SAFETY DATA SHEET

Revision date 2019-Mar-20 **Revision number** 1.01

1. IDENTIFICATION

Product identifier

Product name FORMALDEHYDE, <25%

Other means of identification

Product code 3125E
Synonyms Formaldehyde solution; Formalin; Morbicid Acid

Recommended use of the chemical and restrictions on use

Recommended use [RU] No information available
Uses advised against None known

Details of the supplier of the safety data sheet

Supplier GEO Specialty Chemicals, Inc.
2409 N. Cedar Crest Blvd.
Allentown, PA 18104-9733
+1-610-433-6330
Hours: Monday-Friday 9:00-5:00 EST (Eastern Standard Time)

Contact Point safety-data-sheet-fp@geosc.com

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC: (800) 424-9300
Outside USA - +1 (703) 527-3887 collect calls accepted

2. HAZARDS IDENTIFICATION

Classification

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

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation	Category 4
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 2 - (H371)

EMERGENCY OVERVIEW

Physical state	**Color**	**Appearance**	**Odor**
liquid	colorless	clear	pungent

GHS Label elements, including precautionary statements

DANGER

Hazard statements
Harmful if swallowed. Toxic in contact with skin. Harmful if inhaled. Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause cancer. May cause damage to organs.

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.

Precautionary Statements - Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a POISON CENTER or doctor/physician if you feel unwell. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting.

Precautionary Statements - Storage
Store locked up.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

Other information
• Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	weight-%	TRADE SECRET
Formaldehyde	50-00-0	< 25%	*
Methanol	67-56-1	0.5 - 4%	*
Water	7732-18-5	72 - 98%	*

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First Aid Measures

Eye contact
Remove contact lenses, if worn. Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure

flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical advice immediately.

Skin contact
Immediately wash thoroughly with soap and water, remove contaminated clothing and footwear. Wash clothing before reuse. Get medical attention if irritation should develop.

Ingestion
If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Most important symptoms and effects, both acute and delayed

Acute effects
Toxic in contact with skin. Harmful if swallowed or if inhaled. Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause damage to organs: optic nerve, Central nervous system.

Chronic effects
Contains a known or suspected carcinogen. Risk of cancer depends on level and duration of exposure.

Aggravated Medical Conditions
May aggravate exisiting skin, eye, respiratory, liver and kidney conditions.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media
Dry chemical. Alcohol foam. Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons
No information available.

Special hazards arising from the substance or mixture

Special Hazard
Above flash point, vapor-air mixtures may be explosive. Vapors can travel to a source of ignition and flash back.

Advice for firefighters

Firefighting measures
Cool exposed containers with water spray after extinguishing fire.

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for firefighting personnel.

Explosion data

Sensitivity to Mechanical Impact
None.

Sensitivity to Static Discharge
None.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear suitable protective clothing and gloves.

Environmental precautions

Environmental precautions
Avoid runoff to waterways and sewers.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Ventilate the area. Remove all sources of ignition. Non-sparking tools should be used. Contain and collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials such as saw dust. Use water spray to reduce vapors or divert vapor cloud drift.

Only specially trained or qualified personnel should handle this emergency. US EPA Regulations (CERCLA) require reporting spill and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Keep container closed when not in use
Keep away from open flames, hot surfaces and sources of ignition. Ground all equipment. Conveying and processing equipment should be spark proof, electrically bonded and grounded.
Avoid contact with eyes, skin and clothing. Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing. Avoid cross-contamination of street clothes when handling this product. Wash thoroughly after handling
Use only in well-ventilated areas. Avoid breathing vapors, if exposed to high vapor concentration, leave area at once. Use respiratory protection where mists or vapors may be generated.
FOR INDUSTRIAL USE ONLY.

Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Keep in tightly closed container.
Outside or detached storage is preferred.
Inside storage should be in a standard flammable liquids storage room or cabinet.
Protect from freezing in storage and transit.

