



J.T. Baker Inc.
222 Red School Lane
Phillipsburg, NJ 08865

24-Hour Emergency Telephone 908-859-2151
National Response Center 1-800-424-8802
Chemtrec 800-424-9300

MATERIAL SAFETY DATA SHEET

FICHE
SIGNALÉTIQUE

National Response In Canada
CANUTEC 613-996-6666

HOJAS DE DATOS
DE SEGURIDAD

Outside U.S. and Canada
Chemtrec 202-483-7616

F5522 -05
Effective: 05/22/90

Formaldehyde, 37% Solution

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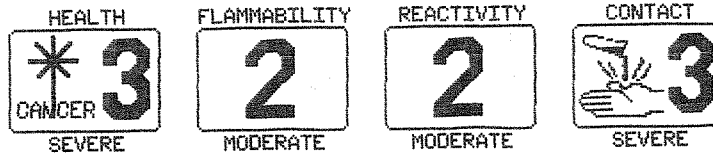
J.T.BAKER INC., 222 Red School Lane, Phillipsburg, NJ 08865

SECTION I - PRODUCT IDENTIFICATION

Product Name: Formaldehyde, 37% Solution
Common Synonyms: Formalin; Methylene Oxide; Methyl Aldehyde; Methanal
Chemical Family: Aqueous Solutions
Formula: HCHO
Formula Wt.: 30.03
CAS No.: 50-00-0
NIOSH/RTECS No.: LP8925000
Product Use: Laboratory Reagent
Product Codes: 2106,2105,2112

PRECAUTIONARY LABELING

BAKER SAF-T-DATA* System



Laboratory Protective Equipment



U.S. Precautionary Labeling

POISON! DANGER!

CAUSES BURNS. COMBUSTIBLE. MAY BE FATAL IF SWALLOWED OR INHALED. NOTE: REPORTED AS CAUSING CANCER IN LABORATORY ANIMALS. EXERCISE DUE CARE. EXCEPTIONAL HEALTH AND CONTACT HAZARDS: READ MATERIAL SAFETY DATA SHEET. Keep away from heat, sparks, flame. Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Keep in tightly closed container. Use with adequate ventilation. Wash thoroughly after handling. In case of fire, use water spray, alcohol foam, dry chemical, or carbon dioxide. Flush spill area with water spray.

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PRECAUTIONARY LABELING (CONTINUED)

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International Labeling

Toxic by inhalation, in contact with skin and if swallowed. Possible risks of irreversible effects. May cause sensitization by skin contact. Keep out of reach of children. After contact with skin, wash immediately with plenty of soap and water. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Use only in well ventilated areas.

SAF-T-DATA* Storage Color Code: Red (flammable)

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SECTION II - COMPONENTS

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<u>Component</u>	<u>CAS No.</u>	<u>Weight %</u>	<u>OSHA/PEL</u>	<u>ACGIH/TLV</u>
Formaldehyde	50-00-0	37-38	1 ppm	1 ppm
Methanol	67-56-1	10-15	200 ppm	200 ppm
Water	7732-18-5	47-53	N/E	N/E

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SECTION III - PHYSICAL DATA

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Boiling Point: 96°C (204°F)
(at 760 mm Hg)

Vapor Pressure (mmHg): 1.3
(20°C)

Melting Point: N/A

Vapor Density (air=1): 1.0

Specific Gravity: 1.08
(H₂O=1)

Evaporation Rate: N/A

Solubility(H₂O): Complete (100%)

% Volatiles by Volume: 100
(21°C)

pH: 2.8 (31% solution)

Odor Threshold (ppm): N/A

Physical State: Liquid

Efficient Water/Oil Distribution: N/A

Appearance & Odor: Clear, colorless liquid. Pungent odor.



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SECTION IV - FIRE AND EXPLOSION HAZARD DATA
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Flash Point (Closed Cup): 59°C (140°F) NFPA 704M Rating: 2-2-0

Autoignition Temperature: 423°C (795°F)

Flammable Limits: Upper - 73.0 % Lower - 7.0 %

Fire Extinguishing Media

Use water spray, alcohol foam, dry chemical or carbon dioxide.

