Safety Data Sheet

M-Bond 600-610 Curing Agent LVOC

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

www.vpgsensors.com
Date of issue:23/06/2023
Date of First Issue: 23/06/2023
Version 1.0

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

1.1 Product identifier

Product name	M-Bond 600-610 Curing Agent LVOC
Product code	Not applicable
Unique Formula Identifier (UFI)	Not applicable
Nanoform	The product does not contain nanoparticles.

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

Identified Use(s)	Adhesive
Uses advised against	Anything other than the above.

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

National Poisons Information Service (United Kingdom)	+44 (0) 3448 920111	24 hr. emergency phone number Healthcare Professionals ONLY
NHS 24	111	Members of Public
Emergency Phone No.	(00-1) 703-527-3887	CHEMTREC (24 hours)
Languages spoken	All official European languages.	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Flam. Liq. 2; H225
Skin Sens. 1 ; H317
Eye Dam. 1; H318
Resp. Sens. 1; H334
STOT SE 3; H335
STOT SE 3; H336
Carc. 2; H351

2.2 Label elements — According to Regulation (EC) No. 1272/2008 (CLP)

Product name: M-Bond 600-610 Curing Agent LVOC

Hazard Pictogram(s)

Signal Word(s): DANGER

Contains: Acetone; Tetrahydrofuran;Benzene-1,2:4,5-tetracarboxylic dianhydride

Hazard Statement(s):
H225: Highly flammable liquid and vapour.
H317: May cause an allergic skin reaction.

	H318: Causes serious eye damage. H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335: May cause respiratory irritation. H336: May cause drowsiness or dizziness. H351: Suspected of causing cancer.
Precautionary Statement(s)	P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233: Keep container tightly closed. P235: Keep cool. P280: Wear protective gloves/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P370+P378: In case of fire: Use dry powder to extinguish.
Supplemental information	EUH019: May form explosive peroxides.

2.3 Other hazards Vapours can form explosive mixtures with air.

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
Acetone	60 - 80	67-64-1	200-662-2	Not yet assigned in the supply chain	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 EUH066: Repeated exposure may cause skin dryness or cracking.
Tetrahydrofuran	30 - 50	109-99-9	203-726-8	Not yet assigned in the supply chain	Flam. Liq. 2; H225 Acute Tox. 4; H302 Eye Irrit. 2; H319 STOT SE 3; H335 STOT SE 2; H336 Carc. 2; H351 EUH019
1,2,4,5-Benzenetetracarboxylic Dianhydride	10 - 30	89-32-7	201-898-9	Not yet assigned in the supply chain	Skin Sens. 1; H317 Eye Dam. 1; H318 Resp. Sens. 1; H334

Specific concentration limit (SCL) & M-factor

Chemical identity of the substance	CAS No.	EC No.	Specific concentration limit (SCL)	M-factor
Tetrahydrofuran	109-99-9	203-726-8	Eye Irrit. 2; H319: C ≥ 25%) STOT SE 3; H335: C ≥ 25%)	--

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.
	inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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 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. In case of eye irritation consult an ophthalmologist.
	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.
4.2	**Most important symptoms and effects, both acute and delayed**	May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness.Suspected of causing cancer.
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 with carbon dioxide, dry chemical, foam or waterspray.
	Unsuitable extinguishing media	Do not use water jet. Direct water jet may spread the fire.
5.2	**Special hazards arising from the substance or mixture**	Highly flammable liquid and vapour. May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, Phenolic and Explosive Peroxides. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. Prevent liquid entering sewers, basements and workpits; vapour may create explosive atmosphere. May form explosive peroxides.
5.3	**Advice for firefighters**	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

6.1	**Personal precautions, protective equipment and emergency procedures**	Ensure adequate ventilation Stop leak if safe to do so. In case of leakage, eliminate all ignition sources. 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. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.
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 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.
	Large spillages:	Evacuate the area and keep personnel upwind. Notify police and fire brigade as soon as possible.
6.4	**Reference to other sections**	See Section: 8, 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Ensure operatives are trained to minimise exposures. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid all contact. Do not breathe vapour. Ensure adequate ventilation Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. May form explosive peroxides. Take precautionary measures against static discharges. Use personal protective equipment as required. See Section: 8. 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

Ground and bond container and receiving equipment. Keep only in original packaging. Store in a well-ventilated place. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. May form explosive peroxides. Keep away from direct sunlight.

