MATERIALS SAFETY DATA SHEET (MSDS) Formaldehyde (CH2O)	**MSDS Number:**	
	Version number:	
	Date issued:	
	Page No:	

1. Product Identification

Product Name	Formaldehyde solution
Synonyms	Formalin; Methanal; Methylene oxide; Oxymethane; Formic aldehyde; Methyl aldehyde
CAS No	50-00-0
Recommended Use	Laboratory chemicals
Uses advised against	Food, drug, pesticide or biocidal product use.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer Supplier	
E-Mail	
Contact Person	
Emergency Telephone	

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Classification of the substance or mixture

Flammable liquids	Category 3

Acute oral toxicity	Category 3
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity Category	1A
Specific target organ toxicity (single exposure)	Category 1
Target Organs - Respiratory system, Central nervous system (CNS), Optic nerve. Specific target organ toxicity - (repeated exposure) Target Organs - Kidney, Liver, Heart, spleen, Blood.	Category 1

2.2 Classification of the substance:

Hazard pictogram(s)/Symbols	
	
Signal word	**DANGER**

Hazard statements	Flammable liquid and vapor
	Causes severe skin burns and eye damage
	May cause an allergic skin reaction
	May cause respiratory irritation
	May cause drowsiness or dizziness
	Suspected of causing genetic defects
	May cause cancer

	Causes damage to organs
	Causes damage to organs through prolonged or repeated exposure
	Toxic if swallowed, in contact with skin or if inhaled

Precautionary Statements

Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required Wash face, hands and any exposed skin thoroughly after handling.Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep cool
Response	Immediately call a POISON CENTER or doctor/physician.
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin	Wash contaminated clothing before reuseIF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention.
Eyes	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion	Rinse mouth. Do NOT induce vomiting.
Fire	In case of fire: Use CO2, dry chemical, or foam for extinction.
Storage	Store locked up. Store in a well-ventilated place. Keep container tightly closed.
Disposal	Dispose of contents/container to an approved waste disposal plant.
Hazards not otherwise classified (HNOC)	None identified.
Other hazards	Poison, may be fatal or cause blindness if swallowed. Vapor harmful.

3. Composition and ingredient information

Chemical name	CAS number	%
Formaldehyde	50-00-0	37

4. First-aid measures

Description of first aid measures

Eye Contact:	Flush immediately with plenty of water for at least 15 minutes, keeping eyelids open and avoiding contamination of unaffected eye. Seek medical attention.
Inhalation:	Remove patient to fresh air, allow to rest and keep warm. If not breathing, give artificial respiration and seek medical attention.
Skin contact:	Wash immediately with plenty of water. Remove any contaminated clothing and launder before reuse. If irritation persists or develops, seek medical attention.
Ingestion:	DO NOT induce vomiting! Rinse mouth out with water, but do not give anything to drink. Seek medical attention.
Personal precautions	Ensure that those giving first aid treatment do not get contaminated by product spills, etc. Wear suitable protective clothing, gloves and eye protection.
Most import symptoms and effects, both acute and delayed:	May cause contact dermatitis reaction by skin contact. Can cause skin burns, sever eye irritation with permanent damage, burns to throat, nose and gastrointestinal tract and severe irritation of the respiratory tract Chronic Potential Health Effects Classified as a Category 2 carcinogen under CLP (Category 3 under CHIP/DSD) in the EU, mainly on grounds of inhalation experiments in animals.
Indication of any immediate medical attention and special treatment needed:	Obtain medical attention if inhaled, ingested or in case of eye contact.

5. Fire-fighting measures

Extinguishing media	**Suitable extinguishing media:** Water spray Foam Carbon dioxide (CO2) Dry powder

	Extinguishing media which shall not be used for safety reasons: High volume water jet
Special hazards arising from the substance or mixture	Formaldehyde vapors
Advice for firefighters	Wear self-contained breathing apparatus and protective suit. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Do not use a solid water stream as it may scatter and spread fire.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal precautions, protective equipment and emergency procedures	Do not breathe gas/vapour/aerosol. Provide adequate ventilation. Use personal protection equipment. In case of major fire and large quantities: Remove persons to safety. Wear a self-contained breathing apparatus and chemical protective clothing.
Environmental precautions	Do not allow to enter into surface water or drains. Make sure spills can be contained, e.g. in sump pallets or kerbed areas. Discharge into the environment must be avoided.
Methods and material for containment and cleaning up	Spilled product must never be returned to the original container for recycling. Clean contaminated articles and floor according to the environmental legislation. Collect in closed and suitable containers for disposal.
Additional information	Clear spills immediately

7. Handling and storage

Handling	Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from openflames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Strong bases. nitriles. Acids. Isocyanates. Acid anhydrides. Metals. Acid chlorides.

