SAFETY DATA SHEET

# CSM-3

## Vishay Measurements Group GmbH

Version No: **4.0**
Safety Data Sheet - Authored according to GB/T 16483(2008), GB/T 17519 (2013), and GB30000.1 (2024)

Initial Date: **11/28/2025**
Revision Date: **07/22/2026**
Print Date: **07/23/2026**
S.GHS.CHN.EN

## SECTION 1 Identification of the substance / mixture and of the company / undertaking

### Product Identifier

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|---|---|
| **Product name** | CSM-3 |
| **Chemical Name** | Not Applicable |
| **Chemical English Name** | Not Applicable |
| **Synonyms** | Not Available |
| **Proper shipping name** | AEROSOLS |
| **Chemical formula** | Not Applicable |
| **Other means of identification** | Not Available |

### Relevant identified uses of the substance or mixture and uses advised against

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|---|---|
| **Relevant identified uses** | Metal surface treatment products, including galvanic and electroplating products. |

### Details of the manufacturer or importer of the safety data sheet

| | |
|---|---|
| **Registered company name** | **Vishay Measurements Group GmbH** |
| **Address** | Tatschenweg 1 Heilbronn 74078 Germany |
| **Telephone** | +49 (0) 7131 39099-0 |
| **Fax** | +49 (0) 7131 39099-229 |
| **Website** | www.VPGSensors.com |
| **Email** | mm.de@vpgsensors.com |

### Emergency telephone number

| | |
|---|---|
| **Association / Organisation** | **Velocity EHS** |
| **Emergency telephone number(s)** | 1-888-255-3924 |
| **Other emergency telephone number(s)** | Not Available |

## SECTION 2 Hazards identification

### Classification of the substance or mixture

**Summary of Hazard in an Emergency Situation**

Liquid.
Gas.
Mixes with water.Extremely flammable.
May form explosive peroxides.
Harmful by inhalation.
Irritating to eyes.
Vapours may cause drowsiness and dizziness.

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| **Classification [1]** | Aerosols, Hazard Category 1, Skin Corrosion/Irritation Category 3, Serious Eye Damage/Eye Irritation Category 2A, Acute Toxicity (Inhalation) Category 4, Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 3 |
| **Legend:** | 1. Classified by Chemwatch; 2. China Catalogue of Hazardous Chemicals; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI |

### Label elements

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| **Hazard pictogram(s)** |  |



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| | |
|---|---|
| **Signal word** | **Danger** |

**Hazard statement(s)**

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|---|---|
| **H222+H229** | Extremely flammable aerosol. Pressurized container: may burst if heated. |
| **H316** | Causes mild skin irritation. |
| **H319** | Causes serious eye irritation. |
| **H332** | Harmful if inhaled. |
| **H336** | May cause drowsiness or dizziness. |
| **H412** | Harmful to aquatic life with long lasting effects. |

**Precautionary statement(s) Prevention**

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| **P210** | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| **P211** | Do not spray on an open flame or other ignition source. |
| **P251** | Do not pierce or burn, even after use. |
| **P271** | Use in a well-ventilated area. |
| **P261** | Avoid breathing mist/vapours/spray. |
| **P273** | Avoid release to the environment. |
| **P280** | Wear protective gloves, protective clothing, eye protection and face protection. |
| **P264** | Wash all exposed external body areas thoroughly after handling. |

**Precautionary statement(s) Response**

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| **P305+P351+P338** | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| **P312** | Call a POISON CENTER/doctor/physician/first aider/if you feel unwell. |
| **P332+P313** | If skin irritation occurs: Get medical advice/attention. |
| **P337+P313** | If eye irritation persists: Get medical advice/attention. |
| **P304+P340** | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |

**Precautionary statement(s) Storage**

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| **P405** | Store locked up. |
| **P410+P412** | Protect from sunlight. Do not expose to temperatures exceeding 50 ℃/122 ℉. |
| **P403+P233** | Store in a well-ventilated place. Keep container tightly closed. |

**Precautionary statement(s) Disposal**

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|---|---|
| **P501** | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |

**Physical and Chemical Hazard**

Liquid.
Gas.
Mixes with water.Extremely flammable.
May form explosive peroxides.
HIGHLY FLAMMABLE.
Toxic smoke/fumes in a fire.
Risk of explosion if heated under confinement.
In case of fire and/or explosion, DO NOT BREATHE FUMES.

