



MATERIAL SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

DESCRIPTION: BORDEN RB-9

1. Chemical Product and Company Identification

DESCRIPTION: **BORDEN RB-9**
PRODUCT CODE: 100095
PRODUCT TYPE: Paraformaldehyde Powder
APPLICATION: Untreated Paraformaldehyde

Manufacturer/Supplier Information

MSDS prepared by:
Hexion Specialty Chemicals, Inc.
155 West A Street, Bldg. A-1
Springfield, OR
97477

For Emergency Medical Assistance
Call Health & Safety Information Services
1-866-303-6949

For additional health and safety or regulatory information, call (541)744-3256.

2. Hazards Identification

2.1 Emergency Overview

Appearance	Dry powder
Odor	Pungent formaldehyde

WARNING!

FLAMMABLE SOLID. Combustible dust when finely divided or suspended in air.
May become unstable at high temperatures.
Harmful if inhaled.
Causes chemical burns to eyes.
May be harmful if absorbed through skin.
Causes skin irritation.
May cause allergic skin reaction.

NORTH AMERICAN EMERGENCY RESPONSE GUIDE, 2000, NO: 133

HMIS Rating

HEALTH	=	3 (serious)
FLAMMABILITY	=	2 (moderate)
REACTIVITY	=	1 (slight)
CHRONIC	=	*

HMIS® ratings involve data interpretations that may vary from company to company. They are intended only for the rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

2.2 Potential Health Effects

Immediate Hazards

INGESTION:	Not expected to be harmful under normal conditions of use. If accidentally swallowed, burns or irritation to mucous membranes, esophagus or GI tract can result.
INHALATION:	Harmful if inhaled. Can cause irritation of nose, throat and lungs.
SKIN:	May be harmful if absorbed through skin. Causes irritation.
EYES:	Causes chemical burns.

Delayed Hazards

30525-89-4 Paraformaldehyde

May cause allergic skin reaction.

-- See Footnote at end of section

50-00-0 Formaldehyde

May cause cancer. OSHA regulates formaldehyde as a potential human carcinogen. See the OSHA Formaldehyde Workplace Standard at 29CFR 1910.1048. Rats chronically exposed to 14 ppm formaldehyde contracted nasal cancer. The National Toxicology Program (NTP) has listed formaldehyde as a probable human carcinogen. The International Agency for Research on Cancer (IARC) has concluded formaldehyde is carcinogenic to humans.

Safe handling and use instructions are provided in this MSDS and in the OSHA Formaldehyde Workplace Standard at 29CFR1910.1048. OSHA has identified 0.5 ppm as the "Action Level". Please review and understand the guidance contained in this MSDS and refer to the OSHA Formaldehyde Standard for regulatory requirements that may be applicable to your operation and use.

For further information and a review of various studies, go to www.osha.gov/SLTC/formaldehyde, www.iarc.fr and other authoritative websites.

May cause allergic skin reaction. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that preexisting respiratory and skin disorders may be aggravated by exposure.

Footnote: As of the date of issuance of this document, this material has not been listed by NTP, classified by IARC nor regulated by OSHA as a carcinogen.

3. Composition, Information on Ingredients

The ingredients listed below have been associated with one or more immediate and/or delayed(*) health hazards. Risk of damage and effects depends upon duration and level of exposure. BEFORE USING, HANDLING, OR EXPOSURE TO THESE INGREDIENTS, READ AND UNDERSTAND THE MSDS.

		% by weight
30525-89-4	*Paraformaldehyde	100.0
50-00-0	*Formaldehyde	1.0 - 5.0

Any applicable Canadian trade secret numbers will be listed in Section 15.2.

4. First Aid Measures

INGESTION:	If accidentally swallowed, dilute by drinking large quantities of water. If the individual is drowsy or unconscious, do not give anything by mouth. Immediately contact poison control center or hospital emergency room for advice on whether to induce vomiting or for any other additional treatment directions.
INHALATION:	If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
SKIN:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse.
EYES:	Immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held apart during irrigation to ensure water contact with entire surface of eyes and lids. Call a physician.

5. Fire Fighting Measures

Suitable Extinguishing Media: In case of fire, flood with water. This will require submerging the powder or bag in a large container or dike. Any containment devices must be vented or opened to allow heat removal and prevent pressure build-up. Combustion products may include oxides of carbon and nitrogen.

