Health	3
Fire	2
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Formaldehyde 37% solution MSDS

Section 1: Chemical Product and Company Identification

Product Name: Formaldehyde 37% solution

Catalog Codes: SLF1426

CAS#: Mixture.

RTECS: LP8925000

TSCA: TSCA 8(b) inventory: Formaldehyde; Methyl alcohol; Water

CI#: Not applicable.

Synonym: Formalin

Chemical Name: Formaldehyde

Chemical Formula: HCHO

Contact Information:

Trinity Fluids, LLC
41158 Koppernick
Canton, MI 48187
810.441.8006

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Formaldehyde	50-00-0	36.5-38
Methyl alcohol	67-56-1	10-15
Water	7732-18-5	47-53.5

Toxicological Data on Ingredients: Formaldehyde: ORAL (LD50): Acute: 100 mg/kg [Rat]. 42 mg/kg [Mouse]. 260 mg/kg [Guinea pig]. MIST (LC50): Acute: 454000 mg/m 4 hours [Mouse]. Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive). Slightly hazardous in case of skin contact (corrosive). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
Hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic for mammalian somatic cells. [Methyl

alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 430°C (806°F)

Flash Points: CLOSED CUP: 50°C (122°F). OPEN CUP: 60°C (140°F).

Flammable Limits: The greatest known range is LOWER: 6% UPPER: 36.5% (Methyl alcohol)

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis.

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME (Methyl alcohol)

Special Remarks on Explosion Hazards:
Reaction with peroxide, nitrogen dioxide, and permformic acid can cause an explosion. (Formaldehyde gas)

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis, moisture.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Formaldehyde gas STEL: 0.3 (ppm) from ACGIH (TLV) [United States] STEL: 0.37 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.75 STEL: 2 (ppm) from OSHA (PEL) [United States] TWA: 2 STEL: 2 (ppm) [United Kingdom (UK)] TWA: 2.5 STEL: 2.5 (mg/m3) [United Kingdom (UK)] Methyl alcohol TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent. Suffocating. (Strong.)

Taste: Not available.

Molecular Weight: 30.02

Color: Clear Colorless.

pH (1% soln/water): 3 [Acidic.] pH of the solution as is.

Boiling Point: 98°C (208.4°F)

Melting Point: -15°C (5°F)

Critical Temperature: The lowest known value is 240°C (464°F) (Methyl alcohol).

Specific Gravity: 1.08 (Water = 1)

Vapor Pressure: 2.4 kPa (@ 20°C)

Vapor Density: 1.03 (Air = 1)

Volatility: 100% (w/w).

Odor Threshold: The highest known value is 100 ppm (Methyl alcohol)

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Non-ionic.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone, alcohol

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks), incompatible materials

Incompatibility with various substances:
Reactive with oxidizing agents, reducing agents, acids, alkalis. Slightly reactive to reactive with metals.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Also incompatible with urea, phenol, isocyanates, anhydrides, amines, AZO compounds, carbonyl compounds, oxides(e.g. nitrogen dioxide), performic acid, dithiocarbmates, or peroxides. Polymerization can be inhibited by the addition of methanol or stabilizers such as hydorxypropyl methyl cellulose, methyl ethyl celluloses, or isophthalobisguanamine.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
Acute oral toxicity (LD50): 42 mg/kg [Mouse]. (Formaldehyde) Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. (Methyl alcohol). Acute toxicity of the mist(LC50): 454000 mg/m 4 hours [Mouse]. (Formaldehyde) 3

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic for mammalian somatic cells. [Methyl alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available May cause damage to the following organs: kidneys, liver, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive), of inhalation (lung corrosive). Slightly hazardous in case of skin contact (corrosive).