**Health Hazards**

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| **Inhaled** | Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.<br>The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.<br>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.<br>There is strong evidence to suggest that this material can cause, if inhaled once, serious, irreversible damage of organs.<br>Acetylene chloride can cause unconsciousness and irritation of the central nervous system. Repeated doses can damage the liver.<br>Exposure to the vapour may produce central nervous system depression; in milder doses, nausea, vomiting, weakness, tremor and cramps in the upper abdomen occur. One fatal case occurred when a person inhaled the vapour in a small enclosure. Animal testing has also shown damage to the lung.<br><br>Carbon dioxide is an odourless gas, which gives very poor warning of exposure. It can cause rapid loss of consciousness, and death from lack of oxygen at concentrations of 10% in air.<br>Carbon dioxide is the most powerful dilator of brain vessels known.<br>Inhalation of toxic gases may cause:<br>▸ Central Nervous System effects including depression, headache, confusion, dizziness, stupor, coma and seizures;<br>▸ respiratory: acute lung swellings, shortness of breath, wheezing, rapid breathing, other symptoms and respiratory arrest;<br>▸ heart: collapse, irregular heartbeats and cardiac arrest;<br>▸ gastrointestinal: irritation, ulcers, nausea and vomiting (may be bloody), and abdominal pain.<br>Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved.<br>Depression of the central nervous system is the most outstanding effect of most halogenated aliphatic hydrocarbons. Inebriation and excitation, passing into narcosis, is a typical reaction. In severe acute exposures there is always a danger of death from respiratory failure or cardiac arrest due to a tendency to make the heart more susceptible to catecholamines (adrenalin)<br>**WARNING**:Intentional misuse by concentrating/inhaling contents may be lethal. |
| **Ingestion** | Strong evidence exists that exposure to the material may cause irreversible damage (other than cancer, mutations and birth defects) following a single exposure by swallowing.<br>Not normally a hazard due to physical form of product.<br>Considered an unlikely route of entry in commercial/industrial environments |


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| | Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.<br>Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. |
| **Skin Contact** | There is strong evidence to suggest that this material, on a single contact with skin, can cause serious, irreversible damage of organs.<br>The material may accentuate any pre-existing dermatitis condition<br>Spray mist may produce discomfort<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.<br>There is some evidence to suggest that the material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering. |
| **Eye** | Not considered to be a risk because of the extreme volatility of the gas.<br>Exposure to isomer acetylene dichloride at 2200 ppm caused burning of the eyes, dizziness and nausea. Reversible corneal clouding also has been described.<br>The vapour when concentrated has pronounced eye irritation effects and this gives some warning of high vapour concentrations. If eye irritation occurs seek to reduce exposure with available control measures, or evacuate area.<br>There is some evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure. |
| **Chronic** | Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.<br>The reactivity of an epoxide intermediate may be the reason for the cancer-causing properties of halogenated oxiranes. It is reported that 1,1-dichloroethyne, vinyl chloride, trichloroethylene, tetrachloroethylene and chloroprene all cause cancer.<br>Generally speaking, substances with one halogen substitution show higher potential to cause cancer compared to substances with two.<br>Main route of exposure to the gas in the workplace is by inhalation.<br>There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. |

### Environmental Hazards

See Section 12

### Other hazards

Cumulative effects may result following exposure*.
May produce discomfort of the respiratory system and skin*.

Limited evidence of a carcinogenic effect*.
Repeated exposure potentially causes skin dryness and cracking*.
*LIMITED EVIDENCE

No further product hazard information.

## SECTION 3 Composition / information on ingredients

### Substances

See section below for composition of Mixtures

### Mixtures

| CAS No | %[weight] | Name |
|---|---|---|
| 156-60-5 | >=90 | trans-acetylene dichloride |
| 124-38-9 | 1-10 | carbon dioxide, solid |
| **Legend:** | 1. Classified by Chemwatch; 2. China Catalogue of Hazardous Chemicals; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available | |