FLAMMABLE SOLID. Keep away from heat, sparks, and flame. Refer to NFPA Pamphlet No. 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids," if this material is to be reduced to or collected as a powder.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Organic powders when finely divided (420 microns or smaller in diameter) and suspended in air may form explosive dust-air mixtures and result in a fire or dust explosion.

6. Accidental Release Measures

Eliminate all ignition sources. Gently sweep (scoop) up to avoid creating dust clouds and remove to a chemical disposal area. Prevent entry into natural bodies of water.

7. Handling and Storage

7.1 Handling

Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the material from eyes, skin and clothing. Wash thoroughly after handling. Always use appropriate Personal Protective Equipment (PPE).

INHALATION:	Do not breathe dust or vapor. Use with adequate ventilation.
SKIN:	Avoid contact with skin and clothing.

EYES:

Do not get in eyes.

7.2 Storage

Keep away from heat, hot surfaces, sparks and flame.

Store in a cool, dry place.

Empty container may contain product residues. DO NOT cut, torch or reuse without commercial cleaning.

If exposure to moisture causes lumping, break lumps into powder before using.

Limited storage life - Refer to product specifications.

Reacts with many compounds. Reaction with phenol, acids, alkalis may be violent.

Use with adequate ventilation.

8. Exposure Controls/Personal Protection

8.1 Exposure Guidelines**30525-89-4 Paraformaldehyde**

ACGIH TLV | None established

OSHA PEL | None established

50-00-0 Formaldehyde

ACGIH TLV	Ceiling	0.3 ppm	0.37 mg/m ³	A2 - Suspected Human Carcinogen; SEN
OSHA PEL	8-hr TWA	0.75 ppm	0.9 mg/m ³	
	STEL (15 min)	2 ppm	2.5 mg/m ³	

8.2 Exposure Controls

ENGINEERING CONTROLS: The following exposure control techniques may be used to effectively minimize employee exposure: local exhaust ventilation, enclosed system design, process isolation and remote control in combination with appropriate use of personal protective equipment and prudent work practices. These techniques may not necessarily address all issues pertaining to your operations. We, therefore, recommend that you consult with experts of your choice to determine whether or not your programs are adequate.

If airborne contaminants are generated when the material is heated or handled, sufficient ventilation in volume and air flow patterns should be provided to keep air contaminant concentration levels below acceptable criteria.

8.3 Personal Protection

Where formaldehyde gas concentrations can exceed acceptable criteria, use NIOSH (42 CFR Part 84) approved full-facepiece respiratory protection equipment. Respirators should be selected based on the concentration of formaldehyde in air in accordance with the OSHA Formaldehyde Standard Respiratory Protection requirements at 29CFR 1910.1048?, and the OSHA Respiratory Protection Standard at 29CFR 1910.134 or other applicable standards or guidelines, including ANSI standards regarding respiratory protection. A full-facepiece respirator with cartridges or canisters specifically approved for formaldehyde may be used for exposure levels up to 7.5 ppm (10 times the PEL). Chemical safety goggles must be worn if there is a possibility of contact with liquid formaldehyde or excessive gas-phase exposures. A full-facepiece respirator complies with this requirement. Wear protective gloves as required to prevent skin contact. Protective gloves must be worn when handling formaldehyde solutions of 1% or higher. Consult your glove manufacturer for specific information on permeation, degradation and breakthrough data to ensure proper selection. Based on available information, butyl, nitrile and Viton appear to be quite impervious to various strengths of formaldehyde solutions. Other glove materials may be equally suitable depending on composition, thickness and use conditions. Where high concentrations of formaldehyde may be present, such as in an emergency, full body protection should be worn. Other protective equipment that must be available when handling formaldehyde solutions of 1% or higher include eye wash fountains and safety showers. Reusable protective clothing should be cleaned and ventilated after any formaldehyde contamination. See the OSHA Formaldehyde Standard requirements at 29CFR 1910.1048(h) Protective Equipment and Clothing and OSHA 29CFR 1910.1048(i) Hygiene Protection for other specific protective measures based on the form of formaldehyde, the conditions of use and the hazards to be prevented.