8. Exposure Controls/ Personal Protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Formaldehyde	**ACGIH TLV:** TWA: 0.1 ppm STEL: 0.3 ppm **OSHA PEL** (Vacated) TWA: 3 ppm (Vacated) STEL: 10 ppm (Vacated) Ceiling: 5 ppm TWA: 0.75 ppm STEL: 2 ppm **NIOSH IDLH** IDLH: 20 ppm TWA: 0.016 ppm Ceiling: 0.1 ppm
ACGIH - American Conference of Governmental Industrial Hygienists **OSHA -** Occupational Safety and Health Administration **NIOSH IDLH: NIOSH -** National Institute for Occupational Safety and Health	

Engineering Measures	Use only under a chemical fume hood. Ensure that eyewash stations and safety showersare close to the workstation location. Use explosion-proof electrical/ventilating/lightingequipment. Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment	
Eye/face Protection	Tight sealing safety goggles. Face protection shield.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European StandardEN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator ifexposure limits are exceeded or if irritation or other

	symptoms are experienced
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice

9. Physical and chemical properties

Appearance	Colourless liquid
Odour	Irritating, pungent
Odour Threshold Value	Not determined
pH (concentrated product)	2.5 – 5.5
Melting Point	-15 oC approx.
Boiling point/range	96 – 101oC
Flashpoint	63 - 75 oC
Evaporation rate	Not determined
Flammability	Combustible liquid and vapour
Explosive properties/limits	Upper limit in air =73% for Formaldehyde gas Lower limit in air = 7% for Formaldehyde gas
Vapour pressure	4.2 mm HG at 35 oC (Formaldehyde Partial Pressure)
Vapour density	Not determined
Density at 20oC	1080-1160 kg/m3
Solubility in water	Miscible in all proportions (% by weight)
Solubility in solvents	Soluble in ethanol, diethyl ether, low in fatty type solvents
Partition coefficient (log Kow)	0.35, for Formaldehyde gas
Auto-ignition temperature	300 oC
Decomposition temperature	400oC
Viscosity	1.0 (mPa.s at 20oC)
Oxidising properties	None
Other information:	

Note: These are typical values and do not constitute a specification.

10. Stability and reactivity

Reactivity:	Stable under normal conditions of use and storage but may polymerise at temperatures above 60oC
Stability	Stable under normal conditions
Conditions to Avoid	Incompatible products. Excess heat. Keep away from open flames, hot surfaces andsources of ignition
Incompatible Materials	Strong oxidizing agents, Strong bases, nitriles, Acids, Isocyanates, Acid anhydrides,Metals, Acid chlorides
Hazardous Decomposition Products	Hydrogen, Formaldehyde
Hazardous Polymerization	Hazardous polymerization does not occur
Hazardous Reactions	None under normal processing.

11. Toxicological information

Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity

Acute oral toxicity	Acute toxicity estimate Value: 215.05 mg/kg Method: Calculation method
Acute dermal toxicity	Acute toxicity estimate Value: 645.16 mg/kg Method: Calculation method
Acute inhalation toxicity:	LC50 Species: Rat Value: < 463 ppm Exposure time: 4 h Method: OECD Test Guideline 403 Test substance: Formaldehyde
Acute toxicity (other routes of administration):	No data available

Skin corrosion/irritation	Classification based on Annex VI of regulation 1272/2008/EC.
Serious eye damage/eye irritation	Classification based on Annex VI of regulation 1272/2008/EC.
Respiratory or skin sensitisation	Classification based on Annex VI of regulation 1272/2008/EC.

STOT-single exposure:	No data available
STOT - repeated exposure:	No data available
Aspiration hazard:	No data available
Information on other hazards	**Endocrine disrupting properties** No data available **Other information:** No data available

12. Ecological information

Toxicity

Toxicity to fish	No data available
Toxicity to aquatic plants	No data available
Toxicity to Microorganisms	No data available
Toxicity to aquatic invertebrates	No data available
Chronic toxicity to aquatic invertebrates	No data available
Persistence and degradability	**Biodegradability:** Inherently biodegradable.
Bio accumulative potential	No data available
Mobility in soil	No data available
Results of PBT and vPvB assessment	No data available
Endocrine disrupting properties	No data available
Other adverse effects	Do not flush into surface water or sanitary sewer system.

13. Disposal considerations

Waste treatment methods:

Waste from residues/unused products	Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Empty containers pose a potential fire and explosion hazard. Do not cut, puncture of weld containers.

14. Transport information

DOT	
UN-No	UN1198
Proper Shipping Name	FORMALDEHYDE SOLUTIONS, FLAMMABLE
Hazard Class	3
Subsidiary Hazard Class	8
Packing Group	III

TDG	
UN-No	UN1198
Proper Shipping Name	FORMALDEHYDE SOLUTION, FLAMMABLE
Hazard Class	3
Subsidiary Hazard Class	8
Packing Group	III

IATA	
UN-No	UN1198
Proper Shipping Name	FORMALDEHYDE SOLUTION, FLAMMABLE
Hazard Class	3
Subsidiary Hazard Class	8
Packing Group	III

IMDG/IMO	
UN-No	UN1198
Proper Shipping Name	FORMALDEHYDE SOLUTION, FLAMMABLE
Hazard Class	3
Subsidiary Hazard Class	8
Packing Group	III

15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture:	Control of Substances Hazardous to Health Regulations 2002. Health and safety at Work etc. Act 1974. Council Directive 96/82/EC on the control of major accident hazards involving dangerous substances. The Control of Major Accident Hazards Regulations 1999 SI743.
Chemical safety assessment	A Chemical Safety Assessment has not been carried out on this mixture.

Note:

The regulatory information given above only indicates the principal regulations specifically Applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. Any other information

History

Product name	
Product code	
Date of printing	
Date of issue/Date ofrevision	
Date of previous issue	
Version	
Prepared by	

17. Change Details