

Product Name: Formaldehyde Loading Buffer

MATERIAL SAFETY DATA SHEET

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EC Directive, 91/155/EEC and other regulatory requirements.

1. Company and Product Identification

Lonza Rockland, Inc.
191 Thomaston Street
Rockland, ME 04841 (U.S.A.)
Business Telephone: (207) 594-3400
Emergency Telephone: 703-527-3887 (US: 800-424-9300)

Chemical Name: Mixture
Trade Name: Formaldehyde Loading Buffer
Synonyms: N/A

2. Composition/Information on Ingredients

<u>Ingredient Name</u>	<u>CAS #</u>	<u>EINECS #</u>	<u>% Ingredients</u>	<u>EC Symbol & Risk Phrases</u>
formamide	75-12-7	200-842-0	<30%	Xi: R36/37/38, Xn:R67
formaldehyde	50-00-0	200-001-8	<12%	T: R23/24/25, Carc. Cat 3: R40, C: R34, Xi:R43
methanol	67-56-1	200-659-6	<5%	F: R11, T: R23/24/25, 39/23/24/25
morpholinopropane sulfonic acid (MOPS)	1132-61-2	214-478-5	<5%	Xi: R36/37/38

3. Hazards Identification

Emergency Overview:

Can cause skin, eye, and respiratory irritation and hypersensitivity. Contains formaldehyde which is a cancer suspect agent and toxic by ingestion, inhalation, and skin contact.

Potential Health Effects:

Eye: Contact can cause eye irritation including redness, tearing, pain, and burns.

Skin: Contact can cause skin irritation, including redness and rash. Methanol has been associated with defatting-type dermatitis and may cause skin to become dry and cracked. Formaldehyde has been associated with hypersensitivity in some individuals. Formaldehyde is toxic by dermal absorption.

Inhalation: Contains components that can cause respiratory irritation including sore throat, coughing, and shortness of breath. At high exposure levels formaldehyde may cause pulmonary edema and pneumonitis. Formaldehyde is toxic by inhalation.

Ingestion: Contains components that have been associated with central nervous system effects. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death.

Target Organs: Components have been associated with liver toxicity, central nervous system effects, potential reproductive effects, and dermatitis. Formaldehyde is a suspect cancer hazard (OSHA, NTP, IARC). Methanol affects the optic nerve causing vision impairment.

Conditions Aggravated by Exposure: May aggravate existing eye, kidney, liver, or skin disorders

4. First Aid Measures

Eyes: Flush with water for at least fifteen minutes. If irritation occurs and persists, obtain medical attention.

Skin: Flush thoroughly with water while removing contaminated clothing, and shoes. Thoroughly wash with soap and water. If irritation occurs and persists, contact a medical doctor.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Contact a medical doctor

Ingestion: Seek medical attention immediately. Never induce vomiting or give anything by mouth to an unconscious person

5. Fire Fighting Measures

Extinguishing Media: Carbon dioxide, dry chemical powder, foam, or water spray.

Unusual Fire/Explosion Hazard: None known.

Special Fire Fighting Procedures: Wear self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.

Hazardous Decomposition Products: Product is an aqueous solution and is not expected to burn. However, under fire conditions, if the water evaporates, the remaining residues may burn producing predominantly oxides of carbon and nitrogen, formaldehyde, and smoke.

6. Accidental Release Measures

Absorb on absorbent material and place into closed containers for later disposal. Flush area with water. Material sublimates; therefore, clean up all spills before they dry. For personal precautions see section 8.

7. Handling and Storage

Store in a tightly closed container in a cool, dry place. Keep separated from incompatible substances.

8. Exposure Controls/Personal Protection

Prevention of worker exposure: Avoid all contact. There shall be access to water and eye wash fountain. Careful personal hygiene is a necessity.

Respiratory: Use exhaust ventilation. In the absence of adequate ventilation, wear appropriate respiratory protection approved by NIOSH, EC CEN or other comparable certification organizations.

Gloves: Chemical resistant gloves should be worn.

Special Clothing and Equipment: Lab coat or equivalent recommended.

Eye Protection: Wear splash-proof chemical safety goggles if splash may occur.

Exposure Limits: formamide - ACGIH TLV=10ppm TWA (skin); EU OEL=20 ppm TWA, 30 ppm STEL; formaldehyde - OSHA PEL=0.75 ppm TWA, 2 ppm STEL, 0.5 ppm action level; ACGIH 0.3 ppm C; EU OEL 2 ppm TWA/STEL; methanol - ACGIH TLV TWA: 200 ppm STEL: 250 ppm (skin); OSHA PEL TWA: 200 ppm; EU OEL 200 ppm TWA, 250 ppm STEL (skin)

9. Physical/Chemical Properties

Appearance:

Odor:

Melting Point: Not available

Boiling Point: Not available

Flammable Limits in Air: Upper - N/A; Lower - N/A

Explosive Properties: Not available.