Special Fire-Fighting Procedures

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode. Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.

Unusual Fire & Explosion Hazards

Vapors may flow along surfaces to distant ignition sources and flash back. Closed containers exposed to heat may explode. Contact with strong oxidizers may cause fire.

Toxic Gases Produced

formaldehyde, carbon monoxide, carbon dioxide

Explosion Data-Sensitivity to Mechanical Impact

None identified.

Explosion Data-Sensitivity to Static Discharge

None identified.

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SECTION V - HEALTH HAZARD DATA
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Threshold Limit Value (TLV/TWA): 1.5 mg/m³ (1 ppm)

TLV is for Formaldehyde.

Short-Term Exposure Limit (STEL): 3 mg/m³ (2 ppm)

STEL is for Formaldehyde.

Permissible Exposure Limit (PEL): 1.5 mg/m³ (1 ppm)

PEL is for Formaldehyde.



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SECTION U - HEALTH HAZARD DATA (CONTINUED)

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Toxicity of components

Oral Rat LD ₅₀ for Formaldehyde	800 mg/kg
Skin Rabbit LD ₅₀ for Formaldehyde	270 mg/kg
Subcutaneous Rat LD ₅₀ for Formaldehyde	420 mg/kg
Inhalation Rat LC ₅₀ for Formaldehyde	590 mg/kg
Oral Rat LD ₅₀ for Methanol	5628 mg/kg
Intraperitoneal Rat LD ₅₀ for Methanol	9540 mg/kg
Subcutaneous Mouse LD ₅₀ for Methanol	9800 mg/kg
Skin Rabbit LD ₅₀ for Methanol	20 g/kg
Intraperitoneal Mouse LD ₅₀ for Water	190 g/kg
Intravenous Mouse LD ₅₀ for Water	25 g/kg
Carcinogenicity: NTP: Yes IARC: No Z List: No OSHA Reg: No	

Carcinogenicity

This substance is listed as an ACGIH suspected human carcinogen and a NTP anticipated human carcinogen.

Reproductive Effects

Tests on laboratory animals indicate that Formaldehyde may be mutagenic.

Effects of Overexposure

- INHALATION: headache, nausea, vomiting, dizziness, drowsiness, irritation of upper respiratory tract, unconsciousness, and may be fatal
- SKIN CONTACT: severe irritation or burns, prolonged contact may cause skin sensitization
- EYE CONTACT: severe irritation or burns
- SKIN ABSORPTION: rapid absorption
- INGESTION: blindness, nausea, vomiting, gastrointestinal irritation, burns to mouth and throat, and may be fatal
- CHRONIC EFFECTS: kidney damage, liver damage



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SECTION V - HEALTH HAZARD DATA (CONTINUED)

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Target Organs

respiratory system, eyes, skin, liver, kidneys

Medical Conditions Generally Aggravated by Exposure

none identified

Primary Routes of Entry

inhalation, ingestion, eye contact, skin contact, absorption

Emergency and First Aid Procedures

INGESTION: CALL A PHYSICIAN. If swallowed, if conscious, give large amounts of water. Induce vomiting.

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

SKIN CONTACT: In case of contact, immediately flush skin with plenty of water for at least 15 minutes.

EYE CONTACT: In case of eye contact, immediately flush with plenty of water for at least 15 minutes.

