

Material Safety Data Sheet

(19200 and 19202)

Section 1: Chemical Product and Company Identification

Product Name: Paraformaldehyde, Prill

Catalog Number: 19200 and 19202

CAS#: See Section 3 below

Contact Information:

Electron Microscopy Sciences

1560 Industry Road

Hatfield, PA 19440

1-215-412-8400 (phone)

1-800-523-5874 (toll-free)

1-215-412-8450 (fax)

Order Online: emsdiasum.com

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

Section 2: Composition and Information on Ingredients

| Components | CAS# | Percent % |
|------------------|------------|-----------|
| Paraformaldehyde | 30525-89-4 | 91-97 |
| Formaldehyde | 50-00-0 | off-gas |

Section 3: Hazards Identification

Emergency Overview

WARNING! Flammable solid. Causes respiratory tract, skin and eye irritation. Harmful if inhaled or swallowed. May cause allergic respiratory and skin reaction. Dust from this product can form an explosive organic dust cloud. Cancer Hazard. Contains formaldehyde which can cause cancer. Risk of cancer depends on duration and level of exposure.

Product Description:

Appearance: Form: prills

Odor: pungent

Color: white

Potential Health Effects: Routes of exposure: Skin, eyes, inhalation and ingestion.

Immediate effects:

Inhalation: Harmful if inhaled. Causes respiratory tract irritation. May cause allergic respiratory reaction. Symptoms of exposure may include: Nasal discharge, hoarseness, coughing, chest pain and breathing difficulty. Accumulation of fluid in the lungs (pulmonary edema); symptoms can be delayed for several hours.

Skin: Causes skin irritation. May cause allergic skin reaction. Symptoms of exposure may include: Redness or discoloration, swelling, itching, burning or blistering of skin. Drying, cracking or inflammation of skin. Hardening (tanning) of skin.

Eyes: Exposure to vapors and liquid causes eye irritation. Symptoms of exposure may include: Eye irritation, burning sensation, pain, watering, and/or change of vision. Eye injury which may persist for several days.

Ingestion: Harmful if swallowed. Symptoms of exposure may include: Nausea, vomiting, loss of appetite, gastrointestinal irritation and/or diarrhea.

Target Organ Effects:

Overexposure (prolonged or repeated exposure) may cause: Injury to the eyes, irritation of the respiratory tract, irritation of the digestive tract, drying of the skin, allergic reaction and local irritation of the skin, and allergic respiratory reaction.

Section 7 : Handling and Storage

Handling: Advice of Safe Handling: Use adequate ventilation. Keep containers tightly closed in a dry, cool and well-ventilated place. Do not breathe vapors/dust. Avoid contact with skin, eyes and clothing. Wash thoroughly with soap and water after handling. Decontaminate soiled clothing thoroughly before reuse. Destroy contaminated leather clothing. Refill and handled product only in closed system. Provide sufficient air exchange and/or exhaust in work rooms.

Caution: Flexible intermediate bulk containers can build static electrical charge while contents are being emptied or filled. Do not allow contents to free fall in areas where potential flammable air vapor or air dust mixtures exist. Use proper grounding procedures when transferring. For example, use of a grounded intermediate hopper or conveyor is recommended. Do not allow any ungrounded conducting objects such as equipment tools, rings, watches, etc. in the work area.

Paraformaldehyde decomposes to formaldehyde which can build up in a shipping container depending on time and temperature during transit. The level of formaldehyde exposure may be instantaneously high when the shipping container is opened.

Protection – fire and explosion: Keep away from sources of ignition – No smoking vapors are heavier than air and may spread along floors. Take necessary action to avoid static electricity discharge. Ground and bond containers when transferring material in case of fire, emergency cooling with water spray should be available.

Storage: Technical measures/Storage Conditions: Keep tightly closed in a dry, cool and well-ventilated place. Handle and open container with care. Store under nitrogen.

Incompatible Products: Keep away from: acids bases, amines, oxygen, oxidizing agents and reducing agents.

