

Safety Data Sheet**1. IDENTIFICATION**

Product Identifier: Formaldehyde, 37% w/w

Product Code(s): NC-1930, NC-0428, F1011, F1022

Synonyms: Formalin; Formic Aldehyde; Formol; Methanal; Methaldehyde; Paraform; Oxymethane

Recommended Use: For manufacturing, industrial, and laboratory use only. For use as a cleaning agent, as a preservative, or as a laboratory reagent.

Uses Advised Against: Not for food, drug, or household use.

Supplier: The Science Company
7625 W Hampden Ave, #14, Lakewood CO 80227
Phone: (303) 777-3777 Fax: (303) 777-3331

Emergency Phone Number: (800) 255-3924 (CHEM-TEL)

2. HAZARDS IDENTIFICATION

Hazard Classifications:

| | |
|---|-------------|
| Acute Toxicity – Oral: | Category 3 |
| Acute Toxicity – Dermal: | Category 3 |
| Acute Toxicity – Inhalation: | Category 3 |
| Skin Corrosion/Irritation: | Category 1A |
| Eye Damage/Irritation: | Category 1 |
| Sensitization – Respiratory: | Category 1 |
| Sensitization – Skin: | Category 1 |
| Carcinogenicity: | Category 1A |
| Specific Target Organ Toxicity (Single Exposure): | Category 1 |
| Flammable Liquids: | Category 4 |

Signal Word: DANGER

Hazard Statements:

- Toxic if swallowed.
- Toxic in contact with skin.
- Toxic if inhaled.
- Causes severe skin burns and serious eye damage.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.
- May cause cancer.
- Causes damage to organs.
- Combustible liquid.

Pictograms:



Precautionary Statements:

- Prevention:** Wash thoroughly after handling.
Do not eat, drink, or smoke while using this product.
Wear protective gloves, protective clothing, eye protection, and face protection.
Do not breathe fumes, mists, vapors, or spray.
Use only outdoors or in a well-ventilated area.
In case of inadequate ventilation, wear respiratory protection.
Contaminated work clothing must not be allowed out of the workplace.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from flames and hot surfaces. – No smoking.
- Response:** Immediately call a poison center or doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Rinse skin with water. Take off immediately all contaminated clothing and wash it before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If exposed or concerned: Get medical attention.
In case of fire: Use water spray, dry powder, alcohol resistant foam, or carbon dioxide to extinguish.
- Storage:** Store locked up.
Store in a well-ventilated place. Keep container tightly closed. Keep cool.
- Disposal:** Dispose of contents and container in accordance with local, regional, national, and international regulations.
- Hazards Not Otherwise Classified:** This product is harmful to aquatic life. Avoid release to the environment.
This product may cause mutagenic and reproductive effects (see Section 11).
- Toxicity Statement:** Not applicable.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

| Component | Common Name / Synonyms | CAS# | Chemical Formula | % by Weight |
|--------------|------------------------|-----------|--------------------|-------------|
| Formaldehyde | Formalin; Methaldehyde | 50-00-0 | HCHO | 36.5 – 38.0 |
| Methanol | Methyl Alcohol | 67-56-1 | CH ₃ OH | 10.0 – 15.0 |
| Water | Water | 7732-18-5 | H ₂ O | 47.0 – 53.5 |

Trade Secret Statement: Not applicable.

4. FIRST AID MEASURES

First Aid Procedures:

- Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious, or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call poison control or a doctor/physician immediately.
- Ingestion:** Rinse mouth. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
- Skin Contact:** Wash skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Immediately call a poison center or doctor.
- Eye Contact:** Check for and remove contact lenses if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Immediately call a poison center or doctor.
- General Advice:** Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that medical personnel and those providing first aid are aware of the material(s) involved and take precautions to protect themselves.

Symptoms and Effects: Irritation, burns, headache, nervous system effects, nausea, vomiting, diarrhea, decrease in motor function, skin discoloration, urine discoloration, blindness. May cause irritation and corrosion to eyes, skin, respiratory tract, and gastrointestinal tract. Excessive exposure may cause respiratory difficulties, central nervous system effects, sensitization, reproductive effects, mutagenic effects, and cancer.