Incompatible products
Incompatible with oxidizers, alkalies, phenols and urea. Reacts explosively with nitrogen dioxide at approximately 356 °F. Reacts violently with perchloric acid, perchloric-aniline mixtures, and nitromethane. Reaction with hydrochloric acid may form bis-chloromethyl ether, an OSHA carcinogen.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Component	weight-%	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formaldehyde 50-00-0	< 25%	dermal sensitizer; respiratory sensitizer 0.3 ppm Ceiling	0.75 ppm TWA 2 ppm STEL (See 29 CFR 1910.1048, 15 min); 0.5 ppm Action Level (See 29 CFR 1910.1048); 0.75 ppm TWA (See 29 CFR 1910.1048)	20 ppm IDLH
Methanol 67-56-1	0.5 - 4%	200 ppm TWA 250 ppm STEL Skin - potential significant contribution to overall exposure by the cutaneous route	200 ppm TWA; 260 mg/m³ TWA	6000 ppm IDLH

Appropriate engineering controls

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Individual protection measures, such as personal protective equipment

Eye/face Protection
Wear chemical splash goggles and face shield (when eye and face contact is possible due to splashing or spraying of material).

Hand Protection
Butyl rubber

Skin and body protection
Standard work clothing and work shoes.

Respiratory protection
Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Use approved NIOSH respiratory protection if TLV exceeded or over exposure is likely. If the exposure limit is exceeded for formaldehyde, a full facepiece with a formaldehyde cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator manufacturer. If the methanol exposure limit is exceeded, use a supplied air full facepiece respirator, airlined hood, or full facepiece self-contained breathing apparatus (SCBA). For emergencies or instances where the exposure levels are not known, use a full facepiece positive pressure, air-supplied respirator.

Other personal protection data
Rubber apron. Rubber boots. Rubber suit: As necessary. Eyewash fountains and safety showers must be easily accessible.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid
Color	colorless
Appearance	clear
Odor	pungent

Odor threshold No information available

Property	Values	Remarks / Method
pH	2.8	solution (31 %)
Melting / freezing point	No information available	No information available
Boiling point / boiling range	100 °C / 212 °F	No information available
Flash point	> 95 °C / > 203 °F	Pensky-Martens Closed Cup (PMCC)
Evaporation rate	No information available	No information available
Flammability (solid, gas)	Not applicable	No information available
Flammability Limit in Air		
Upper flammability limit	73 % - formaldehyde 36.5 % - methanol	@ 25 °C
Lower flammability limit	7 % - formaldehyde 5.5 % - methanol	@ 25 °C
Vapor pressure	1.3 mm Hg	@ 20 °C
Vapor density	1.04 - formaldehyde 0.62 - water 1.11 - methanol	No information available
Specific gravity	1.08	No information available
Solubility (water)	Soluble	No information available
Solubility in other solvents	No information available	No information available
Partition coefficient: n-octanol/water	No information available	No information available
Autoignition temperature	300 °C / 572 °F - formaldehyde 385 °C / 725 °F - methanol	No information available
Decomposition temperature	No information available	No information available
Kinematic viscosity	No information available	No information available
Dynamic viscosity	No information available	No information available

Other information

Density	9.01 lb/gal
Bulk Density	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
Volatile Organic Compound (VOC) content, wt.%	No information available
Percent Volatile, wt.%	No information available

10. STABILITY AND REACTIVITY

Reactivity

Reactivity
No data available.

Chemical stability

Chemical stability
Stable under normal conditions of handling, use and transportation.

Possibility of hazardous reactions

Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization
Nonhazardous polymerization may occur at low temperatures, forming paraformaldehyde, a white solid.

Conditions to avoid

Conditions to avoid
Keep away from heat, sparks and open flame. Avoid any source of ignition. Trioxymethylene precipitate can be formed on long standing at very low temperatures.

Incompatible materials

Materials to avoid
Incompatible with oxidizers, alkalies, phenols and urea. Reacts explosively with nitrogen dioxide at approximately 356 °F. Reacts violently with perchloric acid, perchloric-aniline mixtures, and nitromethane. Reaction with hydrochloric acid may form bis-chloromethyl ether, an OSHA carcinogen.

Hazardous decomposition products

Hazardous decomposition products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Vapors cause irritation to the eyes with redness, pain and blurred vision. Higher concentrations or splashes may cause irreversible eye damage.

Skin contact
Toxic in contact with skin. May cause irritation to skin with redness, pain and possibly burns. This product contains ingredients which may produce an allergic skin reaction. It should be treated as a skin sensitizer. Contact causes white discoloration, cracking, and scaling.

