SECTION 1: IDENTIFICATION

1.1 Product identifier
Product Name: CSM-3
Chemical Name: Mixture
CAS No.: Mixture
EINECS No.: Mixture
REACH Registration No.: None assigned.

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified Use(s): Metal surface treatment products, including galvanic and electroplating products.
Uses Advised Against: None known.

1.3 Details of the supplier of the safety data sheet
Company Identification: VISHAY MEASUREMENTS GROUP, INC.
Post Office Box 27777
Raleigh, NC 27611
USA
Telephone: 919-365-3800
Fax: 919-365-3945
E-Mail (competent person): mm.us@vishaypg.com

1.4 Emergency telephone number
1-800-424-9300
CHEMTREC

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
2.1.1 GHS Classification
Flam. Aerosol 1; H222
Acute Tox. 4; H332
Aquatic Chronic 3; H412

2.2 Label elements
Product Name: CSM-3
Hazard Pictogram(s):

![Hazard Pictograms]

Signal Word(s): Danger
Contains: Trans-Dichloroethylene

Hazard Statement(s):
H222: Extremely flammable aerosol.
H229: Pressurised container: May burst if heated.
H332: Harmful if inhaled.
H412: Harmful to aquatic life with long lasting effects.

Precautionary Statement(s):
P261: Avoid breathing spray.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312: Call a POISON CENTER/doctor if you feel unwell.
P273: Avoid release to the environment.

ADD Label elements:
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.
P410+P412: Protect from sunlight. Do no expose to temperatures exceeding...
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances Not applicable.

3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical identity of the substance</th>
<th>%W/W</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Hazard classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trans-Dichloroethylene</td>
<td>&gt; 90</td>
<td>156-60-5</td>
<td>205-860-2</td>
<td>Flam. Liq. 2; H225</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>1-10</td>
<td>124-38-9</td>
<td>204-696-9</td>
<td>Acute Tox. 4; H332</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Chronic 3; H412</td>
</tr>
</tbody>
</table>

For full text of H/P Statements see section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Call a POISON CENTER/doctor if you feel unwell.

Skin Contact
IF ON SKIN: Gently wash with plenty of soap and water. Remove contaminated clothing and wash clothing before reuse. If symptoms develop, obtain medical attention.

Eye Contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Flush eyes with water for at least 15 minutes. Get medical attention if eye irritation develops or persists.

Ingestion
IF SWALLOWED: Rinse mouth. Do not give anything by mouth to an unconscious person. Do not induce vomiting. If symptoms develop, obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Harmful if inhaled. Ingestion may cause irritation of the gastrointestinal tract. May cause dizziness.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing media
As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical. Keep container(s) exposed to fire cool, by spraying with water.

Unsuitable extinguishing media
Do not use water jet. Do not direct a solid stream of water or foam into hot burning pools; this may cause spattering and increase fire intensity.

5.2 Special hazards arising from the substance or mixture

Extremely flammable aerosol. Thermal decomposition will evolve toxic and corrosive vapours. Carbon dioxide, Carbon monoxide, Phosgene and Hydrogen chloride. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. Sealed containers may rupture explosively if
5.3 Advice for fire-fighters

Firefighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Stop leak if safe to do so. Eliminate all ignition sources if safe to do so. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing mist/vapours/spray. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. See Section: 8. The vapour is heavier than air; beware of pits and confined spaces.

6.2 Environmental precautions

Avoid release to the environment. Do not allow to enter drains, sewers or watercourses.

6.3 Methods and material for containment and cleaning up

Ensure suitable personal protection during removal of spillages. Use non-sparking equipment when picking up flammable spill. Adsorb spillages onto sand, earth or any suitable absorbent material. Do NOT absorb in saw-dust or other combustible absorbents. Transfer to a lidded container for disposal or recovery. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste. Allow small spillages to evaporate provided there is adequate ventilation.

6.4 Reference to other sections

See Section: 8, 13

### SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Ensure adequate ventilation. Avoid breathing mist/vapours/spray. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. See Section: 8. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Do not use sparking tools. Do not spray on an open flame or other ignition source. Pressurised container - Do not pierce or burn, even after use. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight. Do not reuse empty containers.