Storage temperature	Ambient
Storage life	Stable under normal conditions
Incompatible materials	Keep away from: Oxidizing agents, corrosive Substances, Reducing agent, Strong Acids and Alkalis

7.3 Specific end use(s)

See Section: 1.2.

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/m³)	STEL (ppm)	STEL (mg/m³)	Note
Acetone	67-64-1	500	1210	1500	3620	-
Tetrahydrofuran	109-99-9	50	150	100	300	Sk

Source: UK WEL: Workplace Exposure Limit (UK HSE EH40)
Notations:
Sk: Can be absorbed through skin.
BMGV: Biological monitoring guidance value

Ireland

SUBSTANCE	CAS No.	Occupational Exposure Limit Value (8-hour reference period)		Occupational Exposure Limit Value (15-minute reference period)		Notes
		ppm	mg/m³	ppm	mg/m³	
Acetone	67-64-1	500	1210	-	-	IOELV
Tetrahydrofuran	109-99-9	50	150	100	300	Sk, 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
Sk: Can be absorbed through skin.

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

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

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

Skin protection

Hand protection:
Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Recommended: PVC / Nitrile rubber

During full contact:
Protective index 6, corresponding > 480 minutes of permeation time according to EN 374.
Nitrile rubber (Minimum thickness: 0.33 mm)
Butyl rubber (Minimum thickness: 0.5 mm)

During splash contact:
At least protective index 5, corresponding > 240 minutes of permeation time according to EN 374
Polychloroprene - CR (Minimum thickness: 0.5 mm)

Unsuitable gloves materials:
NR (natural rubber, Natural latex), Polyvinyl chloride - PVC.

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

Respiratory protection

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	Not established
Odour	Not established
Melting point and freezing point	Not established
Boiling point or initial boiling point and boiling range	Not established
Flammability	Highly flammable liquid and vapour.
Lower and upper explosion limit or lower and upper flammability limit	Not established
Flash point	Not established
Auto-ignition temperature	Not established
Decomposition temperature	Not established
pH	Not established
Kinematic viscosity	Not established
Solubility	Not established
Partition coefficient: n-octanol/water (log value)	not applicable - Mixture
Vapour pressure	Not established
Density and/or relative density	Not established
Relative vapour density	Not established
Particle characteristics	Not applicable - Liquid

9.2 Other information

Explosive properties	Vapours can form explosive mixtures with air. May form explosive peroxides.
Oxidising properties	Not established

SECTION 10: Stability and reactivity

10.1 Reactivity
Stable under normal conditions May form peroxides on prolonged storage if air is present.

10.2 Chemical stability
Stable under normal conditions

10.3 Possibility of hazardous reactions
Highly flammable liquid and vapour. The vapour may be invisible, heavier than air and spread along ground. May form explosive peroxides. Contact with aliphatic amines will cause irreversible polymerization with considerable heat build-up. May polymerise on prolonged heating.

10.4 Conditions to avoid
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight. Keep at a temperature not exceeding (℃): 32. Avoid contact with air. Avoid contact with heat and ignition sources and oxidizers. Avoid distillation to dryness, which can form explosive peroxides.

10.5 Incompatible materials
Oxidizing agents, corrosive Substances, Reducing agent, Strong Acids and Alkalis Mild steel. Reacts violently with - Oxidizing agents and Acids

10.6 Hazardous decomposition products
May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, Phenolic and Explosive Peroxides.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

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: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LC50 >5 mg/l (Dust/Mist)
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
Skin corrosion/irritation		Mixture: Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation		Mixture: Eye Dam. 1; H318: Causes serious eye damage.
	Acetone	Eye Irrit. 2; H319: Causes serious eye irritation.