**Immediate Medical Care/
Special Treatment:** Immediate medical attention is required. Call a physician or poison control center immediately. Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media: Water spray, dry powder, alcohol resistant foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream, as it may scatter and spread fire.

**Hazardous Combustion
Products:** Carbon oxides.

Specific Hazards: Flammable. May emit toxic fumes upon combustion. Product may undergo polymerization if methanol stabilizer is dried.

**Special Protective Equipment/
Precautions for Firefighters:** As in any fire, wear MSHA/NIOSH approved (or equivalent), self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear. Use water spray to cool unopened containers. Move containers from fire area, if you can do so without risk. In the event of fire and/or explosion, do not breathe product fumes.

6. ACCIDENTAL RELEASE MEASURES

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| Personal Precautions and Protective Equipment: | Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Keep out of low areas. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, and clothing. |
| Emergency Procedures: | Evacuate surrounding personnel as needed. In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1). |
| Methods for Containment: | Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements, or confined areas. Dike the spilled material, where this is possible. Product should not be released to the environment. Contain and recover liquid when possible. |
| Methods for Cleanup: | Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, or fleece) and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Residues from spills can be absorbed with water or alcohol. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations. |

7. HANDLING AND STORAGE

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| Handling: | Do not handle near open flames, sources of heat, or sources of ignition. Wear personal protective equipment (see Section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work areas. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Avoid contact with skin, eyes, and clothing. Do not breathe vapors or spray mist. Do not ingest. When using, do not eat, drink, or smoke. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty, as they retain product residues (vapors, liquids). Observe all warnings and precautions listed for this product. |
| Storage: | Store in a cool, dry, ventilated area. Store in a segregated and approved area away from incompatible materials (see Section 10). Store in original container. Ground container and transfer equipment. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs. Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product. |

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

| | | | |
|-------------------------|---------------|-----------------------|----------|
| Exposure Limits: | Formaldehyde: | ACGIH: TWA: | 0.3 ppm |
| | | OSHA: TWA: | 0.75 ppm |
| | | STEL: | 2 ppm |
| | NIOSH: TWA: | 0.016 ppm | |
| | | CEIL: | 0.1 ppm |
| | Methanol: | ACGIH: TWA: | 200 ppm |
| | | STEL: | 250 ppm |
| | | OSHA: TWA: | 200 ppm |
| | | NIOSH: TWA: | 200 ppm |
| | | CEIL: | 250 ppm |
| | Water: | No information found. | |

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| Engineering Controls: | Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls |
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to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Measures:

Eye/Face Protection: Wear safety glasses with side shields or goggles and a face shield. Maintain approved eye wash station and accessible rinse facilities in work area.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

Respiratory Protection: An air-purifying, NIOSH-approved respirator with appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.

Specific Requirements for Personal Protective Equipment: Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Unless otherwise indicated, all properties are given at standard temperature and pressure.

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| Appearance: | Colorless, transparent liquid. |
| Odor: | Irritating, pungent, characteristic. |
| Odor Threshold: | 1 ppm |
| Formula Weight: | 30.03 (as formaldehyde) |
| pH: | 3 – 4.5 at 25 °C |
| Melting/Freezing Point: | -15 °C |
| Boiling Point/Range: | 96 °C |
| Decomposition Temperature: | No information found. |
| Flash Point: | 64 °C closed cup |
| Auto-ignition Temperature: | 424 °C |
| Flammability: | Combustible. |
| Flammability/Explosive Limits: | Lower: 7% by volume Upper: 73% by volume |
| Solubility: | Miscible with water. Soluble in alcohol, ether, acetone, chloroform. |
| Vapor Pressure: | 24 mmHg at 25 °C; 52 mmHg at 37 °C |
| Vapor Density: | 1.04 (Air = 1) |
| Specific Gravity: | 1.06 – 1.08 (Water = 1) |
| Evaporation Rate: | No information found. |
| Viscosity: | No information found. |
| Partition Coefficient (n-octanol/water): | No information found. |