9. Physical and Chemical Properties

Appearance	Dry powder
Color	White
Odor	Pungent formaldehyde
Odor threshold	Not available
pH	2.0 - 4.0
Boiling point, 760 mm Hg	Not applicable
Flash point	71 °C (160 °F)
Evaporation rate	Not applicable
Lower explosion limit	7.0 % (V)
Upper explosion limit	73.0 % (V)
Vapor pressure	Less than 2 mm Hg @25 °C (77 °F)
Vapor density	1.03
Specific gravity	Not available
Solubility in water	Complete
Octanol/water partition coefficient	Not available
Autoignition temperature	Not applicable
Viscosity	Not applicable

10. Stability and Reactivity

Chemical Stability

Normally stable, but may become unstable at high temperatures.

Incompatible Materials

Oxidizers, acids, bases and amines.

Hazardous Decomposition Products

Oxides of carbon, aldehydes (including formaldehyde), phenols and aromatic hydrocarbons.

Possibility of Hazardous Reactions

Hazardous polymerization is not expected to occur .

11. Toxicological Information

See Section 3 Hazards Identification information.

30525-89-4 Paraformaldehyde

LC50: Not available

LD50: Oral-rat= 800 mg/kg (Sax)

50-00-0 Formaldehyde

LC50: rat=0.59 mg/l (Sax)

LD50: Oral-rat= 800 mg/kg (Merck); Skin-rabbit= 270 mg/kg (Sax)

12. Ecological Information

Not determined

13. Disposal Considerations

Dispose of according to local, state/provincial, and federal requirements. Empty container: May contain explosive vapors. DO NOT cut, puncture or weld on or nearby.

14. Transport Information

14.1 U.S. Department of Transportation (DOT)

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

Proper shipping name	PARAFORMALDEHYDE MIXTURE
UN/NA number	2213
Class	4.1
Packing group	III
Label	4.1
RQ Ingredients	Formaldehyde, Paraformaldehyde

14.2 Canadian Transportation of Dangerous Goods (TDG)

Proper shipping name	PARAFORMALDEHYDE MIXTURE
UN number:	2213
Class	Class 4.1
Packing group	III
Label	4.1

14.3 Other Regulations

• **ADR/RID**

Proper shipping name	PARAFORMALDEHYDE MIXTURE
UN Number	2213
Class	Class 4.1

Classification Code	F1
Packing group	III
Hazard Identification No. (Kemler Code)	40
Label	4.1

• **IMO/IMDG**

Proper shipping name	PARAFORMALDEHYDE MIXTURE
UN Number	2213
Class	Class 4.1
Packing group	III
Label	4.1

• **IATA (Passenger)**

Proper shipping name	PARAFORMALDEHYDE MIXTURE
UN/ID number	2213
Class	Class 4.1
Packing group	III
Label	4.1

15. Regulatory Information (Selected Regulations)

15.1 U.S. Federal Regulations

OSHA Hazards Communication Standard 29CFR1910.1200

This material is a "health hazard" and/or a "physical hazard" as determined when reviewed according to the requirements of the Occupational Safety and Health Administration 29 CFR Part 1910.1200 "Hazard Communication" Standard.

SARA Title III: Section 311/312

Immediate health hazard
Delayed health hazard
Fire hazard

SARA Title III: Section 313 and 40 CFR Part 372

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

Formaldehyde	50-00-0	1.00%
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TSCA Section 8(b) Inventory

All reportable chemical substances are listed on the TSCA Inventory. We rely on certifications of compliance from our suppliers for chemical substances not manufactured by us.

15.2 Canadian Regulations

Workplace Hazardous Materials Information System (WHMIS)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR) and the MSDS contains all the information required by the CPR.

Class B4
Class D1A
Class D1B
Class D2A
Class D2B

Canadian Environmental Protection Act (CEPA)

All reportable chemical substances are listed on the Domestic Substances List (DSL) or otherwise comply with CEPA new substance notification requirements.

National Pollutant Release Inventory (NPRI)

This product contains the following chemical(s) subject to the reporting requirements of the Canadian Environmental Protection Act (CEPA) subsection 16(1), National Pollutant Release Inventory.

Formaldehyde	50-00-0	1.00%
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16. Other Information

User's Responsibility

The OSHA Hazard Communication Standard 29CFR 1910.1200 and the Workplace Hazardous Materials Information System (WHMIS) require that the information contained on these sheets be made available to your workers. Educate and train your workers regarding OSHA and WHMIS precautions. Instruct your workers to handle this product properly. Consult with appropriate experts to guard against hazards associated with use of this product and its ingredients.

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