

SPI Supplies Division

Structure Probe, Inc.

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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: May 27, 2016

SPI Catalog # 02614-AB, 02614-DA
SPI-Chem™ Formaldehyde Solution, 37%

Section 1.1: Identification

Chemical Name/Synonyms..... Formaldehyde, 37% aqueous solution

Product or Trade Name..... SPI-Chem™ Formaldehyde Solution, 37%

CAS #'s..... 50-00-0, 67-56-1, 7732-18-5

Chemical Formula..... HCHO and CH₃OH in water

Section 1.2: Relevant Uses/Restrictions

Relevant use: Laboratory chemicals for research, testing & analysis, and educational use.

Not intended for clinical or diagnostic uses.

Restricted to professional users.

Section 1.3: Supplier of the Safety Data Sheet

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Section 1.4: Emergency telephone number

Emergencies

Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...

Worldwide phone: 1-(703)-741-5970

Toll-free phone: 1-(800)-424-9300 USA + Canada only

Section 2: Hazard Identification

2.1 Classification of the substance

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Physical Hazards:

Flammable liquids Category 3

Health Hazards:

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 1B
Specific target organ toxicity - (single exposure) Category 1

Environmental Hazards:
Acute hazards to the aquatic environment Category 3

2.2 Label elements

Pictogram



Signal Word: Danger

Hazard statements:

H226 - Flammable liquid and vapor
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H370 - Causes damage to organs

Precautionary statements:

P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Unknown percentage statements (if needed):

2.3 Other Hazards:

Lachrymator (substance which increases the flow of tears),

Hazardous Material Information System USA (estimated)

Health.....	3
Fire Hazard.....	2
Reactivity.....	0
Personal Protection.....	

NFPA Rating (estimated)
Health..... 3
Flammability..... 2
Reactivity..... 0

Section 3: Composition

3.1 Substances:

3.2 Mixtures:

Ingredient	CAS#	EC#	PerCent	Hazardous
Formaldehyde	50-00-0	200-001-8	37%	Yes
Methyl alcohol	67-56-1	200-659-6	10-15%	Yes
Water	7732-18-5	231-791-2	18-53%	No

Reach registration numbers:
Formaldehyde: 01-2119488953-20
Methyl alcohol: 01-2119433307-44

Section 4: First Aid Measures

4.1 Description of first aid measures:

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Inhalation If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Move to fresh air. Immediate medical attention is required.

Protection of First-aiders Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

4.2 Most important symptoms and effects, both acute and delayed:

Breathing difficulties.
Causes burns by all exposure routes.
May cause allergic skin reaction.
Product is a corrosive material.
Use of gastric lavage or emesis is contraindicated.
Possible perforation of stomach or esophagus should be investigated:
Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.
Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

4.3 Indication of any immediate medical attention and special treatment needed:

Notes to Physician Treat symptomatically. Symptoms may be delayed.

Section 5: Fire Fighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons

No information available.

5.2 Special hazards arising from the substance or mixture:

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to.

Hazardous Combustion Products: Carbon monoxide (CO), Carbon dioxide (CO₂).

5.3 Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

Section 6: Accidental Release Measures

6.1 Personal precautions:

Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2 Environmental precautions

Should not be released into the environment. See Section 12 for additional ecological information.

6.3 Methods and material for containment and cleaning up:

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4 Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not ingest. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Advice on general hygiene conditions:

Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities:

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat and sources of ignition.

7.3 Specific end uses:

Relevant use: Laboratory chemicals for research, testing & analysis, and educational use.

Not intended for clinical or diagnostic uses.

Restricted to professional users.

Section 8: Exposure Controls and Personal Protection

8.1 Control parameter and Personal Protection

Control parameters

Workplace exposure limits:

Formaldehyde	CAS# 50-00-0:	
Type:	Exposure Limit Value	Source
Ceiling	0.3 ppm	US. ACGIH Threshold Limit Values (2011)
REL	0.016 ppm	US. NIOSH: Pocket Guide to Chemical Haz-
ards (2010)		
Ceil_Time	0.1 ppm	US. NIOSH: Pocket Guide to Chemical Haz-
ards (2010)		
TWA	0.75 ppm	US. OSHA Specifically Regulated Substances
(29 CFR 1910.1001-1050) (02 2006)		
STEL	2 ppm	US. OSHA Specifically Regulated Substances
(29 CFR 1910.1001-1050) (02 2006)		
OSHA_ACT	0.5 ppm	US. OSHA Specifically Regulated Substances
(29 CFR 1910.1001-1050) (02 2006)		
TWA	0.75 ppm	US. OSHA Table Z-1-A (29 CFR 1910.1000)
(1989)		
STEL	2 ppm	US. OSHA Table Z-1-A (29 CFR 1910.1000)
(1989)		

