

# SAFETY DATA SHEET

CSM-3

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP)  
& 2020/878

Date of issue: 06/01/2023  
Date of First Issue: 18/02/2014  
Version 3.0

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

<b>1.1 Product identifier</b>		
Product Name	CSM-3	
Product Code	Not applicable	
Unique Formula Identifier (UFI)	Not applicable	
Nanoform	The product does not contain nanoparticles.	
<b>1.2 Relevant identified uses of the substance or mixture and uses advised against</b>		
Identified Use(s)	Metal surface treatment products, including galvanic and electroplating products	
Uses Advised Against	None Known	
<b>1.3 Details of the supplier of the safety data sheet</b>		
Company Identification	VISHAY MEASUREMENTS GROUP GMBH Tatschenweg 1 74078 Heilbronn Deutschland	
Telephone	+49 (0) 7131 39099-0	
Fax	+49 (0) 7131 39099-229	
E-Mail (competent person)	mm.de@vpgsensors.com	
<b>1.4 Emergency telephone number</b>		
National Poisons Information Service (United Kingdom)	+44 (0) 3448 920111	24 hr. emergency phone number Healthcare Professionals ONLY Members of Public CHEMTREC (24 hours)
NHS 24	111	
Emergency Phone No.	(00-1) 703-527-3887	
Languages spoken	All official European languages.	

## SECTION 2: HAZARDS IDENTIFICATION

<b>2.1 Classification of the substance or mixture</b>		
<b>2.1.1 Regulation (EC) No. 1272/2008 (CLP)</b>	Aerosol 1; H222, H229 Eye Irrit. 2; H319 Acute Tox. 4; H332 STOT SE 3; H336 Aquatic Chronic 3; H412	
<b>2.2 Label elements</b>		
Product Name	CSM-3	
Hazard Pictogram(s)	 	
Signal Word(s)	DANGER	
Contains:	Trans-dichloroethylene	
Hazard Statement(s)	H222: Extremely flammable aerosol. H229: Pressurised container: May burst if heated. H319: Causes serious eye irritation. H332: Harmful if inhaled.	

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H336: May cause drowsiness or dizziness.  
H412: Harmful to aquatic life with long lasting effects.

Precautionary Statement(s)

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: Pressurized container: Do not pierce or burn, even after use.  
P410+P412: Protect from sunlight. Do not expose to temperatures exceeding 50 °C.  
P261: Avoid breathing mist/vapours/spray.  
P312: Call a POISON CENTER/doctor if you feel unwell.

Supplemental information

None assigned

2.3 Other hazards

May cause cardiac arrhythmia. Ingestion may cause irritation of the gastrointestinal tract.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances - Not applicable.

3.2 Mixtures

EC Classification Regulation (EC) No. 1272/2008 (CLP)

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard classification
Trans-dichloroethylene	>60 - <100	156-60-5	205-860-2	Not yet assigned in the supply chain	Flam. Liq. 2; H225 Eye Irrit. 2; H319 Acute Tox. 4; H332 STOT SE 3; H336 Aquatic Chronic 3; H412
Carbon dioxide	>1 - <10	124-38-9	204-696-9	Not yet assigned in the supply chain	Press. Gas (compressed gas); H280

Note: For full text of H phrases see section 16.

## SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

Avoid breathing mist/vapours/spray. Ensure adequate ventilation. Wear suitable protective clothing. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Avoid contact with skin. Contaminated clothing should be laundered before reuse. Do not use mouth-to-mouth resuscitation. Eyewash facilities should be stationed close to workplace where possible.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Call a POISON CENTER/doctor if you feel unwell.

Inhalation

Skin Contact

IF ON SKIN: Gently wash with plenty of soap and water. Remove contaminated clothing and wash clothing before reuse. If irritation (redness, rash, blistering) develops, get 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. If eye irritation persists: Get medical advice/attention.