Storage temperature

Keep cool. Do not expose to temperatures exceeding 50°C/122°F.

Storage life

Stable under normal conditions.

Incompatible materials

Isolate from reducers and flammable/combustible materials etc in storage. Keep away from: Strong oxidising agents, Acids and Alkalis.

7.3 Specific end use(s)

Metal surface treatment products, including galvanic and electroplating products.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>LTEL (8 hr TWA mg/m³)</th>
<th>STEL (ppm)</th>
<th>STEL (mg/m³)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>124-38-9</td>
<td>5000</td>
<td>9000</td>
<td>-</td>
<td>-</td>
<td>OSHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5000</td>
<td>-</td>
<td>30000</td>
<td>-</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Note: OSHA PELs 1910.1000 TABLE Z-1/ACGIH TLVs

The other components listed in Section 3 do not have occupational exposure limits.

8.1.2 Biological limit value

Not established.
8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems.

8.2.2 Individual protection measures, such as personal protective equipment (PPE)

General hygiene measures for the handling of chemicals are applicable. Avoid contact with skin, eyes or clothing. Avoid breathing mist/vapours/spray. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be thoroughly cleaned. Do not eat, drink or smoke at the work place.

Eye/ face protection

Wear eye protection with side protection.

Skin protection

Hand protection: Not normally required. Wear suitable gloves if prolonged skin contact is likely. Breakthrough time of the glove material: refer to the information provided by the gloves’ producer.

Body protection: Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Recommended: Wear work clothes with long sleeves.

Respiratory protection

Use only in well-ventilated areas. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid inhalation of high concentrations of vapours.

High concentrations: Use NIOSH approved respiratory protection. Recommended: Self-contained breathing apparatus. Not applicable.

8.2.3 Environmental Exposure Controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Colourless liquid

Odour

Sharp, Harsh

Odour threshold

17 ppm

pH

Not established.

Melting point/freezing point

-50 °C

Initial boiling point and boiling range

48 °C

Flash point

2 – 4 °C

Evaporation rate

2.80

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits

9.7 – 12.8 %

Vapour pressure

Not determined.

Vapour density

Not determined.

Relative density

1.28 g/ml @ 20 °C

Solubility(ies)

Soluble in water. 6.3 mg/ml @ 25 °C

Partition coefficient: n-octanol/water

Not established.

Auto-ignition temperature

Not established.

 Decomposition Temperature

Not established.

Viscosity

Not explosive.

Explosive properties

Not oxidising.

9.2 Other information

Volatile Organic Compound Content (%): 96
## SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 Stability and reactivity</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>10.2 Chemical stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>10.3 Possibility of hazardous reactions</td>
<td>Extremely flammable aerosol. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.</td>
</tr>
<tr>
<td>10.4 Conditions to avoid</td>
<td>Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep from direct sunlight. Do not expose to temperatures exceeding 50°C/ 122°F. Do not spray on an open flame or other ignition source. Take precautionary measures against static discharge.</td>
</tr>
<tr>
<td>10.5 Incompatible materials</td>
<td>Isolate from reducers and flammable/ combustible materials etc in storage.</td>
</tr>
<tr>
<td>10.6 Hazardous decomposition product(s)</td>
<td>Thermal decomposition will evolve toxic and corrosive vapours. Carbon dioxide, Carbon monoxide, Phosgene and Hydrogen chloride.</td>
</tr>
</tbody>
</table>

## SECTION 11: TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1 Information on toxicological effects (Substances in preparations / mixtures)</td>
<td>Acute toxicity</td>
</tr>
<tr>
<td></td>
<td>Ingestion Based upon the available data, the classification criteria are not met. Akute Toxicity Estimate Mixture Calculation: Estimated LC50 &gt; 2000 mg/kg bw/day.</td>
</tr>
<tr>
<td></td>
<td>Inhalation Acute Tox. 4; Harmful if inhaled.</td>
</tr>
<tr>
<td></td>
<td>Skin Contact Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 11 mg/l.</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>STOT - single exposure</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>STOT - repeated exposure</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Based upon the available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Information on likely routes of exposure</td>
<td>Inhalation Harmful if inhaled. May cause dizziness.</td>
</tr>
<tr>
<td></td>
<td>Ingestion Ingestion may cause irritation of the gastrointestinal tract.</td>
</tr>
<tr>
<td></td>
<td>Skin Contact No additional information available.</td>
</tr>
<tr>
<td></td>
<td>Eye Contact No additional information available.</td>
</tr>
<tr>
<td>11.2 Other information</td>
<td>NTP Report on Carcinogens None of the components are listed.</td>
</tr>
<tr>
<td></td>
<td>IARC Monographs None of the components are listed.</td>
</tr>
<tr>
<td></td>
<td>Carcinogenic according to OSHA None of the components are listed.</td>
</tr>
</tbody>
</table>