Methyl alcohol	CAS# 67-56-1	
Type:	Exposure Limit Value	Source
TWA	200 ppm	US. ACGIH Threshold Limit Values (2011)
STEL	250 ppm	US. ACGIH Threshold Limit Values (2011)
STEL	250 ppm	325 mg/m3 US. NIOSH: Pocket Guide to Chemical Haz-
ards (2010)		
REL	200 ppm	260 mg/m3 US. NIOSH: Pocket Guide to Chemical Haz-
ards (2010)		
PEL	200 ppm	260 mg/m3 US. OSHA Table Z-1 Limits for Air Contamin-
ants (29 CFR 1910.1000) (02 2006)		
TWA	200 ppm	260 mg/m3 US. OSHA Table Z-1-A (29 CFR 1910.1000)
(1989)		
STEL	250 ppm	325 mg/m3 US. OSHA Table Z-1-A (29 CFR 1910.1000)
(1989)		

Biological limit values:

METHYL ALCOHOL (methanol: Sampling time: End of shift.) 15 mg/l (Urine) ACGIH BEL (2011)

8.2 Exposure controls:

Hygiene measures: Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Do not get this material in contact with skin. Do not get in eyes. Contaminated work clothing should not be allowed out of the workplace.

8.2.1 Appropriate engineering controls: No data available.

8.2.2 Individual protection measures:

General information: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield. Wear a full-face respirator, if needed.

Skin protection:

Hand protection: Chemical resistant gloves.

Other: Wear suitable protective clothing.

Respiratory protection: In case of inadequate ventilation use suitable respirator. Respirator type: Chemical respirator with organic vapor cartridge and full facepiece.

Environmental exposure controls: Prevent product from entering drains. Do not allow material to contaminate ground water system.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:	Colorless liquid
Odor:	Pungent
Odor threshold:	No data available.
pH:	3.0
Melting point/freezing point:	-15 °C
Initial boiling point and boiling range:	96 °C
Flash Point:	60 °C
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	73 %(V)
Flammability limit - lower (%):	7.0 %(V)
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	0.17 kPa
Vapor density:	No data available.
Relative density:	1.08 (20 °C)
Solubility(ies)	
Solubility in water:	Completely Soluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available for product.
	Formaldehyde: Log Kow: 0.35
	Methyl alcohol: Log Kow: -0.77
Auto-ignition temperature:	300 °C
Decomposition temperature:	No data available.
Viscosity:	No data available.
Oxidizing Properties	No data available.

9.2 Other information

Molecular Formula C H2 O

Molecular Weight 30.02

Section 10: Stability and Reactivity

10.1 Reactivity

None known, based on information available.

10.2 Chemical Stability

Stable under normal conditions.

10.3 Possibility of Hazardous Reactions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

10.4 Conditions to avoid

Incompatible products. Excess heat.

Keep away from open flames, hot surfaces and sources of ignition.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂).

Section 11: Toxicological Information

Information on the likely routes of exposure

Inhalation

Skin contact

Eye contact

Ingestion

Symptoms

11.1 Information on toxicological effects

a. acute toxicity

Oral Category 3

ATE = 192 mg/kg

Dermal Category 3

Inhalation Category 3

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Formaldehyde	500 mg/kg (Rat) LD50 =	270 mg/kg (Rabbit)	0.578 mg/L (Rat) 4 h
Methyl alcohol	Calc. ATE 60 mg/kg	Calc. ATE 60 mg/kg	Calc. ATE 0.6 mg/L (vapors) or 0.5 mg/L (mists)
	LD50 >1187- 2769 mg/kg (Rat)	LD50 = 17100 mg/kg (Rabbit)	LC50 = 128.2 mg/L (Rat) 4 h

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

d. respiratory of skin sensitization

Respiratory No data available

Skin Category 1

e. germ cell mutagenicity

Category 2

Mutagenic effects have occurred in humans

f. carcinogenicity

Category 1B

IARC: Formaldehyde Overall evaluation: 1: Carcinogenic to humans.

US NTP: Formaldehyde: Known to be human carcinogen.

OSHA: Formaldehyde: Specifically regulated substance. No additional data available.

g. reproductive toxicity

No data available.

California Prop. 65: Formaldehyde listed as carcinogenic. Methyl alcohol listed as developmental toxin.

h. STOT-single exposure: Category 1

Target organs: Respiratory system, Optic nerve

i. STOT-repeated exposure: No data available.

j. aspiration hazard: No data available.

