

Molub-Alloy 860/460-1 ES

Safety Data Sheet according to GB/T 16483-2008 and GB/T 17519-2013

Section 1. Identification

GHS product identifier	Molub-Alloy 860/460-1 ES
Product code	461167-DE03
SDS no.	461167
<u>Relevant identified uses of the substance or mixture and uses advised against</u>	
Use of the substance/ mixture	Grease for industrial applications. For specific application advice see appropriate Technical Data Sheet or consult our company representative.
Supplier	Castrol (Shanghai) Management Co., Ltd. 3F, Building 5, No. 255 of Guiqiao Road, Shanghai P.R.C. 201206 Tel:+86 21 38605888
EMERGENCY TELEPHONE NUMBER	Carechem: + 86 400 120 6011 (24/7)

Section 2. Hazards identification

Classification of the substance or mixture	Not classified.
<u>GHS label elements</u>	
Signal word	No signal word.
Hazard statements	No known significant effects or critical hazards.
<u>Precautionary statements</u>	
Prevention	Not applicable.
Response	Not applicable.
Storage	Not applicable.
Disposal	Not applicable.
Other hazards which do not result in classification	None known.

Section 3. Composition/information on ingredients

Substance/mixture Mixture
Highly refined base oil (IP 346 DMSO extract < 3%). Proprietary performance additives. Thickening agent.

Ingredient name	%	CAS number
⚠️Lithium azelate (Nonanedioic acid dilithium salt)	≤3	38900-29-7
bismuth(3+) neodecanoate	≤3	34364-26-6
Graphite	≤3	7782-42-5
(Z)-N-methyl-N-(1-oxo-9-octadecenyl)glycine	<0.25	110-25-8

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

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Section 4. First aid measures

Description of necessary first aid measures

Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Skin contact	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur. If skin irritation or rash occurs: Get medical advice/attention.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects. Note: High Pressure Applications Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimise tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media	In case of fire, use water fog, alcohol resistant foam, dry chemical or carbon dioxide extinguisher or spray.
Unsuitable extinguishing media	Do not use water jet.
Specific hazards arising from the chemical	No specific fire or explosion hazard.
Hazardous thermal decomposition products	Combustion products may include the following: metal oxide/oxides carbon oxides (CO, CO ₂) (carbon monoxide, carbon dioxide)
Special protective actions for fire-fighters	No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.
Special protective equipment for fire-fighters	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.
For emergency responders	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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Section 6. Accidental release measures

Environmental precautions Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Avoid creating dusty conditions and prevent wind dispersal. If emergency personnel are unavailable, contain spilt material. Suction or scoop the spill into appropriate disposal or recycling vessels, then cover spill area with oil absorbent. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. Contaminated work clothing should not be allowed out of the workplace. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep away from heat and direct sunlight. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Not suitable Prolonged exposure to elevated temperature

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Graphite	GBZ 2.1 (China). PC-TWA: 2 mg/m ³ 8 hours. Issued/Revised: 4/2020 Form: Respirable dust PC-TWA: 4 mg/m ³ 8 hours. Issued/Revised: 4/2020 Form: Total dust

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.

Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national

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Section 8. Exposure controls/personal protection

organisation for standards.

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.

The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety glasses with side shields.

Skin protection

Hand protection

Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Skin protection

Use of protective clothing is good industrial practice.

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	Grease
Colour	Black. [Dark]
Odour	Not available.
Odour threshold	Not available.
pH	Not applicable.
Melting point/freezing point	Not available.

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Section 9. Physical and chemical properties

Boiling point, initial boiling point, and boiling range	Not available.
Drop Point	243 °C
Flash point	Open cup: 279°C (534.2°F) [Estimated. Based on Lubricants - Base Oils]
Evaporation rate	Not available.
	Not applicable. Based on - Physical state
Lower and upper explosion limit/flammability limit	Not applicable.
Vapour pressure	Not available.