Section 8: Exposure Controls/Personal Protection

OSHA EXPOSURE LIMITS

| | |
|-----------------------------------|--|
| Components Formaldehyde | TWA 0.75 ppm |
| Components Formaldehyde | STEL 2 ppm |
| Components Formaldehyde | Ceiling Limit Value 0.3 ppm |
| Components Formaldehyde | Celanese Workplace Exposure Limit 0.75 ppm (TWA): 2 ppm (STEL) |
| Components Formaldehyde | 2005 NIOSH IDLH 30 ppm |

Mexico National Exposure Limits

| | |
|-----------------------------------|---|
| Components Formaldehyde | Mexican Carcinogen Category A2 |
| Components Formaldehyde | Mexican Ceiling Exposure Limit 3 mg/m ³ 2 ppm |

EXPOSURE CONTROLS

Engineering Measures: General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Protective Equipment: A safety shower and eyebath should be readily available.

General Advice: Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Use only in an area equipped with a safety shower. Hold eye wash fountain available.

Section 9: Physical and Chemical Properties

| | | |
|--|---|--------------------------------------|
| Appearance: Form: solid prills | Color: white | Odor: pungent |
| Flash Point: 70°C (158°F) | Method: closed cup | Vapor Pressure: 1.9 hPa @25°C |
| Ignition Temperature: 300°C (572°F) | Lower explosion limit: 7 vol. % | |
| Upper explosion limit: 73 vol. % | Melting point/range: 120-170°C (248 - 338°F) | |
| Density: 1.46 g/ml @15°C | pH: 6.7-6.9; 1% @25°C | |
| Vapor Density: 1.03 (Air=1) | Water solubility: hydrolyses | |

Section 10: Stability and Reactivity Data

Stability: Stable if protected from heat and exposure to air.

Conditions to Avoid: Avoid any source of ignition. Avoid contact with heat, sparks, open flame, and static discharge.

Materials to Avoid: Keep away from: oxygen, oxidizing agents, reducing agents, acids and bases

Hazardous Combustion or Decomposition Products: In the presence of sufficient oxygen, combustion may produce oxides of nitrogen and carbon dioxide. Nitrogen oxides can react with water to produce nitric acid. Combustion under oxygen starved conditions may produce numerous toxic products including carbon monoxide, cyanides and nitriles. Thermal decomposition products may include oxides of carbon.

Hazardous Reactions: May form explosive peroxides, polymerization can occur. Polymerization is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers.

Section 11: Toxicological Information

Paraformaldehyde: Oral: LD50: 680 mg/kg, rat

Dermal: LD50: >2000 mg/kg, rabbit

Inhalation: LC50: 1070 mg/m³, rat, 4h

Skin Irritation: Severe skin irritation **Species:** Rabbit

Eye Irritation: Severe Eye Irritation **Species:** Rabbit

In vitro Mutagenicity: CHO cell chromosome aberration – negative with and without metabolic activation. CHO cell sister-chromatid-exchange (SCE) – positive with and without metabolic activation. Mouse lymphoma cell gene-mutation – positive with and without metabolic activation.

Formaldehyde: Oral: LD50: 600-800 mg/kg, rat

Dermal: LD50: 270 mg/kg, rabbit

Inhalation: LC50: 578 mg/m³, rat, rh

Skin Sensitization: - positive **Method:** mouse LLNA

Eye Irritation: irritant **Species:** rabbit eye. Chronic inhalation of formaldehyde concentrations of 10 ppm and higher led to clear increases in nasal tumor incidence in rats. No increased incidence of tumors was found in other organs after inhalation, and administration routes other than inhalation did not result in local or systemic tumor formation. Mode of action suggests that formaldehyde is not likely to be carcinogenic to humans under exposure conditions that do not cause cytotoxic effects (OECD SIDS).

In vitro Mutagenicity: - positive

In vivo Mutagenicity: Formaldehyde is a direct acting locally effective mutagen, with genotoxic effects limited to those cells in direct contact with formaldehyde (OECD SIDS).

Reproductive toxicity: No toxicity to reproduction.