Flash Point:

Autoignition Temperature: Not available.

pH: 6-8

Specific Gravity:

% Volatiles: Not available

Vapor Density: Not available.

Vapor Pressure: Not available.

Evaporation Rate: Not available

Solubility (H₂O): Highly water soluble

Partition Coefficient: No data available.

10. Stability and Reactivity

Stability: Stable at normal temperatures and pressure.

Hazardous Decomposition Products: Thermal decomposition products: oxides of carbon and nitrogen

Conditions/Materials to Avoid (Incompatibility): Avoid heat, flames, sparks, and other sources of ignition. Avoid contact with oxidizing materials.

11. Toxicological Information

Skin Contact: No data available for formulation. methanol: skin 20mg/24 hr. moderately irritating

Skin Absorption: No data available for formulation. formamide: dermal LD50=17,000 mg/kg (rabbit); formaldehyde: dermal LD50=270 uL/kg (rabbit); methanol: dermal LD50=15800 mg/kg (rabbit)

Inhalation: No data available for formulation. formamide: inhalation LC50 > 3,900 ppm/6hr (rat); formaldehyde: inhalation LC50=203 mg/m³ (rat); methanol: inhalation LC50=64000 ppm/4H(rat)

Ingestion: No data available for formulation. formamide: oral LD50=5577 mg/kg(rat); formaldehyde: oral LD50=100 mg/kg (rat); methanol: oral LD50=5628 mg/kg(rat)

Eye Contact: No data available for formulation. formamide: severe eye irritant at 100 mg (rabbit); formaldehyde: eye irritation 750 ug (rabbit) severe; methanol: eye 100 mg/24 hr. moderately irritating

Acute Effects From Overexposure: No data available for the formulation.

Chronic Effects From Overexposure: No data available for the formulation (see Other: below).

Exotoxicity: No data available for the formulation.

Carcinogenicity Listings: Formaldehyde: **IARC:** Yes **NTP:** Yes **Other** (OSHA): Yes (29 CFR 1910.1048)

Product Name: Formaldehyde Loading Buffer

Other: Formamide was not genotoxic or mutagenic in the *Drosophila* recessive lethal assay, micronucleus assay, and *Salmonella* assay, and it was not a developmental toxicant in rabbits or teratogenic in rats, though reduced fetal body weights in rats were noted. Formaldehyde was genotoxic and mutagenic in several assays, and has been associated with nasal squamous cell carcinomas in rat inhalation studies, and leukemia and gastrointestinal tumors in rat drinking water studies. Methanol produced negative and equivocal results in the Ames test and has been associated with CNS and liver effects in animal studies.

12. Ecological Information

Environmental Fate: No data available.
Environmental Effect: No data available.

13. Disposal Considerations

Dispose in accordance with applicable local, state/provincial, and federal/national environmental regulations.

14. Transportation Information

U.S. DOT/ICAO/IATA/Canada (TDG): Not hazardous for transport.

15. Regulatory Information

U.S. TSCA Inventory:	A component of this product is not listed on the TSCA inventory. This product is for research and development use only and must be used under the direction of a technically qualified individual. Other uses are not authorized.
U.S. SARA Title III:	Meets SARA 311/312 categories acute and chronic. This product contains <12% formaldehyde and <5% methanol, both toxic chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.
California Proposition 65:	WARNING: This product contains formaldehyde, a toxic chemical which is known to the State of California to cause cancer.
Canada WHMIS:	D2A, D2B
Product EC Symbols	Xn, Xi
Product EC Risk Phrases	R20/21/22 Harmful by inhalation, incontact with skin and if swallowed R36/37/38 Irritating to eyes, respiratory system, and skin R40 Limited evidence of carcinogenic effects R43 May cause sensitization by skin contact
Product EC Safety Advise Phrases	S7 Keep container tightly closed. S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39 Wear suitable protective clothing, gloves, and/or eye/face protection. S 45 In case of accident or if you feel unwell, seek medical advice immediately. S51 Use only in well-ventilated areas.
Other:	Formaldehyde has a reportable quantity of 100 lbs.and is listed as a SARA extremely hazardous substacne with a TQ od 500 lbs.

Caution - this preparation contains substance(s) not yet fully tested.

16. Other Information

HMIS/NFPA Designation	Degree of Hazard Code
Fire: 1	4 = Extreme
Health: 3	3 = High
Reactivity: 0	2 = Moderate
Special Hazard: None	1 = Slight
	0 = Insignificant

Prepared by: Lonza Rockland, Inc.
MSDS Revisions: April 2008, Revision 1

NOTE: This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of. The data on this sheet relates only to the specific material designated herein. Lonza Rockland, Inc. assume no legal responsibility for the use or reliance upon these data.