Ingredient name	Vapour Pressure at 20 °C			Vapour pressure at 50 °C		
	mm Hg	kPa	Method	mm Hg	kPa	Method

Relative vapour density	Not applicable.
Relative density	Not available.
Density	<1000 kg/m ³ (<1 g/cm ³) at 20°C
Solubility(ies)	

Media	Result
water	Not soluble

Partition coefficient: n-octanol/water	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not available.
Viscosity	Not available.
Particle characteristics	
Median particle size	Not available.

Section 10. Stability and reactivity

Reactivity	No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame).
Incompatible materials	Reactive or incompatible with the following materials: oxidising materials.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ ingredient name	Result/Route	Test detail	Species	Dose	Exposure	Remarks
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Lithium azelate (Nonanedioic acid dilithium salt)	LD50 Dermal	OECD 402	Rabbit	>2000 mg/kg	-	-
	LD50 Oral	OECD 401	Rat	>300 mg/kg	-	-
(Z)-N-methyl-N- (1-oxo- 9-octadecenyl) glycine	LC50 Inhalation Dusts and mists	OECD 403	Rat	1.37 mg/l	4 hours	-
	LD50 Oral	OECD 401	Rat	>5000 mg/kg	-	-

Acute toxicity estimates

Route	ATE value
Oral	11056.29 mg/kg

Irritation/Corrosion

Product/ingredient name	Test detail	Species	Result	Score	Exposure	Observation	Conc.	Remarks
Lithium azelate (Nonanedioic acid dilithium salt)	OECD 405	Rabbit	Eyes - Not irritant	-	-	-	-	-
	OECD 439	RhE	Skin - Not irritant	-	-	-	-	-
(Z)-N-methyl-N- (1-oxo- 9-octadecenyl) glycine	OECD 405	Rabbit	Eyes - Severe irritant	-	-	-	-	-
	OECD 404	Rabbit	Skin - Irritant	-	-	-	-	-

Sensitisation

Product/ingredient name	Test detail	Route of exposure	Species	Result	Remarks
Lithium azelate (Nonanedioic acid dilithium salt)	OECD 429	skin	Mouse	Not sensitising	-
(Z)-N-methyl-N-(1-oxo- 9-octadecenyl)glycine	OECD 406	skin	Guinea pig	Not sensitising	-

Mutagenicity

Product/ingredient name	Test detail	Cell / Type	Result	Remarks
Lithium azelate (Nonanedioic acid dilithium salt)	OECD 471	Experiment: In vitro	Negative	-
		Subject: Bacteria		
	OECD 473	Experiment: In vitro	Negative	Based on studies with similar substances.
		Subject: Mammalian-Animal		
	OECD 476	Experiment: In vitro	Negative	Based on studies with

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similar substances.

(Z)-N-methyl-N-(1-oxo-9-octadecenyl)glycine	OECD 471	Subject: Mammalian-Animal Experiment: In vitro	Negative	-
	OECD 473	Subject: Bacteria Experiment: In vitro Subject: Mammalian-Animal	Negative	-
	OECD 476	Experiment: In vitro Subject: Mammalian-Animal	Negative	-

Reproductive toxicity

Product/ingredient name	Test detail	Maternal toxicity	Fertility	Developmental toxin	Species	Result	Exposure
Lithium azelate (Nonanedioic acid dilithium salt)	OECD 422	Negative	Negative	Negative	Rat	Dermal	-
(Z)-N-methyl-N-(1-oxo-9-octadecenyl)glycine	OECD 421	Negative	Negative	Negative	Rat	Oral	-

Teratogenicity

Product/ingredient name	Result	Species	Remarks
Lithium azelate (Nonanedioic acid dilithium salt)	Negative - Dermal	Rat	-

Information on likely routes of exposure Routes of entry anticipated: Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	Defatting to the skin. May cause skin dryness and irritation.
Ingestion	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Ingestion	No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Eye contact	Potential risk of transient stinging or redness if accidental eye contact occurs.
Inhalation	Inhalation of oil mist or vapours at elevated temperatures may cause respiratory irritation.
Skin contact	Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
Ingestion	Ingestion of large quantities may cause nausea and diarrhoea.