			Test Result: Irritating to eyes. (OECD 405)
			Harmonised Classification/ ECHA registration dossier
		Tetrahydrofuran	Eye Irrit. 2; H319: Causes serious eye irritation. (SCL ≥ 25%).
			Test Result: Corrosive to eyes. (rabbit) (Unnamed publication, 1971).
			Harmonised Classification; ECHA registration dossier
			Eye Dam. 1; H318: Causes serious eye damage.
		Benzene-1,2:4,5-tetracarboxylic dianhydride	Result: Causes severe eye damage. OECD 405 (rabbit) (Unnamed publication,1975; 2008)
			Harmonised Classification; ECHA registration dossier
	Respiratory or skin sensitisation		Mixture: Skin Sens. 1; H317: May cause an allergic skin reaction.
			Resp. Sens. 1; H334; May cause allergy or asthma symptoms or breathing difficulties if inhaled.
			Skin Sens. 1; H317: May cause an allergic skin reaction.
			Result: Adverse effects observed (Sensitising) (OECD 429 and EU Method B42) (Unnamed publication, 2009)
		Benzene-1,2:4,5-tetracarboxylic dianhydride	Resp. Sens. 1; H334; May cause allergy or asthma symptoms or breathing difficulties if inhaled.
			Result: Adverse effects observed (Sensitising) (Unnamed publication, 1989)
			Harmonised Classification; ECHA registration dossier
	Germ cell mutagenicity		Mixture: Based upon the available data, the classification criteria are not met.
	Carcinogenicity		Mixture: Carc. 2; H351: Suspected of causing cancer.
		Tetrahydrofuran	Carc. 2; H351: Suspected of causing cancer.
			EU Harmonised Classification.
			Test Result: NOAEC 1800 ppm Suspected carcinogen (Unnamed, 1998)
	Reproductive toxicity		Mixture: Based upon the available data, the classification criteria are not met.
	STOT - single exposure		Mixture: STOT SE 3; H335: May cause respiratory irritation.
			STOT SE 3; H336: May cause drowsiness or dizziness.
		Acetone	STOT SE 3; H336: May cause drowsiness or dizziness.
			EU Harmonised Classification.
		Tetrahydrofuran	STOT SE 3; H335: May cause respiratory irritation. (SCL ≥ 25%). EU Harmonised Classification.
			STOT SE 3; H336: May cause drowsiness or dizziness.
			Test Result: Irritation to respiratory tract (Rat), LC50: 375mg/L air (Unnamed publication, 1979).
			Test Result: Central nervous depression, NOEC (rats): 500ppm (Malley et al, 2001)
	STOT - repeated exposure		Mixture: Based upon the available data, the classification criteria are not met.
	Aspiration hazard		Mixture: Based upon the available data, the classification criteria are not met.
11.2	**Information on other hazards**		
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	**Toxicity**		Based upon the available data, the classification criteria are not met.
			estimated Mixture LC50 >100 mg/L (Fish)
12.2	**Persistence and degradability**		No data for the mixture as a whole.
		Acetone	Readily biodegradable (according to OECD criteria).
			Degradation rate (%): 90.9±2.2 (28 days OECD 301B
		Tetrahydrofuran	Inherently Biodegradable
			Readily biodegradable. (Pyromellitic acid PMA)
		Benzene-1,2:4,5-tetracarboxylic dianhydride	100% Degradation in water 28d (OECD 301B)
			ECHA registration dossier
12.3	**Bioaccumulative potential**		No data for the mixture as a whole.
		Acetone	Bioconcentration factor (BCF): 3 calculated
			Log KOW= -0.24
			Bioaccumulation will not occur

	Tetrahydrofuran	The substance has low potential for bioaccumulation. Log KOW < 3
	Benzene-1,2:4,5-tetracarboxylic dianhydride	The substance has low potential for bioaccumulation. Bioconcentration factor (BCF): 1 (pH 1-10 @25℃) ECHA registration dossier
12.4	**Mobility in soil**	No data for the mixture as a whole.
	Acetone	The substance is predicted to have high mobility in soil. Kd= 1.5 L/kg@ 20 ℃
	Tetrahydrofuran	Adsorption to solid soil phase is not expected. Koc:1 Log Koc:0.155 (OECD 121 and EU Method C.19)
	Benzene-1,2:4,5-tetracarboxylic dianhydride	Mobile ECHA registration dossier
12.5	**Results of PBT and vPvB assessment**	Not classified as PBT or vPvB.
12.6	**Endocrine disrupting properties**	This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.
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. Dispose of contents in accordance with local, state or national legislation.
	Waste classification according to Directive 2008/98/EC (Waste Framework Directive)	HP3 - Flammable HP4 – Irritant HP5 - Specific Target Organ Toxicity HP7 – Carcinogenic HP13 - Sensitising