## SECTION 4 First aid measures

### Description of first aid measures

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| **Eye Contact** | If aerosols come in contact with the eyes:<br>▸ Immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes with fresh running water.<br>▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.<br>▸ Transport to hospital or doctor without delay.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If solids or aerosol mists are deposited upon the skin:<br>▸ Flush skin and hair with running water (and soap if available).<br>▸ Remove any adhering solids with industrial skin cleansing cream.<br>▸ **DO NOT** use solvents.<br>▸ Seek medical attention in the event of irritation. |
| **Inhalation** | If aerosols, fumes or combustion products are inhaled:<br>▸ Remove to fresh air.<br>▸ Lay patient down. Keep warm and rested.<br>▸ If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.<br>▸ Transport to hospital, or doctor. |
| **Ingestion** | Not considered a normal route of entry.<br>If poisoning occurs, contact a doctor or Poisons Information Centre.<br>▸ Avoid giving milk or oils.<br>▸ Avoid giving alcohol. |

### Advise for rescue team (PPE requirement for rescue personnel)


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**Indication of any immediate medical attention and special treatment needed**

for intoxication due to Freons/ Halons;
A: Emergency and Supportive Measures
- Maintain an open airway and assist ventilation if necessary
- Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
- Monitor the ECG for 4-6 hours

B: Specific drugs and antidotes:
- There is no specific antidote

C: Decontamination
- Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- Ingestion; (a) Prehospital: Administer activated charcoal, if available. **DO NOT** induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

D: Enhanced elimination:
- There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.

POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition
- Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
- No specific antidote.
- Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
- If lavage is performed, suggest endotracheal and/or esophageal control.
- Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
- Treatment based on judgment of the physician in response to reactions of the patient

Treat symptomatically.
- Acute exposures to carbon tetrachloride present, initially, with CNS depression followed by hepatic and renal dysfunction.
- Respiratory depression and cardiac dysrhythmias are an immediate threat to life.
- Since a major fraction of absorbed carbon tetrachloride is exhaled in the first hour, good tidal volumes should be maintained in severely poisoned patients; hyperventilation may be an additional therapeutic modality.
- Ipecac syrup, lavage, activated charcoal or catharsis may all be used in the first 4 hours.
- Since reactive metabolites may cause hepatorenal toxicity, administration of N-acetyl-L-cysteine may reduce complications. Experience with this therapy is limited. [Ellenhorn and Barceloux: Medical Toxicology]

## SECTION 5 Firefighting measures

**Extinguishing media**

**SMALL FIRE:**
- Water spray, dry chemical or CO2

**LARGE FIRE:**
- Water spray or fog.

**Special hazards arising from the substrate or mixture**

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| **Fire Incompatibility** | ‣ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |

**Advice for firefighters**

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| **Fire Fighting** | ‣ Alert Fire Brigade and tell them location and nature of hazard.<br>‣ May be violently or explosively reactive.<br>‣ Wear breathing apparatus plus protective gloves.<br>‣ Prevent, by any means available, spillage from entering drains or water course.<br>‣ If safe, switch off electrical equipment until vapour fire hazard removed.<br>‣ Use water delivered as a fine spray to control fire and cool adjacent area.<br>‣ **DO NOT** approach containers suspected to be hot.<br>‣ Cool fire exposed containers with water spray from a protected location.<br>‣ If safe to do so, remove containers from path of fire.<br>‣ Equipment should be thoroughly decontaminated after use. |
| **Fire/Explosion Hazard** | Combustion products include:<br>,<br>‣ carbon dioxide (CO2)<br>‣ Liquid and vapour are highly flammable.<br>‣ Severe fire hazard when exposed to heat or flame.<br>‣ Vapour forms an explosive mixture with air.<br>‣ Severe explosion hazard, in the form of vapour, when exposed to flame or spark.<br>‣ Vapour may travel a considerable distance to source of ignition.<br>‣ Heating may cause expansion or decomposition with violent container rupture.<br>‣ Aerosol cans may explode on exposure to naked flames.<br>‣ Rupturing containers may rocket and scatter burning materials.<br>‣ Hazards may not be restricted to pressure effects.<br>‣ May emit acrid, poisonous or corrosive fumes.<br>‣ On combustion, may emit toxic fumes of carbon monoxide (CO).<br>,<br>‣ carbon monoxide (CO)<br>,<br>hydrogen chloride<br>,<br>phosgene<br>,<br>‣ other pyrolysis products typical of burning organic material.<br>**Contains low boiling substance:** Closed containers may rupture due to pressure buildup under fire conditions. |

## SECTION 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

See section 8

**Measures for Preventing Secondary Contamination**


Continued...