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Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Product/ingredient name	Test detail	Species	Result	Exposure	Effects	Remarks
Dilithium azelate (Nonanedioic acid dilithium salt)	OECD 202	Daphnia	Acute EC50 >100 mg/l	48 hours	-	-
	OECD 203	Fish	Acute EC50 >100 mg/l	96 hours	-	-
	OECD 201	Algae	Acute ErC50 23 mg/l	72 hours	-	Based on studies with similar substances.
	OECD 201	Algae	Chronic NOEC 3.2 mg/l	72 hours	-	Based on studies with similar substances.
(Z)-N-methyl-N- (1-oxo- 9-octadecenyl) glycine	OECD 202	Daphnia	Acute EC50 0.43 mg/l	48 hours	-	-
	OECD 201	Algae	Acute ErC50 6.3 mg/l	72 hours	-	-
	OECD 203	Fish	Acute LC50 6.8 mg/l	96 hours	-	-
	OECD 201	Algae	Chronic NOEC 0.91 mg/l	72 hours	-	-

Environmental effects No known significant effects or critical hazards.

Persistence/degradability

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Expected to be biodegradable.

Product/ingredient name	Test	Result	Remarks
Dilithium azelate (Nonanedioic acid dilithium salt)	OECD 301B	91 % - Readily - 28 days	-
(Z)-N-methyl-N-(1-oxo-9-octadecenyl)glycine	OECD 301B	85.2 % - Readily - 28 days	-

Bioaccumulative potential

Not available.

Product/ingredient name	LogP _{ow}	BCF	Potential
Dilithium azelate (Nonanedioic acid dilithium salt)	-3.3	-	Low
(Z)-N-methyl-N-(1-oxo-9-octadecenyl)glycine	3.5 to 4.2	-	Low

Mobility in soil

Soil/water partition coefficient (K_{oc})

Not available.

Mobility

Grease insoluble in water.

Other adverse effects

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	China	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.

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Section 14. Transport information

Additional information	-	-	-
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Special precautions for user Not available.

Matters needing attention for transportation Ensure that any additional local government transport conditions are met

Section 15. Regulatory information

List of Goods banned for Importing

None of the components are listed.

Drug Precursors Requiring an Import/Export License

None of the components are listed.

Catalogue and classification of drug precursor chemicals

None of the components are listed.

List of Explosive Precursors

None of the components are listed.

International regulations

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

Safety, health and environmental regulations specific for the product No known specific national and/or regional regulations applicable to this product (including its ingredients).

Regulation according to other foreign laws

REACH Status

The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.

Australia inventory (AIC)

All components are listed or exempted.

Canada inventory

All components are listed or exempted.

China inventory (IECSC)

All components are listed or exempted.

Japan inventory (CSCL)

At least one component is not listed.

Korea inventory (KECI)

All components are listed or exempted.

Philippines inventory (PICCS)

All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI)

All components are listed or exempted.

United States inventory (TSCA 8b)

All components are active or exempted.

Section 16. Other information

History

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Prepared by Product Stewardship

Key to abbreviations

ACGIH = American Conference of Industrial Hygienists
CAS Number = Chemical Abstracts Service Registry Number
GHS = Global Harmonised System
IATA = International Air Transport Association, the organisation
IMDG = International Maritime Organization Rules, rules governing shipment of goods by water.
OEL = Occupational Exposure Limit
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]
SDS = Safety Data Sheet
STEL = Short term exposure limit
TWA = Time weighted average
UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.
Varies = may contain one or more of the following 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1

References

Not available.

✔ Indicates information that has changed from previously issued version.

Notice to reader

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

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