## SECTION 12: ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1 Ecotoxicity</td>
<td>Aquatic Chronic 3: Harmful to aquatic life with long lasting effects. Estimated Mixture LC50 &gt;10 ≤ 100 mg/l (Fish)</td>
</tr>
<tr>
<td>12.2 Persistence and degradability</td>
<td>No data for the mixture as a whole.</td>
</tr>
<tr>
<td>12.3 Bioaccumulative potential</td>
<td>No data for the mixture as a whole.</td>
</tr>
<tr>
<td>12.4 Mobility in soil</td>
<td>The product is predicted to have high mobility in soil (Highly volatile. May evaporate quickly.)</td>
</tr>
<tr>
<td>12.5 Other adverse effects</td>
<td>Not classified as PBT or vPvB. None of the substances in this product fulfill the criteria for being regarded as a PBT or vPvB substance.</td>
</tr>
</tbody>
</table>
SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
This material and its container must be disposed of as hazardous waste. Dispose of contents in accordance with local, state or national legislation. Containers of this material may be hazardous when empty since they retain product residue. Dispose of wastes in an approved waste disposal facility. Do not reuse empty containers. Do not pierce or burn container, even after use.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number
UN 1950

14.2 UN proper shipping name
AEROSOLS, flammable

14.3 Transport hazard class(es)
2

14.4 Packing group
None assigned.

14.5 Environmental hazards
Not classified as a Marine Pollutant. / Environmentally hazardous substance

14.6 Special precautions for user
See Section: 2

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

14.8 Additional Information
Recommended: Road/Rail/Sea transport only.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1 OSHA Occupational Safety and Health Standards
None.

15.1.2 European regulations

Substance(s) of Very High Concern (SVHCs)
None.

Authorisations and/or Restrictions On Use
None.

Wassergefährdungsklasse (Germany)
Water hazard class: 2

15.2 Chemical Safety Assessment
Not available.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

Version
1.0

Revision date
29.09.15

Date of preparation
29.09.15

References: Existing Safety Data Sheet (SDS), Harmonised Classification(s) for Trans-Dichloroethylene (CAS# 156-60-5), and the Classification and Labelling Inventory for Carbon dioxide (CAS# 124-38-9).

<table>
<thead>
<tr>
<th>GHS Classification of the substance or mixture</th>
<th>Classification Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Aerosol 1; H222</td>
<td>In accordance with Regulation (EC) No. 1272/2008 (CLP) 2.3.2.2</td>
</tr>
<tr>
<td>Acute Tox. 4; H332</td>
<td>Acute Toxicity Estimate Mixture Calculation</td>
</tr>
<tr>
<td>Aquatic Chronic 3; H412</td>
<td>Summation Calculation</td>
</tr>
</tbody>
</table>

LEGEND
ACGIH: American Conference of Governmental Industrial Hygienists
IARC: International Agency for Research on Cancer
LTEL: Long Term Exposure Limit
NTP: National Toxicology Program
PBT: Persistent, Bioaccumulative and Toxic
PELs: Permissible Exposure Limits
STEL: Short Term Exposure Limit
TLVs: Threshold limit values
OSHA: The Occupational Safety & Health Administration

vPvB: very Persistent and very Bioaccumulative

Hazard Statement(s)

H222: Extremely flammable aerosol.

H332: Harmful if inhaled.

H229: Pressurised container: May burst if heated.

H412: Harmful to aquatic life with long lasting effects.

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Disclaimers

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Annex to the extended Safety Data Sheet (eSDS)

No information available.