Section 12: Ecological Information

12.1 Toxicity

Ecotoxicity

Acute hazards to the aquatic environment:

Fish:

Formaldehyde	LC50	Fathead minnow(Pimephales promelas)	96 h:	22.61-25.71 mg/l	Mortality
	LC50	Bluegill (Lepomis macrochirus)	96 h:	25.4 – 34 mg/l	Mortality
Methyl alcohol	LC50	Rainbow trout (Oncorhynchus mykiss)	96h:	18,000-20,000 mg/l	Mortality
	LC50	Fathead minnow (Pimephales promelas)	96h:	28,200 mg/l	

Aquatic invertebrates:

Formaldehyde	EC50	Water flea (Daphnia magna)	48h:	29 mg/l	Intoxication
Methyl alcohol	EC50	Water flea (Daphnia magna)	48h:	20,450-29,350 mg/l	Intoxication
	LC50	Water flea (Daphnia magna)	48h:	2,461-4,395 mg/l	Mortality

Chronic hazards to the aquatic environment: No data available.

12.2 Persistence and degradability

There are no data on the degradability of this product.

12.3 Bioaccumulative potential

There is no data available on the bioaccumulation of this product.

12.4 Mobility in soil

This product is water soluble and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soil.

12.5 Results of PBT and vPvB assessment

No data available for assessment.

12.6 Other adverse effects
Harmful to aquatic organisms.

Section 13: Disposal Considerations

13.1 Waste treatment methods

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws. Do not allow to enter drains, sewers, or watercourses.

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

Section 14: Transport Information

14.1 UN number

DOT: UN 1198

IATA: UN 1198

IMDG: UN 1198

14.2 UN proper shipping name

DOT: Formaldehyde solutions, flammable

IATA: FORMALDEHYDE SOLUTIONS, FLAMMABLE

IMDG: Formaldehyde solutions, flammable

14.3 Transport hazard class(es)

	Hazard Class	Subsidiary Hazard Class	Label	
DOT:	3	8	Label: 3.8	
IATA:	3	8	Label: 3.8	
IMDG:	3	8	Label: 3.8	EmS No.: F-E, S-C

14.4 Packing Group

DOT: III

IATA: III

IMDG: III

14.5 Environmental hazards

DOT: Marine pollutant: No

IATA: Marine pollutant: No

IMDG: Marine Polutant: No

14.6 Special precautions for user

No special precautions required.

Section 15: Regulatory Information

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

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

OSHA specifically regulated substances: Formaldehyde

SARA Hazard Categories:

Acute (immediate)

Chronic (delayed)

Fire

SARA 302: Extremely hazardous substance

Formaldehyde RQ: 100 lbs Threshold Planning Quantity: 500 lbs

Sara 304: Emergency release notification

Formaldehyde RQ: 100 lbs
Methyl alcohol RQ: 5000 lbs.

Sara 311/312: Hazardous chemical

Formaldehyde Threshold Planning Quantity: 500 lbs.
Methyl alcohol Threshold Planning Quantity: 500 lbs.

Sara 313: TRI reporting:

Formaldehyde: Reporting threshold for other users: 10000 lbs.
Reporting threshold for manufacturing and processing: 25000 lbs.
Methyl alcohol: Reporting threshold for other users: 10000 lbs.
Reporting threshold for manufacturing and processing: 25000 lbs.

Clean Water Act Section 311 Hazardous Substances(40 CFR 17.3):

Formaldehyde: Reportable Quantity: 100 lbs.

Clean Air Act (CAA) Section 112@ Accidental Release Prevention (40 CFR 68.130):

Formaldehyde: Threshold quantity: 15000 lbs.

US State Regulations:**US California Proposition 65:**

Formaldehyde: Carcinogenic
Methyl alcohol: Developmental toxin. WARNING: This product contains a chemical known
To the State of California to cause birth defects or other reproductive harm.

US States of New Jersey, Massachusetts, Pennsylvania, and Rhode Island Right to Know Lists:

Formaldehyde: Listed on all four states' lists.
Methyl alcohol: Listed on all four states' lists.

Canada DSL / NDSL Lists:

Formaldehyde (CAS# 50-00-0), Methyl alcohol (CAS# 67-56-1) and Water (7732-18-5) are on the DSL List.

EU regulations

Germany: Water Classification:

Formaldehyde: WGK 2, WGK 3
Methyl alcohol: WGK 1, WGK2

VOC Guidelines

No available information.

15.2 Chemical Safety Assessment

Chemical safety assessment not required for mixtures.

Other information:

Date of preparation: 27 May 2016.

Abbreviations and acronyms

Abbreviations and acronyms

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

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

NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxicological
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
STEL: Short Term Exposure Limit

Section 16: Other Information

Disclaimer of Liability:

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

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