



# MATERIAL SAFETY DATA SHEET

## SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: CSM-2

October 26, 2005

Vishay Micro-Measurements  
Post Office Box 27777  
Raleigh, NC 27611

MSDS # MGM062B

919-365-3800

CHEMTREC 1-800-424-9300 (U.S.)  
703-527-3887 (Outside U.S.)

NOTE: CHEMTREC numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

## SECTION 2: HAZARDOUS INGREDIENTS / IDENTITY INFORMATION

| CAS NUMBER | CHEMICAL IDENTITY               | %          |
|------------|---------------------------------|------------|
| 106-94-5   | N-Propyl Bromide                | >90.0      |
| 109-87-5   | Dimethoxymethane                | <2.0       |
| 75-65-0    | 2-Methyl-2-Propanol             | <2.0       |
| 106-88-7   | Butylene Oxide(1,2 Epoxybutane) | <1.0       |
| 124-38-9   | Carbon Dioxide (as propellant)  | ≈ 24 grams |

## SECTION 3: HEALTH HAZARD DATA

### Routes of Entry:

Inhalation: Yes      Skin: No      Ingestion: Accidental

Health Hazards (Acute and Chronic): Harmful by inhalation.

Carcinogenicity:      NTP:                      No  
                                 IARC Monographs:      No  
                                 OSHA Regulated:        No

**Signs and Symptoms of Exposure:**

**INHALATION:** May irritate the nose, throat, and lungs. Exposure to high doses may cause central nervous system depression (anesthetic-like effects). Doses which cause anesthetic-like effects may also cause adverse effects in liver, lung, and kidney.

**EYE CONTACT:** Contact with eyes may cause mild irritation.

**SKIN CONTACT:** Prolonged exposure will cause skin irritation.

**INGESTION:** Low order of toxicity. May cause mild nausea and abdominal discomfort.

**Conditions Generally Aggravated by Exposure:** None listed.

**SECTION 4: EMERGENCY AND FIRST AID PROCEDURES**

**INHALATION:** Remove patient to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.

**EYE CONTACT:** If substance has gotten into eyes, wash out thoroughly for 15 minutes. Irrigate eyes thoroughly by lifting the eyelids. Seek medical advice.

**SKIN CONTACT:** Remove contaminated clothing immediately and drench affected skin with plenty of water. Wash with plenty of soap and water. Seek medical advice. Contaminated clothing should be laundered before reuse.

**INGESTION:** Do not induce vomiting. Seek medical attention immediately.

**SECTION 5: FIRE AND EXPLOSION HAZARD DATA**

**Flash Point (Method Used):** NONE (Pensky-Martens Closed Cup)

**Flammable limits:** LEL: Not determined UEL: Not determined

**Extinguishing Media:** Dry chemical, chemical foam, carbon dioxide. Class BC, ABC fire extinguisher.

**Special Firefighting Procedures:** Wear a self-contained breathing apparatus and personal protective equipment to avoid skin and eye contact in fire situations.

**Unusual Fire and Explosion Hazards:** In fires, toxic and corrosive gases may be released.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Steps to be taken if material is released or spilled:** Absorb spill with inert material, then place in chemical waste container. Clean up residue with an appropriate organic solvent. For large spills, dike for later disposal. Observe government regulations.

**SECTION 7: EXPOSURE CONTROLS -- PERSONAL PROTECTION**

**Respiratory Protection:** Use NIOSH/MSHA approved respirator if ventilation is not sufficient and if mists are generated.

**Ventilation:** If desirable to reduce odor, local exhaust can also be effective in minimizing odor. Provide sufficient ventilation to maintain emissions below recommended exposure limits.

**Protective Gloves:** Chemically resistant gloves should be used with all industrial chemicals.

**Eye Protection:** Safety glasses/goggles are recommended.

**Other Protective Clothing or Equipment:** As needed to prevent contact.

**Work / Hygienic Practices:** Provide eyewash stations. When using, do not eat drink or smoke.

**SECTION 8: HANDLING AND STORAGE**

**Precautions to be taken in handling and storing:** Store in original container, preferably in a cool, ventilated, fire-resistant building. Avoid overheating or freezing. Avoid open flames and sparks.