10. STABILITY AND REACTIVITY

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| Reactivity Data: | Combustible (see Section 9). |
| Chemical Stability: | Stable under normal conditions. |
| Conditions to Avoid: | Heat, flames, sparks, generation of vapors, incompatible materials. |
| Incompatible Materials: | Strong oxidizers, strong acids, strong bases, alkali metals, alkaline earth metals, organic materials, polymers. |
| Hazardous Decomposition Products: | Carbon oxides. |
| Possibility of Hazardous Reactions: | May react vigorously, violently, or explosively if exposed to excess thermal conditions or to the incompatible materials listed above. |
| Hazardous Polymerization: | Polymerization is inhibited by the inclusion of methanol. If product is dried excessively, polymerization may occur. |

11. TOXICOLOGICAL INFORMATION

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| Routes of Exposure: | Inhalation, ingestion, skin contact, eye contact. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acute Effects: | Harmful if swallowed, inhaled, absorbed through the skin, or contacted with the eyes. Causes irritation and burns to the eyes, skin, respiratory tract, and gastrointestinal tract. May affect central nervous system and eyes. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chronic Effects: | Prolonged or repeated exposure may cause skin sensitization and damage to several organ systems. Prolonged or repeated exposure may cause adverse reproductive effects, mutagenic effects, birth defects, developmental effects, and cancer. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Toxicological Data: | <table><tr><td>Formaldehyde:</td><td>LD₅₀ Oral, Rat:</td><td>100 mg/kg</td></tr><tr><td></td><td>LD₅₀ Dermal, Rabbit:</td><td>270 mg/kg</td></tr><tr><td></td><td>LC₅₀ Inhalation, Rat:</td><td>0.578 mg/L 4 h</td></tr><tr><td></td><td colspan="2">Corrosive to skin and eyes based on animal data.</td></tr><tr><td></td><td colspan="2">May cause mutagenic effects based on animal data.</td></tr><tr><td></td><td colspan="2">May cause adverse reproductive effects based on animal data.</td></tr><tr><td></td><td colspan="2">May cause skin sensitization based on human and animal data.</td></tr><tr><td>Methanol:</td><td>LD₅₀ Oral, Rat:</td><td>5628 mg/kg</td></tr><tr><td></td><td>LD₅₀ Dermal, Rabbit:</td><td>15,800 mg/kg</td></tr><tr><td></td><td>LC₅₀ Inhalation, Rat:</td><td>83.2 mg/L 4 h</td></tr><tr><td></td><td>LDL Oral, Human:</td><td>143 mg/kg</td></tr><tr><td></td><td colspan="2">May cause adverse reproductive effects based on human and animal data.</td></tr><tr><td>Water:</td><td colspan="2">No information found.</td></tr></table> | Formaldehyde: | LD ₅₀ Oral, Rat: | 100 mg/kg | | LD ₅₀ Dermal, Rabbit: | 270 mg/kg | | LC ₅₀ Inhalation, Rat: | 0.578 mg/L 4 h | | Corrosive to skin and eyes based on animal data. | | | May cause mutagenic effects based on animal data. | | | May cause adverse reproductive effects based on animal data. | | | May cause skin sensitization based on human and animal data. | | Methanol: | LD ₅₀ Oral, Rat: | 5628 mg/kg | | LD ₅₀ Dermal, Rabbit: | 15,800 mg/kg | | LC ₅₀ Inhalation, Rat: | 83.2 mg/L 4 h | | LDL Oral, Human: | 143 mg/kg | | May cause adverse reproductive effects based on human and animal data. | | Water: | No information found. | |
| Formaldehyde: | LD ₅₀ Oral, Rat: | 100 mg/kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LD ₅₀ Dermal, Rabbit: | 270 mg/kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LC ₅₀ Inhalation, Rat: | 0.578 mg/L 4 h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Corrosive to skin and eyes based on animal data. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | May cause mutagenic effects based on animal data. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | May cause adverse reproductive effects based on animal data. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | May cause skin sensitization based on human and animal data. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Methanol: | LD ₅₀ Oral, Rat: | 5628 mg/kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LD ₅₀ Dermal, Rabbit: | 15,800 mg/kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LC ₅₀ Inhalation, Rat: | 83.2 mg/L 4 h | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LDL Oral, Human: | 143 mg/kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | May cause adverse reproductive effects based on human and animal data. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Water: | No information found. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Symptoms of Exposure: | Irritation, burns, headache, nervous system effects, nausea, vomiting, diarrhea, decrease in motor function, skin discoloration, urine discoloration, blindness. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carcinogenic Effects: | May cause cancer based on human and animal data. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OSHA HCS: | Formaldehyde: Carcinogen | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ACGIH: Formaldehyde: A2 – Suspected human carcinogen
IARC: Formaldehyde: 1 – Carcinogenic to humans
NTP: Formaldehyde: Known human carcinogen