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Ingestion	IF SWALLOWED: Rinse mouth. Do not give anything by mouth to an unconscious person. Do NOT induce vomiting. If symptoms occur obtain medical attention.
<b>4.2 Most important symptoms and effects, both acute and delayed</b>	Causes serious eye irritation. Harmful if inhaled. May cause drowsiness or dizziness. May cause cardiac arrhythmia. Ingestion may cause irritation of the gastrointestinal tract.
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>	Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

<b>5.1 Extinguishing media</b> Suitable Extinguishing media	As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical.
Unsuitable extinguishing media	Do not use water jet. Direct water jet may spread the fire.
<b>5.2 Special hazards arising from the substance or mixture</b>	Extremely flammable aerosol. Vapours can form explosive mixtures with air. Containers may explode when involved in a fire. Keep container(s) exposed to fire cool, by spraying with water. 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 hot.
<b>5.3 Advice for fire-fighters</b>	Fire fighters 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

<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	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.
<b>6.2 Environmental precautions</b>	Avoid release to the environment. Do not allow to enter drains, sewers or watercourses.
<b>6.3 Methods and material for containment and cleaning up</b>	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 adsorbent 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.
<b>6.4 Reference to other sections</b>	See Section: 8, 13

## SECTION 7: HANDLING AND STORAGE

<b>7.1 Precautions for safe handling</b>	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.
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	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.

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Storage temperature  
Storage life  
Incompatible materials

Keep cool. Do not expose to temperatures exceeding 50°C/ 122°F.  
Stable under normal conditions.  
Isolate from reducers and flammable/ combustible materials etc in storage. Keep away from: Strong oxidising agents, Acids and Alkalis.  
See Section: 1.2.

### 7.3 Specific end use(s)

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### 8.1.1 Occupational Exposure Limits

United Kingdom

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
Carbon dioxide	124-38-9	5000	9150	15000	27400	-

Source: UK WEL: Workplace Exposure Limit (UK HSE EH40)

Ireland

SUBSTANCE	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
Carbon dioxide	124-38-9	5000	9000	-	-	IOELV

Source: 2021 Code of Practice for Safety, Health and Welfare at Work (Chemical Agents) Regulation (2001 – 2021) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001 – 2019); Health and Safety Authority

Notations:

IOELV: Indicative Occupational Exposure Limit Value

#### 8.1.2 Biological limit value

Not established.

#### 8.1.3 PNECs and DNELs

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. Local exhaust recommended. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems. Eyewash facilities should be stationed close to workplace where possible.

#### 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.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Eye/ face protection



Skin protection

Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection (EN166).

#### Hand protection:

Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the

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information provided by the gloves' producer. Recommended: PVC / Nitrile rubber.

Respiratory protection



**Body protection:**

Wear dustproof working clothes. Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Use only in well-ventilated areas. In case of inadequate ventilation wear respiratory protection. A suitable mask with filter type A (EN141 or EN405) may be appropriate.

High concentrations: Wear suitable respiratory equipment. Recommended: Self-contained breathing apparatus (DIN EN 137)

Thermal hazards

Not applicable

**8.2.3 Environmental exposure controls**

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

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**9.1 Information on basic physical and chemical properties**

Physical state	Liquid
Colour	Colourless
Odour	Sharp, Harsh
Melting point and freezing point	- 50 °C
Boiling point or initial boiling point and boiling range	48 °C
Flammability	Not applicable
Lower and upper explosion limit or lower and upper flammability limit	9.7 – 12.8 %
Flash point	2 – 4 °C
Auto-ignition temperature	Not established.
Decomposition temperature	Not established.
pH	Not established.
Kinematic viscosity	Not established.
Solubility	Soluble in water. 6.3 mg/ml @ 25 °C
Partition coefficient: n-octanol/water (log value)	Not established.
Vapour pressure	Not determined.
Density and/or relative density	1.28 g/ml @ 20 °C
Relative vapour density	Not determined.
Particle characteristics	Not applicable - Liquid