SECTION 14: Transport information

		ADR/RID	ADN	IMDG	IATA/ICAO
14.1	**UN number or ID number**	UN 1133	UN 1133	UN 1133	UN 1133
14.2	**UN proper shipping name**	ADHESIVES containing flammable liquid	ADHESIVES containing flammable liquid	ADHESIVES containing flammable liquid	ADHESIVES containing flammable liquid
14.3	**Transport hazard class(es)**	3	3	3	3
14.4	**Packing group**	II	II	II	II
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**	No information available.			

SECTION 15: REGULATORY INFORMATION

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

15.1.1 EU regulations

Use restriction according to REACH annex XVII, no.:	Not restricted
Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]	P5c

	Restrictions of occupation:	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.
	To follow:	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
15.1.2	**National regulations**	
	Germany	
	Water hazard class (WGK)	Water hazard class: 1 (Self classification)
15.2	**Chemical Safety Assessment**	A REACH chemical safety assessment has not been carried out.

SECTION 16: Other information

The following sections contain revisions or new statements: V1.0- not applicable

References:
EU Harmonised Classification(s) forTetrahydrofuran (CAS No. 109-99-9), Acetone (CAS No. 67-64-1) and Benzene-1,2:4,5-tetracarboxylic dianhydride (CAS No. 89-32-7).
Existing ECHA registration(s) for Tetrahydrofuran (CAS No. 109-99-9), Acetone (CAS No. 67-64-1) and Benzene-1,2:4,5-tetracarboxylic dianhydride (CAS No. 89-32-7).

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
Flam. Liq. 2; H225	Expert judgement - Flash point
Skin Sens. 1; H317	Threshold Calculation
Eye Dam. 1; H318	Threshold Calculation
Resp Sens. 1; H334	Threshold Calculation
STOT SE 3; H335	Threshold Calculation
STOT SE 3; H336	Threshold Calculation
Carc. 2; H351	Threshold Calculation
EUH019	Expert judgement / Harmonised Classification

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
UN	United Nations

Hazard classification / Classification code:	Hazard Statement(s)
Flam. Liq. 2; Flammable liquid, Category 2	H225: Highly flammable liquid and vapour.
Acute Tox. 4; Acute toxicity, Category 4	H302: Harmful if swallowed.
Skin Sens. 1; Skin Sensitisation, Category 1	H317: May cause an allergic skin reaction.
Eye Dam. 1; Eye damage, category 1	H318: Causes serious eye damage.
Eye Irrit. 2; eye Irritation, Category 2	H319: Causes serious eye irritation.
Resp. Sens. 1; Respiratory sensitization, Category 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
STOT SE 3; Specific target organ toxicity — single exposure, Category 3	H335: May cause respiratory irritation. H336: May cause drowsiness or dizziness.
Carc. 2; Carcinogenicity, Category 2	H351: Suspected of causing cancer.
	EUH019: May form explosive peroxides.

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
Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith, but it is for the Users to satisfy themselves of the suitability of the product for their own particular purpose. VISHAY MEASUREMENTS GROUP GMBH gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. VISHAY MEASUREMENTS GROUP GMBH accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.

Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Vishay Precision Group, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “VPG”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

The product specifications do not expand or otherwise modify VPG’s terms and conditions of purchase, including but not limited to, the warranty expressed therein.

VPG makes no warranty, representation or guarantee other than as set forth in the terms and conditions of purchase. **To the maximum extent permitted by applicable law, VPG disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.**

Information provided in datasheets and/or specifications may vary from actual results in different applications and performance may vary over time. Statements regarding the suitability of products for certain types of applications are based on VPG’s knowledge of typical requirements that are often placed on VPG products. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. You should ensure you have the current version of the relevant information by contacting VPG prior to performing installation or use of the product, such as on our website at vpgsensors.com.

No license, express, implied, or otherwise, to any intellectual property rights is granted by this document, or by any conduct of VPG.

The products shown herein are not designed for use in life-saving or life-sustaining applications unless otherwise expressly indicated. Customers using or selling VPG products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify VPG for any damages arising or resulting from such use or sale. Please contact authorized VPG personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.