Refer to section above

**Environmental precautions**

See section 12

**Methods and material for containment and cleaning up**

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| **Minor Spills** | ‣ Clean up all spills immediately.<br>‣ Avoid breathing vapours and contact with skin and eyes.<br>‣ Wear protective clothing, impervious gloves and safety glasses.<br>‣ Shut off all possible sources of ignition and increase ventilation.<br>‣ Wipe up.<br>‣ If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated.<br>‣ Undamaged cans should be gathered and stowed safely. |
| **Major Spills** | ‣ Clear area of all unprotected personnel and move upwind.<br>‣ Alert Emergency Authority and advise them of the location and nature of hazard.<br>‣ May be violently or explosively reactive.<br>‣ Wear full body clothing with breathing apparatus.<br>‣ Prevent by any means available, spillage from entering drains and water-courses.<br>‣ Consider evacuation.<br>‣ Shut off all possible sources of ignition and increase ventilation.<br>‣ No smoking or naked lights within area.<br>‣ Use extreme caution to prevent violent reaction.<br>‣ Stop leak only if safe to so do.<br>‣ Water spray or fog may be used to disperse vapour.<br>‣ DO NOT enter confined space where gas may have collected.<br>‣ Keep area clear until gas has dispersed.<br>‣ Remove leaking cylinders to a safe place.<br>‣ Fit vent pipes. Release pressure under safe, controlled conditions<br>‣ Burn issuing gas at vent pipes.<br>‣ DO NOT exert excessive pressure on valve; DO NOTattempt to operate damaged valve.<br>‣ Clear area of personnel and move upwind.<br>‣ Alert Fire Brigade and tell them location and nature of hazard.<br>‣ May be violently or explosively reactive.<br>‣ Wear breathing apparatus plus protective gloves.<br>‣ Prevent, by any means available, spillage from entering drains or water courses<br>‣ No smoking, naked lights or ignition sources.<br>‣ Increase ventilation.<br>‣ Stop leak if safe to do so.<br>‣ Water spray or fog may be used to disperse / absorb vapour.<br>‣ Absorb or cover spill with sand, earth, inert materials or vermiculite.<br>‣ If safe, damaged cans should be placed in a container outdoors, away from ignition sources, until pressure has dissipated.<br>‣ Undamaged cans should be gathered and stowed safely.<br>‣ Collect residues and seal in labelled drums for disposal. |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

**Precautions for safe handling**

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| **Safe handling** | ‣ Avoid skin contact, including inhalation.<br>‣ Wear protective clothing when risk of exposure occurs.<br>‣ Use in a well-ventilated area.<br>‣ Prevent concentration in hollows and sumps.<br>‣ **DO NOT** enter confined spaces until atmosphere has been checked.<br>‣ Avoid smoking, naked lights or ignition sources.<br>‣ Avoid contact with incompatible materials.<br>‣ When handling, **DO NOT** eat, drink or smoke.<br>‣ **DO NOT** incinerate or puncture aerosol cans.<br>‣ **DO NOT** spray directly on humans, exposed food or food utensils.<br>‣ Avoid physical damage to containers.<br>‣ Always wash hands with soap and water after handling.<br>‣ Work clothes should be laundered separately.<br>‣ Use good occupational work practice.<br>‣ Observe manufacturer's storage and handling recommendations contained within this SDS.<br>‣ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.<br>‣ **DO NOT** allow clothing wet with material to stay in contact with skin |
| **Other information** | ‣ Store in original containers.<br>‣ Keep containers securely sealed.<br>‣ Store in a cool, dry area protected from environmental extremes.<br>‣ Store away from incompatible materials and foodstuff containers.<br>‣ Protect containers against physical damage and check regularly for leaks.<br>‣ Observe manufacturer's storage and handling recommendations contained within this SDS.<br>For major quantities:<br>‣ Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams}.<br>‣ Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.<br>· Do NOT store halogenated aliphatics in areas containing alkali or alkaline earth metals such as powdered aluminum, zinc, or beryllium<br>‣ Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can<br>‣ Store in original containers in approved flammable liquid storage area.<br>‣ **DO NOT** store in pits, depressions, basements or areas where vapours may be trapped.<br>‣ No smoking, naked lights, heat or ignition sources.<br>‣ Keep containers securely sealed. Contents under pressure.<br>‣ Store away from incompatible materials.<br>‣ Store in a cool, dry, well ventilated area.<br>‣ Avoid storage at temperatures higher than 40 deg C.<br>‣ Store in an upright position. |


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