12. ECOLOGICAL INFORMATION

Ecotoxicological Data: Formaldehyde: EC₅₀, Water Flea (Daphnia magna): 2 mg/L 48 h
LC₅₀, Fathead Minnow (Pimephales promelas): 23 mg/L 96 h
LC₅₀, Rainbow Trout (Oncorhynchus mykiss): 18 mg/L 96 h
Methanol: EC₅₀, Water flea (Daphnia magna): > 10,000 mg/L 48 h
LC₅₀, Fathead minnow (Pimephales promelas): > 100 mg/L 96 h

Persistence and Degradability: This product is biodegradable.

Environmental Effects: Toxic to aquatic life. Do not allow product to reach groundwater, bodies of water, or sewage system.

13. DISPOSAL INFORMATION

Disposal Instructions: All wastes must be handled in accordance with local, state, and federal regulations. Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers.

Contaminated Packaging: Because emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: Formaldehyde: U122 (US RCRA Hazardous Waste U List)
Methanol: U154 (US RCRA Hazardous Waste U List)

14. TRANSPORT INFORMATION

DOT:

UN Number: UN2209

Proper Shipping Name: Formaldehyde solutions

Hazard Class: 8

Packing Group: III

ERG Number: 132

Other Transport Precautions: DOT Reportable Quantity, Formaldehyde: 100 lb

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: All components of this product are on the U.S. TSCA Inventory.

U.S. EPCRA (SARA Title III):

Section 302: Extremely Hazardous Substance: Formaldehyde
Threshold Planning Quantity: 500 lb

Sections 311/312:

| Hazard Category | List (Yes/No) |
|----------------------------------|---------------|
| Section 311 – Hazardous Chemical | Yes |
| Immediate Hazard | Yes |
| Delayed Hazard | Yes |
| Fire Hazard | Yes |
| Pressure Hazard | No |
| Reactivity Hazard | No |

Section 313: De Minimis Concentration: Formaldehyde: 0.1%
Methanol: 1.0%

CERCLA Reportable Quantities: Formaldehyde: 100 lb
Methanol: 5000 lb

International Inventories:

| Country or Region | Inventory Name | On Inventory (Yes/No)* |
|-------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |

*A "Yes" indicates that the listed component(s) of this product comply with the inventory requirements administered by the governing country(s).

16. OTHER INFORMATION

Disclaimer: The Science Company provides the information in this Safety Data Sheet in the belief that it is reliable but assumes no responsibility for its completeness or accuracy. The physical properties reported in this SDS are obtained from literature and do not constitute product specifications. The Science Company makes and gives no representations or warranties with respect to the information contained herein or the product to which it refers, whether express, implied, or statutory, including without limitation, warranties of accuracy, completeness, merchantability, non-infringement, performance, safety, suitability, stability, and fitness for a particular purpose. No warranty against infringement of any patent, copyright or trademark is made or implied. This SDS is intended only as a guide to the appropriate handling of the material by a properly trained person. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. Accordingly, the Science Company assumes no liability whatsoever for the use of or reliance upon this information including results obtained, incidental or consequential damages, or lost profits.

Issue Date: June 23, 2015

Reason for Revision: Update of Section 9, 10, 11, 12 over 02/03/2015 version.