**Other Precautions:** Since empty containers may retain product residues (vapor, liquid, solid) all label precautions must be observed.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

|   |                    |
|---|--------------------|
| <b>Boiling Point:</b>                         | 160°F (71°C)       |
| <b>Vapor Pressure (mmHg):</b>                 | >100 mmHg @ (20°C) |
| <b>Vapor Density (Air = 1):</b>               | >1                 |
| <b>Specific Gravity (H<sub>2</sub>O = 1):</b> | 1.32               |
| <b>Melting Point:</b>                         | (-230°F) (-110°C)  |
| <b>Evaporation Rate (BuAc = 1):</b>           | <1                 |
| <b>% Volatile By Weight:</b>                  | 100%               |
| <b>Solubility in Water:</b>                   | Negligible         |

**Appearance and Odor:** Clear liquid with a strong characteristic odor.

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| <b>SECTION 10: STABILITY AND REACTIVITY DATA</b> |
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**Stability:** Stabilized n Propyl Bromide is stable.

**Conditions to Avoid:** Storage temperatures above the boiling point (160°F). Operating temperature above 185°F and decomposition temperatures above 400°F.

**Incompatibility (Materials to Avoid):** Strong mineral acids and strong oxidizing agents. Prolonged contact with aluminum, magnesium, and zinc metals should be avoided.

**Hazardous Decomposition or By-products:** Thermal decomposition products are known to be hazardous.

**Hazardous Polymerization:** Will not occur.

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| <b>SECTION 11: TOXICOLOGICAL INFORMATION</b> |
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N-Propyl Bromide

|            |   |
|------------|---|
| OSHA PEL:  | 25 ppm  |
| ACGIH TLV: | Not established   |
| OTHER:     | ORAL (RATS) LD <sub>50</sub> 4260 mg/kg<br>INHALATION (RATS) LC <sub>50</sub> 253,000 mg/m <sup>3</sup> (0.5 hrs) |

Butylene Oxide (1,2 Epoxybutane)

|            |                 |
|------------|-----------------|
| OSHA PEL:  | Not established |
| ACGIH TLV: | Not established |
| OTHER:     | Not established |

Carbon Dioxide

|            |                         |
|------------|-------------------------|
| OSHA PEL:  | 10000 ppm               |
| ACGIH TLV: | 18000 mg/m <sup>3</sup> |
| OTHER:     | 30000 STEL              |

Dimethoxymethane

|            |                 |
|------------|-----------------|
| OSHA PEL:  | 1000 ppm        |
| ACGIH TLV: | 1000 ppm        |
| OTHER:     | Not established |

2-Methyl-2-Propanol

|            |  |
|------------|--|
| OSHA PEL:  | 100 ppm                                |
| ACGIH TLV: | 100 ppm                                |
| OTHER:     | ORAL (RAT) LD <sub>50</sub> 3500 mg/kg |

**SECTION 12: DISPOSAL CONSIDERATIONS**

**Waste Disposal Method:** Dispose of in accordance with local, state, and federal environmental regulations.

**SECTION 13: TRANSPORTATION INFORMATION**

| SHIPPING NAME          | CLASS | UN NUMBER |
|------------------------|-------|-----------|
| Aerosol; Non-flammable | 2.2   | 1950      |

**SECTION 14: REGULATORY INFORMATION****SECTION 313 SUPPLIER NOTIFICATION:**

This product contains a toxic chemical or chemicals (as listed below) subject to the reporting requirements of Section 313 Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

| CAS NUMBER | CHEMICAL NAME                    | % BY WEIGHT |
|------------|----------------------------------|-------------|
| 106-88-7   | Butylene Oxide (1,2 Epoxybutane) | <1.0        |

**TSCA NOTIFICATION:**

All components of this product are listed in the Toxic Substance Control Act Chemical Substance Inventory (TSCA).

**SECTION 15: OTHER INFORMATION**

To the best of our knowledge, the information provided above meets the requirements of the United States Occupational Safety and Health Act and regulations established under 29 CFR 1910.1200 (g)(2)(c)(1)-(4) for a mixture of hazardous chemicals which has not been tested as a whole. The data provided on this Material Safety Data Sheet is from manufacturers of the original components. Vishay Micro-Measurements specifically disclaims any and all form of liability and/or responsibility for the application of this product.

