Eyes, Kidney, Liver, Heart, Central nervous system

GHS Classification
Flammable liquids (Category 4)
Acute toxicity, Oral (Category 4)
Skin irritation (Category 2)
Serious eye damage (Category 1)
Skin sensitisation (Category 1)
Carcinogenicity (Category 2)
Specific target organ toxicity - single exposure (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H227	Combustible liquid
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H351	Suspected of causing cancer.
H370	Causes damage to organs.

Precautionary statement(s)

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P280	Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	2
Physical hazards:	0

NFPA Rating

Health hazard:	3
Fire:	2
Reactivity Hazard:	0

Potential Health Effects

Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.
Skin	Toxic if absorbed through skin. Causes skin burns. Causes skin irritation.
Eyes	Causes eye burns. Causes eye irritation.
Ingestion	Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component		Classification	Concentration
Formaldehyde			
CAS-No. EC-No. Index-No.	50-00-0 200-001-8 605-001-00-5	Acute Tox. 3; Skin Corr. 1B; Skin Sens. 1; Carc. 2; H301 + H311 + H331, H314, H317, H351	1 - 5 %
Methanol			
CAS-No. EC-No. Index-No. Registration number	67-56-1 200-659-6 603-001-00-X 01-2119433307-44-XXXX	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301 + H311 + H331, H370	1 - 5 %

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Formaldehyde	50-00-0	C	0.3 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Eye & Upper Respiratory Tract irritation Suspected human carcinogen Sensitizer			
	Substance listed; for more information see OSHA document 1910.1048			
	Substance listed; for more information see OSHA document 1910.1048			
	See 1910.1048			
		TWA	0.016 ppm	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen See Appendix A			
		C	0.1 ppm	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen See Appendix A 15 minute ceiling value			
		TWA	0.016 ppm	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for			

	Formaldehyde and Methyl alcohol. See Appendix A			
		C	0.1 ppm	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for Formaldehyde and Methyl alcohol. See Appendix A 15 minute ceiling value			
Methanol	67-56-1	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption			
		STEL	250 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption			
		TWA	200 ppm 260 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		STEL	250 ppm 325 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		TWA	200 ppm 260 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m3 is approximate.			
		TWA	200 ppm 260 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption			
		ST	250 ppm 325 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption			

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand 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.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	no data available

Safety data

pH	no data available
Melting point/freezing point	no data available
Boiling point	100 °C (212 °F) at 1,013 hPa (760 mmHg)
Flash point	85 °C (185 °F)
Ignition temperature	no data available
Auto-ignition temperature	no data available
Lower explosion limit	7 %(V)
Upper explosion limit	70 %(V)
Vapour pressure	53 hPa (40 mmHg) at 39 °C (102 °F)
Density	1.080 g/cm3
Water solubility	completely miscible
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evapouration rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong bases, Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Amines, Strong acids, Acid chlorides, Acid anhydrides, Reducing agents, Peroxides, Isocyanates, Phenol, Aniline

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
no data available

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes: no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC:	1 - Group 1: Carcinogenic to humans (Formaldehyde)
NTP:	Known to be human carcinogen (Formaldehyde)

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Toxic if absorbed through skin. Causes skin burns. Causes skin irritation.
Eyes	Causes eye burns. Causes eye irritation.

Signs and Symptoms of Exposure
Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion., Drowsiness, Unconsciousness, May cause convulsions.

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
NA-Number: 1993 Class: CBL Packing group: III
Proper shipping name: Combustible liquid, n.o.s. (Formaldehyde, Methanol)
Reportable Quantity (RQ): 2500 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Skin sensitiser, Irritant, Corrosive

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Formaldehyde	50-00-0	2007-07-01

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

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01
Formaldehyde	50-00-0	2007-07-01

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

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Formaldehyde	50-00-0	2007-07-01
Methanol	67-56-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	

Formaldehyde	50-00-0	2007-07-01
Methanol	67-56-1	2007-07-01
Disodium hydrogenorthophosphate	7558-79-4	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Formaldehyde	50-00-0	2007-07-01
Methanol	67-56-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Formaldehyde	50-00-0	2007-09-28

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H370	Causes damage to organs.
Skin Corr.	Skin corrosion
Skin Sens.	Skin sensitisation
STOT SE	Specific target organ toxicity - single exposure

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.