Special Remarks on Toxicity to Animals:
Formaldehyde: LD50 [Rabbit] - Route: Skin; Dose: 270 ul/kg

Special Remarks on Chronic Effects on Humans:
Exposure to Formaldehyde and Methanol may affect genetic material (mutagenic). Exposure to Formaldehyde and Methanol may cause adverse reproductive effects and birth defects(teratogenic). Adverse reproductive effects of Formaldehyde as well as Methanol are primarily based on animal studies. Very few human studies have been done on the adverse reproductive effects from exposure to Formaldehyde. Studies produced a weak association (limited evidence) between advese human female reproductive effects and occupational exposure. Furthermore, no human data could be found on adverse reproductive effects from occupational exposure to Methanol. Exposure to Formaldehyde may cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Corrosive. Causes skin irritation which may range from mild to severe with possible burns depending on the extent of exposure and concentration of solution. Other symptoms may include brownish discoloration of the skin, urticaria, and pustulovesicffular eruptions. May be absorbed through skin with symptoms paralleling those of ingestion. Eyes: Corrosive. Contact with liquid causes severe eye irritation and burns. It may cause irreversible eye damage (severe corneal Solutions containing low formaldehyde concentrations may produce transient discomfort and irritation. Inhalation: Causes irrititation of the respiratory tract (nose, throat, airways). Symptoms may include dry and sore mouth and throat, thirst, and sleep disturbances, difficulty breathing, shortness of breath, coughing, sneezing, wheezing rhinitis, chest tightness, pulmonary edema, bronchitis, tracheitis, laryngospasm, pneumonia, palpitations. It may also affect metabolism weight loss, metabolic acidosis), behavior/central nervous system (excitement, central nervous system depression, somnolence, convulsions, stupor, aggression, headache, weakness, dizziness, drowsiness, coma), peripheral nervous system, and blood. Ingestion: Harmful if swallowed. May be fatal. Causes gastrointestinal irritation with nausea, vomiting (possibly with blood), diarrhea, severe pain in mouth, throat and stomach, and possible corrosive injury to the gastrointestinal mucosa/ulceration or bleeding from stomach. May also affect the liver(jaundice), urinary system/kidneys (difficulty urinating, albuminuria, hematuria, anuria), blood, endocrine system, respiration (respiratory obstruction, pulmonary edema, bronchiolar obstruction), cardiovascular system (hypotension), metabolism (metabolic acidosis), eyes (retinal changes, visual field changes), and behavior/central nervous system (symptoms similar to those for inhalation). Contains Methanol which may cause blindness if swallowed. Chronic Potential Health Effects: Skin: Prolonged or repeated exposure may cause contact dermatits both irritant and allergic. It may also cause skin discoloration. Inhalation: Although there is no clear evidence, prolonged or repeated exposure may induce allergic asthma. Other effects are similar to that of acute exposure. Ingestion: Prolonged or repeated ingestion may cause gastrointestinal tract irritation and ulceration or bleeding from the stomach. Other effects may be similar to that of acute ingestion.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation:
Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in pollulted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air. (Methyl alcohol)

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:
CLASS 3: Flammable liquid. Class 8: Corrosive material

Identification: : Formaldehyde Solution, flammable (Methyl alcohol) UNNA: 1198 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Formaldehyde California prop. 65 (no significant risk level): Formaldehyde: 0.04 mg/day (inhalation) California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Formaldehyde Solution Connecticut hazardous material survey.: Formaldehyde; Methyl alcohol Illinois toxic substances disclosure to employee act: Formaldehyde; Methyl alcohol Illinois chemical safety act: Formaldehyde; Methyl alcohol New York release reporting list: Formaldehyde; Methyl alcohol Rhode Island RTK hazardous substances: Formaldehyde; Methyl alcohol Pennsylvania RTK: Formaldehyde; Methyl alcohol Minnesota: Formaldehyde gas; Methyl alcohol Massachusetts RTK: Formaldehyde; Methyl alcohol Massachusetts spill list: Formaldehyde; Methyl alcohol New Jersey: Formaldehyde; Methyl alcohol New Jersey spill list: Formaldehyde; Methyl alcohol Louisiana RTK reporting list: Formaldehyde Louisiana spill reporting: Formaldehyde; Methyl alcohol California Director's List of Hazardous Substances: Formaldehyde; Methyl alcohol TSCA 8(b) inventory: Formaldehyde gas; Methyl alcohol; Water TSCA 4(f) priority risk review: Formaldehyde, Reagnt, ACS SARA 302/304/311/312 extremely hazardous substances: Formaldehyde SARA 313 toxic chemical notification and release reporting: Formaldehyde; Methyl alcohol CERCLA: Hazardous substances.: Formaldehyde: 100 lbs. (45.36 kg); Methyl alcohol: 5000 lbs. (2268 kg);

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: G

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves (impervious). Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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