**9.2 Other information**

Explosive properties	Not explosive
Oxidising properties	Not oxidising.
Volatile Organic Compound Content	96%
Evaporation Rate	2.80

## SECTION 10: STABILITY AND REACTIVITY

<b>10.1 Reactivity</b>	Stable under normal conditions.
<b>10.2 Chemical stability</b>	Stable under normal conditions.
<b>10.3 Possibility of hazardous reactions</b>	Extremely flammable aerosol. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.
<b>10.4 Conditions to avoid</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep from direct sunlight. Do not expose to temperatures

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10.5	Incompatible materials	exceeding 50°C/ 122°F. Do not spray on an open flame or of her ignition source. Take precautionary measures against static discharge.
10.6	Hazardous decomposition product(s)	Isolate from reducers and flammable/ combustible materials etc in storage. Keep away from: Strong oxidising agents, Acids and Alkalies. Thermal decomposition will evolve toxic and corrosive vapours. Carbon dioxide, Carbon monoxide, Phosgene and Hydrogen chloride.

## SECTION 11: TOXICOLOGICAL INFORMATION

11.1	<b>Information on hazard classes as defined in Regulation (EC) No 1272/2008</b>	
	<b>Acute toxicity</b>	
	Ingestion	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated Estimated LD50 > 2000 mg/kg bw/day
	Inhalation	Mixture: Acute Tox. 4; H332: Harmful if inhaled. Acute Toxicity Estimate Mixture Calculation: Estimated LC50: >10 – ≤20 mg/l
	Trans-dichloroethylene	Acute Tox. 4; H332: Harmful if inhaled. EU Harmonised Classification.
	Skin Contact	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LD50 > 2000 mg/kg bw/day
	<b>Skin corrosion/irritation</b>	Based upon the available data, the classification criteria are not met.
	<b>Serious eye damage/irritation</b>	Mixture: Eye Irrit. 2; H319
	Trans-dichloroethylene	Serious eye damage/irritation, Category 2 Irritating to eyes. (rabbit) – OECD 405
	<b>Respiratory or skin sensitization</b>	Mixture: Based upon the available data, the classification criteria are not met.
	<b>Germ cell mutagenicity</b>	Mixture: Based upon the available data, the classification criteria are not met.
	<b>Carcinogenicity</b>	Mixture: Based upon the available data, the classification criteria are not met.
	<b>Reproductive toxicity</b>	Mixture: Based upon the available data, the classification criteria are not met.
	<b>STOT - single exposure</b>	Mixture: STOT SE 3; H336: May cause drowsiness or dizziness.
	Trans-dichloroethylene	STOT SE 3; H336: May cause drowsiness or dizziness. ECHA registration dossier
	<b>STOT - repeated exposure</b>	Mixture: Based upon the available data, the classification criteria are not met.
	<b>Aspiration hazard</b>	Mixture: Based upon the available data, the classification criteria are not met.
11.2	<b>Information on other hazards</b>	
11.2.1	Endocrine disrupting properties	This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.
11.2.2	Other information	None

## SECTION 12: ECOLOGICAL INFORMATION

12.1	<b>Toxicity</b>	Mixture: Aquatic Chronic 3; H412: Harmful to aquatic life with long lasting effects.
	Trans-dichloroethylene	Aquatic Chronic 3; H412: Harmful to aquatic life with long lasting effects. EC50 (48 hour) 36.36mg/L (Algae)
12.2	<b>Persistence and degradability</b>	No data for the mixture as a whole.
	Trans-dichloroethylene	Readily biodegradable.
	Carbon dioxide	Readily biodegradable.
12.3	<b>Bioaccumulative potential</b>	No data for the mixture as a whole.
	Trans-dichloroethylene	The substance has low potential for bioaccumulation. Log KOW <3
	Carbon dioxide	No data available
12.4	<b>Mobility in soil</b>	No data for the mixture as a whole.
	Trans-dichloroethylene	Can be waived on basis of low partition coefficient
	Carbon dioxide	No data available
12.5	<b>Results of PBT and vPvB assessment</b>	Not classified as PBT or vPvB.
12.6	<b>Endocrine disrupting properties</b>	This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