Ingestion
Harmful if swallowed. May cause pain, nausea, vomiting and diarrhea. Larger doses may produce decreased body temperature, pain in the digestive tract, shallow respiration, weak irregular pulse, unconsciousness and death. Methanol component affects optic nerves and may cause blindness.

Inhalation
Harmful if inhaled. Inhalation of vapors or mists can cause severe irritation and possible sensitization. Symptoms include a burning sensation, coughing, shortness of breath, nausea, headache, or dizziness. Severe over-exposure may produce lung damage, choking, unconsciousness or death.

Acute toxicity - Product Information

Oral LD50 No information available

Dermal LD50 No information available

Inhalation LC50 No information available

Acute toxicity - Component Information

Component	weight-%	Oral LD50	Dermal LD50	Inhalation LC50
Formaldehyde 50-00-0	< 25%	600 mg/kg (rat)	270 mg/kg (rabbit)	0.578 mg/L (Rat) 4 h
Methanol 67-56-1	0.5 - 4%	6200 mg/kg (Rat*)	--	22500 ppm (Rat*) 8 h

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation
Causes severe burns

Serious eye damage/eye irritation
Corrosive - causes irreversible eye damage

Sensitization
May cause sensitization by skin contact

Germ cell mutagenicity
Formaldehdye - Genotoxic potential was noted in a variety of in vitro systems. Results in vivo have been mixed probably due to the presence of metabolic processes for detoxifying.
Methanol - Not genotoxic in most in vitro assays. Not genotoxic in mice exposed via inhalation up to 4000 ppm and subsequently examined for cytogenetic effects.

Carcinogenicity

Component	weight-%	ACGIH	IARC	NTP	OSHA
Formaldehyde 50-00-0	< 25%	A2	Group 1	Known	X

Legend
ACGIH (American Conference of Governmental Industrial Hygienists)
A2 - Suspected Human Carcinogen
IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
NTP (National Toxicology Program)
Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Reproductive toxicity
No information available

Developmental toxicity
Formaldehdye - In several studies using various routes of administration, no adverse effects were observed.
Methanol - Numerous stuides have all shown teratogenic and developmental toxicity at high concentrations via oral or inhalation administration.

Specific target organ toxicity - Single exposure
May cause disorder and damage to the: optic nerve, Central nervous system.

Specific target organ toxicity - Repeated exposure
No information available

Aspiration hazard
No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	345 mg/kg
ATEmix (dermal)	944 mg/kg
ATEmix (inhalation-dust/mist)	1.7 mg/l

Other information
Conclusions are drawn from sources other than direct testing.

12. ECOLOGICAL INFORMATION

Ecotoxicity

• Toxic to aquatic life

Acute aquatic toxicity - Product Information

Fish	No information available
Crustacea	No information available
Algae/aquatic plants	No information available

Acute aquatic toxicity - Component Information

Component	weight-%	Algae/aquatic plants	Fish	Toxicity to daphnia and other aquatic invertebrates
Formaldehyde 50-00-0	< 25%	--	LC50 (96 h static) 100 - 136 mg/L (Oncorhynchus mykiss) LC50 (96 h flow-through) 0.032 - 0.226 mL/L (Oncorhynchus mykiss) LC50 (96 h static) 23.2 - 29.7 mg/L (Pimephales promelas) LC50 (96 h flow-through) 22.6 - 25.7 mg/L (Pimephales promelas) LC50 (96 h static) = 41 mg/L (Brachydanio rerio) LC50 (96 h static) = 1510 µg/L (Lepomis macrochirus)	LC50 (48 h) = 2 mg/L (Daphnia magna) EC50 (48 h Static) 11.3 - 18 mg/L (Daphnia magna)
Methanol 67-56-1	0.5 - 4%	--	LC50 (96 h static) 18 - 20 mL/L (Oncorhynchus mykiss) LC50 (96 h flow-through) 19500 - 20700 mg/L (Oncorhynchus mykiss) LC50 (96 h static) > 100 mg/L (Pimephales promelas) LC50 (96 h flow-through) = 28200 mg/L (Pimephales promelas) LC50 (96 h flow-through) 13500 - 17600 mg/L (Lepomis macrochirus)	--

Persistence and degradability

Persistence and degradability
When released into the air, formaldehdye is estimated to have a half-life of less than one day. When released into the air, methanol is estimated to have a half-life of 10-30 days. When released into the water, methanol is estimated to have a half-life

of 1-10 days.