SARA/TITLE III HAZARD CATEGORIES and LISTS

Acute: Yes Chronic: Yes Flammability: Yes Pressure: No Reactivity: No

Extremely Hazardous Substance: Yes Contains Formaldehyde (RQ = 1,000 LBS, TPQ = 500 LBS)

CERCLA Hazardous Substance: Yes Contains Formaldehyde (RQ = 1000 LBS)

SARA 313 Toxic Chemicals: Yes Contains Formaldehyde and Methanol
Generic Class: C05, C07

TSCA Inventory: Yes

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SECTION VI - REACTIVITY DATA

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Stability: Stable Hazardous Polymerization: May occur

Conditions to Avoid: heat, flame, other sources of ignition



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SECTION VI - REACTIVITY DATA (CONTINUED)

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Incompatibles: strong oxidizing agents, strong acids, strong bases,
alkalies, alkali metals, amines and ammonia, phenol,
strong reducing agents

Decomposition Products: formaldehyde, carbon monoxide, carbon dioxide

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SECTION VII - SPILL & DISPOSAL PROCEDURES

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Steps to be Taken in the Event of a Spill or Discharge

Wear self-contained breathing apparatus and full protective clothing. Shut off ignition sources; no flares, smoking or flames in area. Stop leak if you can do so without risk. Use water spray to reduce vapors. Take up with sand or other non-combustible absorbent material and place into container for later disposal. Flush area with water.

Disposal Procedure

Dispose in accordance with all applicable federal, state, and local environmental regulations.

EPA Hazardous Waste Number: U122 (Toxic Waste)

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SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

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Ventilation: Use general or local exhaust ventilation to meet TLV requirements.

Respiratory Protection: Respiratory protection required if airborne concentration exceeds TLV. At concentrations up to 50 ppm, a chemical cartridge respirator with organic vapor cartridge is recommended. Above this level, a self-contained breathing apparatus is recommended.

Eye/Skin Protection: Safety goggles and face shield, uniform, protective suit, proper gloves are recommended.



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SECTION IX - STORAGE AND HANDLING PRECAUTIONS

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SAF-T-DATA* Storage Color Code: Red (flammable)

Storage Requirements

Keep container tightly closed. Store in a cool, dry, well-ventilated, flammable liquid storage area or cabinet. Isolate from incompatible materials. Store above 15°C.

Special Precautions

Formaldehyde solutions with a flash point below 141°F in containers exceeding 110 gallons are classified as a combustible with UN1198. See 49CFR 172.101.

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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

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Domestic (D.O.T.)

Proper Shipping Name: Formaldehyde solution (flash pt. below 141 F.)
Hazard Class: ORM-A
UN/NA: UN1198 Reportable Quantity: 1000 LBS.
Labels: NO LABEL REQUIRED UNDER 110 GALLONS
Regulatory References: 49CFR 172.101; 173.500; 173.510

International (I.M.O.)

Proper Shipping Name: Formaldehyde, solutions
Hazard Class: 3.3
UN: UN1198 Marine Pollutants: No
Labels: FLAMMABLE LIQUID
Regulatory References: 49CFR 172.102; Part 176; IMO

I.M.O. Page: 3139
Packaging Group: III

AIR (I.C.A.O.)

Proper Shipping Name: Formaldehyde, solutions
Hazard Class: 3.3
UN: UN1198
Labels: FLAMMABLE LIQUID
Regulatory References: 49CFR 172.101; 173.6; Part 175; ICAO/IATA

Packaging Group: III

U.S. Customs Harmonization Number: 29121100000



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 N/A = Not Applicable or Not Available
 N/E = Not Established

The information in this Material Safety Data Sheet meets the requirements of the United States OCCUPATIONAL SAFETY AND HEALTH ACT and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) and the Canadian WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. This document is intended only as a guide to the appropriate precautionary handling of the material by a person trained in, or supervised by a person trained in, chemical handling. The user is responsible for determining the precautions and dangers of this chemical for his or her particular application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes.

Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, Baker cannot warn of all of the potential dangers of use or interaction with other chemicals or materials. Baker warrants that this chemical meets the specifications set forth on the label.

BAKER DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE.

The user should recognize that this product can cause severe injury and even death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Baker will periodically revise this Material Safety Data Sheet.

Note: CHEMTREC, CANUTEC, and NATIONAL RESPONSE CENTER emergency telephone numbers are to be used ONLY in the event of CHEMICAL EMERGENCIES involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to Customer Service (1-800-JTBAKER) for assistance.

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Approved by Quality Assurance Department.