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12.7 Other adverse effects None known

## SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods This material and its container must be disposed of as hazardous waste. Dispose of wastes in an approved waste disposal facility.  
Waste classification according to Directive 2008/98/EC (Waste Framework Directive): HP4, HP5, HP6, HP14

13.2 Additional Information Dispose of contents in accordance with local, state or national legislation.

## SECTION 14: TRANSPORT INFORMATION

	ADR/RID	ADN	IMDG	IATA/CAO
14.1 UN number or ID number	UN 1950	UN 1950	UN 1950	UN 1950
14.2 UN proper shipping name	AEROSOLS, flammable	AEROSOLS, flammable	AEROSOLS, flammable	AEROSOLS, flammable
14.3 Transport hazard class(es)	2	2	2.1	2.1
14.4 Packing group	None assigned	None assigned	None assigned	None assigned
14.5 Environmental hazards	Not applicable	Not applicable	Not classified as a Marine Pollutant.	Not applicable
14.6 Special precautions for user	See Section: 2			
14.7 Maritime transport in bulk according to IMO instruments	Not applicable	Not applicable	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 EU regulations

Aerosol is packaged in accordance with Aerosol Dispensers Directive Council Directive 75/324/EEC, as amended. Inverted epsilon labelling '3' certifies conformity

Use restriction according to REACH annex XVII, no.: Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]  
Restrictions of occupation:

Not restricted  
P3b

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).  
Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.  
Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work

To follow:

15.1.2 National regulations  
Germany  
Water hazard class (WGK)

15.2 Chemical Safety Assessment

Water hazard class: 2  
A REACH chemical safety assessment has not been carried out.

## SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: New SDS Regulation 2020/878 format, all sections have been updated to include new information. Please review SDS with care.

References:

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Existing Safety Data Sheet (SDS).

Harmonised Classification and Existing ECHA registration(s) for Trans-dichloroethylene (CAS No. 156-60-5); EU classification and labelling inventory for Carbon dioxide (CAS No. 124-38-9).

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

Classification of the substance or mixture According to Regulation (EC) No. 1272/2008 (CLP)	Classification Procedure
Aerosol 1; H222, H229	Expert judgement
Eye Irrit. 2; H319	Threshold Calculation
Acute Tox. 4; H332	Acute Toxicity Estimate (ATE) Calculation.
STOT SE 3; H336	Threshold Calculation
Aquatic Chronic 3; H412	Summation Calculation

### LEGEND

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
BCF	Bioconcentration factor (BCF)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived no effect level
EU	European Union
EC	European Community
ECHA	European Chemicals Agency
EN	European Standard
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
LC50	Lethal concentration at which 50% of the population is killed
LD50	Lethal dose at which 50% of the population is killed
LTEL	Long term exposure limit
NOAEC	No observed adverse effect concentration
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Cooperation and Development
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
TWA	Time Weighted Average
STEL	Short term exposure limit
vPvB	very Persistent and very Bioaccumulative
UK	United Kingdom
UN	United Nations

### Hazard classification / Classification code:

Aerosols Category 1

Flam. Liq. 2; Flammable liquid, Category 2

Acute Tox. 4; Acute toxicity, Category 4

Skin Irrit. 2 ; Skin corrosion/irritation, Category 2

Eye Irrit. 2; Serious eye damage/irritation, Category 2

STOT SE 3; Specific target organ toxicity — single exposure, Category 3

Aquatic Chronic 3; Hazardous to the aquatic environment, Chronic ,  
Category 3

### Hazard Statement(s)

H222 H229: Extremely flammable aerosol. Pressurized container: May burst if heated.

H225: Highly flammable liquid and vapour.

H332: Harmful if inhaled.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H412: Harmful to aquatic life with long lasting effects.



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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.

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