Bioaccumulative potential

Bioaccumulative potential
Formaldehyde - The log n-octanol/water partition coefficient is 0.35. This suggests that formaldehyde has relatively low potential to bioaccumulate.
Methanol - The log n-octanol/water partition coefficient is -0.77. This suggests that methanol has low potential to bioaccumulate.

Mobility

Mobility
No information available

Chemical Fate Information
Formaldehdye:
When released into the soil, it is expected to leach into groundwater.
When released into water, it is expected to readily biodegrade, but it will not evaporate significantly.
When released into the air, it is expected to be readily degraded by reaction with photochemically produced hydroxy radicals, and by photolysis, and removed from the atmosphere by wet and dry deposition.

Methanol:
When released into the soil, it is expected to leach into groundwater.
When released into water, it is expected to readily biodegrade, and to quickly evaporate.
When released into the air, it is expected to be readily degraded by reaction with photochemically produced hydroxy radicals, and by photolysis, and removed from the atmosphere by wet and dry deposition.

Results of PBT and vPvB assessment

PBT and vPvB assessment
No information available

Other adverse effects

Other information
None

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Contaminated packaging
Since empty containers retain product residue, follow label warnings even after container is emptied.

RCRA

Is the unused product a RCRA hazardous waste if discarded? (Yes/No)	Yes
If yes, the EPA Hazardous Waste Code is:	U122

14. TRANSPORT INFORMATION

DOT Not regulated

ICAO/IATA Regulated

UN number	UN3334
Proper shipping name	Aviation regulated liquid, n.o.s. (Formaldehyde)
Hazard class	9
ERG Code	9A

IMDG Not regulated

15. REGULATORY INFORMATION

International Inventories

United States (TSCA)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

European Union (EINECS)
All ingredients are on the inventory or exempt from listing

European Union (ELINCS)
None of the ingredients are on the inventory.

Japan (ENCS)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
AICS - Australian Inventory of Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
IECSC - China Inventory of Existing Chemical Substances
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

U.S. Federal Regulations

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Component	CERCLA/SARA Hazardous Substance RQ	CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs	Calculated Product RQ
Formaldehyde 50-00-0	100 lb final RQ; 45.4 kg final RQ	500 lb TPQ	--

Methanol 67-56-1	5000 lb final RQ; 2270 kg final RQ	--	--

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Priority Pollutants	CWA - Toxic Pollutants
Formaldehyde 50-00-0	Present	100 lb RQ	--	--

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic health hazard	Yes
Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive hazard	No

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	weight-%	SARA 313 - Threshold Values %
Formaldehyde 50-00-0	< 25%	0.1 % de minimis concentration
Methanol 67-56-1	0.5 - 4%	1.0 % de minimis concentration

• As indicated above, this product contains an ingredient(s) subject to the reporting requirements of SARA Title III, Section 313 (40 CFR Part 372). This document constitutes the notification required by the SARA regulations and this notification statement must not be detached from the SDS. If the SDS is copied for any reason, including distribution, this notice must also be copied and accompany all redistributed SDS's. Failure to do so may subject you to penalties under law.

U.S. State Regulations

California Proposition 65

WARNING This product can expose you to chemicals including those listed below, which is [are] known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Component	California Proposition 65
Formaldehyde 50-00-0	carcinogen, 1/1/1988 (gas)
Methanol 67-56-1	developmental toxicity, 3/16/2012

U.S. State Right-to-Know Regulations

Formaldehyde 50-00-0	
Massachusetts Right to Know Law	Carcinogen; Extraordinarily hazardous
Minnesota Hazardous Substance List	Carcinogen
New Jersey Right to Know List	sn 0946
Pennsylvania Right to Know List	Environmental hazard; Special hazardous substance
Methanol 67-56-1	
Massachusetts Right to Know Law	Present
Minnesota Hazardous Substance List	Skin
New Jersey Right to Know List	sn 1222
Pennsylvania Right to Know List	Environmental hazard

16. OTHER INFORMATION

NFPA Rating	Health - 3	Flammability - 2	Instability - 2	Special Hazard -
HMIS Rating	Health - 3* ** = Chronic Health Hazard*	Flammability - 2	Physical hazards - 2	Personal protection - B

Product code	3125E
Revision date	2019-Mar-20
Revision number	1.01

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet