

Material Safety Data Sheet

Paraformaldehyde

ACC# 18000

Section 1 - Chemical Product and Company Identification

MSDS Name: Paraformaldehyde

Catalog Numbers: AC169650000, AC169650010, AC169650025, AC169650250, AC416780000, AC416780010, AC416780030, AC416780250, AC416785000, NC9920507, NC9953590, O4042-500, PARAFORM, S70102, S80114, T353-500

Synonyms: Polyformaldehyde; Polyoxymethylene; Formaldehyde polymer; Polyoxymethylene glycol; Trioxymethylene; Paraform.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
30525-89-4	Paraformaldehyde	>90	unlisted
50-00-0	Formaldehyde	off-gas	200-001-8

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white powder. Flash Point: 70 deg C.

Warning! Flammable solid. Causes eye, skin, and respiratory tract irritation. Harmful if inhaled. May cause allergic respiratory and skin reaction. May be harmful if swallowed or absorbed through the skin. Product may generate formaldehyde which can cause cancer.

Target Organs: Respiratory system, eyes, skin.

Potential Health Effects

Eye: May result in corneal injury. Causes severe eye irritation and burns.

Skin: Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Contact with dust causes drying, cracking, and scaling of the skin.

Ingestion: Symptoms may include: headache, excitement, fatigue, nausea, vomiting, stupor, and coma. May cause systemic toxicity with acidosis. May cause severe digestive tract irritation with abdominal pain, nausea, vomiting and diarrhea. May be harmful if swallowed.

Inhalation: May cause severe irritation of the upper respiratory tract with pain, burns, and inflammation. May cause anosmia (loss of smell). Inhalation of high concentrations may cause pulmonary edema. Formaldehyde may cause asthmatic symptoms by acting as an immunological sensitizer. Harmful if inhaled.

Chronic: Prolonged or repeated eye contact may cause conjunctivitis. Repeated inhalation may cause chronic bronchitis. Repeated exposure may cause sensitization dermatitis. Contains formaldehyde which can cause cancer in humans. There is sufficient evidence that formaldehyde causes nasopharyngeal cancer in humans, a rare cancer in developed countries. There is limited evidence that formaldehyde causes cancer of the nasal cavity and paranasal sinuses and strong but not sufficient evidence for leukemia.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: In case of contact, immediately flush skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical aid if symptoms occur. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

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

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Flammable solid. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Dust from this material can form explosive organic dust cloud.

Extinguishing Media: Use water spray, dry chemical, "alcohol resistant" foam, or carbon dioxide.

Flash Point: 70 deg C (158.00 deg F)

Autoignition Temperature: 300 deg C (572.00 deg F)

Explosion Limits, Lower: 7.0 vol %

Upper: 73 vol %

NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Approach spill from upwind. Keep unnecessary and unprotected personnel away.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Ground and bond containers when transferring material. Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Avoid breathing dust. Avoid breathing vapor.

Storage: Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed. Paraformaldehyde decomposes to formaldehyde vapor. Use precautions against formaldehyde exposure when opening containers or entering a poorly ventilated storage area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Local exhaust may be necessary to control concentrations to acceptable levels. See 29CFR 1910.1048 for regulatory requirements pertaining to all occupational exposures to formaldehyde, i.e., from formaldehyde gas, its solutions, and materials that release formaldehyde.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Paraformaldehyde	none listed	none listed	none listed
Formaldehyde	0.3 ppm Ceiling	0.016 ppm TWA 20 ppm IDLH	0.75 ppm TWA; 2 ppm STEL; 0.5 ppm Action Level (Irritant and potential cancer hazard - see 29 CFR 1910.1048)

OSHA Vacated PELs: Paraformaldehyde: No OSHA Vacated PELs are listed for this chemical. Formaldehyde: 3 ppm TWA (unless specified in 1910.1048)

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Powder

Appearance: white

Odor: formaldehyde - pungent odor

pH: Not available.

