SAFETY DATA SHEET

M-BOND GA-61 PART B

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

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

1.1 Product identifier

Product Name	M-Bond GA-61
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)	PC14 Metal surface treatment products, including galvanic and electroplating products.
Uses Advised Against	For professional users only.

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)

Skin Sens. 1; H317
Eye Dam. 1; H318
Resp. Sens. 1; H334

2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP)

Product Name: M-Bond GA-61

Hazard Pictogram(s):

Signal Word(s): DANGER

Contains: 1,2,4,5-Benzenetetracarboxylic dianhydride

Hazard Statement(s):

H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary Statement(s)	P260: Do not breathe vapour. P261: Avoid breathing mist/vapours/spray. P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER/doctor. P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
Supplemental information	None Known

2.3 Other hazards — May form explosible dust clouds in air. Contact with water or moist air causes production of opaque and corrosive fumes.

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
Benzene-1,2:4,5-tetracarboxylic dianhydride	60 - <90	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

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	Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Do not breathe dusts or mists. Avoid all contact. Avoid exposure during pregnancy.
Inhalation	IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. If breathing is laboured, oxygen should be administered by qualified personnel. If breathing has stopped, apply artificial respiration.
Skin Contact	IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Contaminated clothing should be thoroughly cleaned. If skin irritation or rash occurs: Get medical advice/attention.
Eye Contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Obtain prompt consultation, preferably from an ophthalmologist. Continue irrigation until medical attention can be obtained.

	Ingestion	IF SWALLOWED:Rinse mouth. Do NOT induce vomiting. Do not give anything by mouth to an unconscious person. If exposed or concerned: Get medical attention/advice.
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.
4.3	**Indication of any immediate medical attention and special treatment needed**	Treat symptomatically. IF INHALED: Due to possible delayed effect of poisoning and for safety reasons, they should be kept under medical observation for at least 48 hours. IF IN EYES: Chemical eye burns may require extended irrigation.

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.
	Unsuitable extinguishing media	Do not use water jet. Direct water jet may spread the fire. Avoid dust generation Finely dispersed particles form explosive mixtures with air.
5.2	**Special hazards arising from the substance or mixture**	Decomposes in a fire giving off toxic fumes: Nitrogen oxides, Carbon dioxide and Carbon monoxide. Contact with water or moist air causes production of opaque and corrosive fumes. May form explosible dust clouds in air.
5.3	**Advice for fire-fighters**	Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Avoid dust generation 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 In case of leakage, eliminate all ignition sources. Avoid breathing dust. Avoid contact with skin, eyes or clothing. In case of inadequate ventilation wear respiratory protection. Use personal protective equipment as required. See Section: 8.
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**	Stop leak if safe to do so. Ensure suitable personal protection during removal of spillages. Vacuum spilled material. Use non-sparking tools. Avoid dust generation. Do not use compressed air for cleaning purposes. Transfer to a lidded container for disposal or recovery. Ventilate the area and wash spill site after material pick-up is complete.
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 contact with skin, eyes or clothing. Avoid breathing dust. Use personal protective equipment as required. See Section: 8. Avoid dust generation. Do not allow dust to accumulate on surfaces and equipment. Use non-dispersive workplace cleaning (no compressed air / high pressure cleaners). Do not use in confined spaces. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned. Protect from moisture.
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 and direct sunlight. Protect from moisture.
	Storage temperature	Ambient <50℃
	Storage life	Stable under normal conditions
	Incompatible materials	Keep away from: Acids, strong bases, Flammable liquids, Reducing agents, Oxidizing agents, Corrosive Substances 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
Talc, respirable dust	14807-96-6	-	1	-	-	-

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/m³	ppm	mg/m³	
Talc Total inhalable dust respirable dust	14807-96-6	- -	10 0.8	- -	- -	- -

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

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.

8.2.2 Individual protection measures, such as personal protective equipment (PPE) — General hygiene measures for the handling of chemicals are applicable. Avoid all contact. Avoid breathing vapours. 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.

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.

	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	Powder
Colour	White/ Pale brown
Odour	Not established
Melting point and freezing point	Not established
Boiling point or initial boiling point and boiling range	>400 ℃
Flammability	Not established
Lower and upper explosion limit or lower and upper flammability limit	Not established
Flash point	>93℃
Auto-ignition temperature	Not established
Decomposition temperature	Not established
pH	Not established
Kinematic viscosity	> 22 mm2/s @104 ℉ (40 ℃)
Solubility	Slightly soluble in: Water
Partition coefficient: n-octanol/water (log value)	Not established
Vapour pressure	Not established
Density and/or relative density	1.81 (H2O = 1) @ 25℃
Relative vapour density	Not established
Particle characteristics	Not established

9.2 Other information

Explosive properties	Not explosive May form explosible dust clouds in air.
Oxidising properties	Not oxidising.

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	May form explosible dust clouds in air. Contact with water or moist air causes production of opaque and corrosive fumes.
10.4	**Conditions to avoid**	Keep away from heat, sources of ignition and direct sunlight.
10.5	**Incompatible materials**	Keep away from: Acids, strong bases, Flammable liquids, Reducing agents, Oxidizing agents, Corrosive Substances and Alkalis.
10.6	**Hazardous decomposition product(s)**	Decomposes in a fire giving off toxic fumes: Nitrogen oxides, Carbon dioxide and Carbon monoxide.

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: Estimated 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. 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 sensitization	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. Mouse local lymph node assay (LLNA) (OECD 429 and EU Method B42) Result: Adverse effects observed (Sensitising) (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: Based upon the available data, the classification criteria are not met.
	Reproductive toxicity	Mixture: Based upon the available data, the classification criteria are not met.
	STOT - single exposure	Mixture: Based upon the available data, the classification criteria are not met.
	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**	Mixture: Based upon the available data, the classification criteria are not met.
12.2	**Persistence and degradability**	No data for the mixture as a whole. Readily biodegradable. Read across: 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. The substance has low potential for bioaccumulation.
	Benzene-1,2:4,5-tetracarboxylic dianhydride	Bioconcentration factor (BCF): 1 (pH 1-10 @25℃) ECHA registration dossier
12.4	**Mobility in soil**	No data for the mixture as a whole. Koc:1 Log Koc:0.155 (OECD 121 and EU Method C.19)
	Benzene-1,2:4,5-tetracarboxylic dianhydride	Highly 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. Waste classification according to Directive 2008/98/EC (Waste Framework Directive)**:** HP4, HP13
13.2	**Additional Information**	Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods'.

		ADR/RID	ADN	IMDG	IATA/ICAO
14.1	**UN number or ID number**	None assigned			
14.2	**UN proper shipping name**	None assigned	None assigned	None assigned	None assigned
14.3	**Transport hazard class(es)**	None assigned	None assigned	None assigned	None assigned
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**	None			

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]	Not applicable
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 (Identification number: 10841)

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: New SDS Regulation 2020/878 format, all sections have been updated to include new information. Please review SDS with care.

References:

Existing Safety Data Sheet (SDS), Harmonised Classification(s) for1,2,4,5-Benzenetetracarboxylic Dianhydride (CAS# 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
Skin Sens. 1; H317	Threshold Calculation
Eye Dam. 1; H318	Threshold Calculation
Resp. Sens. 1; H334	Threshold 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:

Skin Sens. 1; Skin Sensitisation, Category 1
Eye Dam. 1; Eye Damage, Category 1
Resp. Sens. 1; Respiratory Sensitization, Category 1

Hazard Statement(s)

H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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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