Developmental effects: No adverse developmental effects. Routes of exposure: oral gavage Species; mouse
Developmental effects: no adverse developmental effects. Routes of exposure: inhalation Species, rat

Section 12: Ecological Information

Paraformaldehyde

Toxicity to fish: LC50: 60 mg/k (96h) Species: Oncorhynchus mykiss (rainbow trout)

Section 13: Disposal Considerations

Disposal Considerations: Dispose of spilled material in accordance with state and local regulations for hazardous waste. Recommended methods are incineration or biological treatment at a federally or state-permitted disposal facility. Note that this information applies to the material as manufactured; processing, use, or contamination may make this information inappropriate, inaccurate, or incomplete.

Note that this handling and disposal information may also apply to empty containers, liners and rinsate. State or local regulations or restrictions are complex and may differ from federal regulations. This information is intended as an aid to proper handling and disposal; the final responsibility for handling and disposal is with the owner of the waste.

Section 14: Transport Information

US Department of Transportation

UN/NA Number: UN 2213
Proper Shipping Name: Paraformaldehyde
Hazard Class: 4.1
Packing Group: III
Reportable Quantity (RQ) 1000 lb/454 kg
Emergency Resp. Guide 133

TDG

UN/NA Number: UN 2213
Proper Shipping Name: Paraformaldehyde
Class: 4.1
Packing Group: III

Mexico Transport Information

UN-No. UN 2213
Proper Shipping Name: Paramformaldehyde
Hazard Class: 4.1
Packing Group III
Emergency Response Guide 133

ICAO/IATA

UN-No. UN 2213
Proper Shipping Name: Paraformaldehyde
Hazard Class: 4.1
Packing Group: III

IMDG

UN-No. UN 2213
Proper Shipping Name: Paraformaldehyde
Hazard Class: 4.1
Packing Group: III

EmS Code: F-A, S-G

Section 15: Other Regulatory Information

U.S. STATE REGULATIONS

Chemicals associated with the product which are subject to the state right-to-know regulations are listed along with the applicable state(s):

Paraformaldehyde 30525-89-4

| | |
|---------------|--------|
| Pennsylvania | Listed |
| New York | Listed |
| New Jersey | Listed |
| Illinois | Listed |
| Massachusetts | Listed |
| Rhode Island | Listed |

Formaldehyde 50-00-0

| | |
|---------------|--------|
| Pennsylvania | Listed |
| New York | Listed |
| New Jersey | Listed |
| Illinois | Listed |
| Massachusetts | Listed |
| Rhode Island | Listed |

Formaldehyde 50-00-0

Listed

U.S. FEDERAL REGULATIONS

TSCA Inventory: We certify that all components are either on the TSCA inventory or qualify for an exemption.

Environmental Regulations:

Paraformaldehyde 30525-89-4

| | |
|----------------------------|--------|
| CERCLA Hazardous Substance | Listed |
|----------------------------|--------|

Formaldehyde 50-00-0

| | |
|-------------------------------|--------|
| EPCRA Section 313 | Listed |
| CERCLA Hazardous Substance | Listed |
| Extremely Hazardous Substance | Listed |

SARA 311:

| | |
|------------------------------------|--------------------------------|
| Acute health: | Acute health: Yes |
| Chronic health: | Chronic health: Yes |
| Fire: | Fire: Yes |
| Sudden release of pressure: | Sudden release of pressure: No |
| Reactive: | Reactive: No |

INTERNATIONAL REGULATIONS

International Chemical Inventory: Listed on the chemical inventories of the following countries or qualifies for an exemption: AUSTRALIA, CHINA, CANADA, KOREA, PHILIPPINES, JAPAN

CANADA REGULATIONS

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Class B, Division 4. Class D, Division 2, Subdivision B.

Section 16: Other Information:

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|--------------|---------------|------------------|---------------------|
| NFPA: | Health – 3 | Flammability – 2 | Instability – 1 |
| HMIS: | Health – 3(*) | Flammability – 2 | Physical hazard - 1 |

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