Vapor Pressure: 5 mm Hg @ 20 deg C

Vapor Density: 1.03 (air=1)

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: Decomposes

Freezing/Melting Point: 120 - 170 deg C

Decomposition Temperature: 260 deg C

Solubility: Slightly soluble.

Specific Gravity/Density: 1.46

Molecular Formula: Polymer of CH₂O

Molecular Weight: 30.03

Section 10 - Stability and Reactivity

Chemical Stability: Stable. However, may decompose if heated.

Conditions to Avoid: Ignition sources, dust generation, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids, strong bases.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, formaldehyde.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 30525-89-4: RV0540000

CAS# 50-00-0: LP8925000

LD50/LC50:

CAS# 30525-89-4:

Draize test, rabbit, eye: 100 mg Severe;
Draize test, rabbit, skin: 500 mg/24H Severe;
Inhalation, rat: LC50 = 1070 mg/m³/4H;
Oral, rat: LD50 = 800 mg/kg;

CAS# 50-00-0:

Draize test, rabbit, eye: 750 ug/24H Severe;
Draize test, rabbit, eye: 750 ug Severe;
Draize test, rabbit, eye: 10 mg Severe;
Draize test, rabbit, eye: 37% Severe;
Draize test, rabbit, skin: 2 mg/24H Severe;
Draize test, rabbit, skin: 50 mg/24H Moderate;
Inhalation, mouse: LC50 = 454 mg/m³/4H;
Inhalation, mouse: LC50 = 505 mg/m³/2H;
Inhalation, rat: LC50 = 203 mg/m³;
Inhalation, rat: LC50 = 578 mg/m³/2H;
Inhalation, rat: LC50 = 250 ppm/2H;
Oral, mouse: LD50 = 42

Carcinogenicity:

CAS# 30525-89-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 50-00-0:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 1/1/88 (gas)
- **NTP:** Suspect carcinogen
- **IARC:** Group 1 carcinogen

Epidemiology: In June 2004 an expert IARC group determined that there is now sufficient evidence that formaldehyde causes nasopharyngeal cancer in humans, a rare cancer in developed countries.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: No data available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Paraformaldehyde hydrolyzes as it dissolves in water, and its solutions behave like methanol-free formaldehyde solutions. Formaldehyde forms a strongly acidic aqueous solution, and this property may cause adverse environmental effects. It is readily biodegradable and it is not likely to bioconcentrate.

Environmental: Biological oxygen demand (BOD) = 37%, 5 days.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 50-00-0: waste number U122.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	PARAFORMALDEHYDE	PARAFORMALDEHYDE
Hazard Class:	4.1	4.1
UN Number:	UN2213	UN2213
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 30525-89-4 is listed on the TSCA inventory.

CAS# 50-00-0 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 30525-89-4: 1000 lb final RQ; 454 kg final RQ CAS# 50-00-0: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 50-00-0: 500 lb TPQ

SARA Codes

CAS # 30525-89-4: immediate, delayed, fire.

CAS # 50-00-0: immediate, delayed.

Section 313

This material contains Formaldehyde (CAS# 50-00-0, off-gas%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 50-00-0 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 30525-89-4 is listed as a Hazardous Substance under the CWA. CAS# 50-00-0 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

CAS# 50-00-0 is considered highly hazardous by OSHA.

STATE

CAS# 30525-89-4 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

CAS# 50-00-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

WARNING: This product contains Formaldehyde, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: CAS# 50-00-0: 40 µg/day NSRL

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

XN F

Risk Phrases:

R 11 Highly flammable.

R 20/22 Harmful by inhalation and if swallowed.

R 36/37/38 Irritating to eyes, respiratory system and skin.

R 43 May cause sensitization by skin contact.

R 45 May cause cancer.

Safety Phrases:

S 24 Avoid contact with skin.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 30525-89-4: 2

CAS# 50-00-0: 2

Canada - DSL/NDL

CAS# 30525-89-4 is listed on Canada's DSL List.

CAS# 50-00-0 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B4, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 30525-89-4 is listed on the Canadian Ingredient Disclosure List.

CAS# 50-00-0 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/25/1999

Revision #4 Date: 6/17/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.