Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

Printing date: 23.05.2024 Version number 30 **Revision:** 23.05.2024

Product name: GERMAN ADLER RADIATOR LEAK STOP

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

1.1 Product identifier

Product name: GERMAN ADLER RADIATOR LEAK STOP

Article number: D150

UFI: 29A6-60MJ-C00R-0H09

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

Use of the substance/mixture

Barrier (Sealant)

1.3 Details of the supplier of the safety data sheet

GERMAN ADLER GmbH
Kennedyallee 93
D-60596 Frankfurt am Main
Tel.: +49 69 697 692 10
Fax: +49 69 697 692 15
E-Mail info@german-adler.com

1.4 Emergency telephone number

Emergency information services / official advisory body:

Telephone number of the company in case of emergencies:

Informationszentrale gegen Vergiftung Bonn, Tel.: +49 228 19240

SECTION 2: Hazards identification

2.1. **Classification of the substance or mixture**

CLP Regulation

STOT RE 2; H373

Full text of hazard statements: see SECTION 16.

2.2. **Label elements**

CLP Regulation

Hazard components for labelling

ethanediol, ethylene glycol

Signal word: Warning

Pictograms:

Hazard statements

H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P260 Do not breathe vapours.

P314 Get medical advice/attention if you feel unwell.

2.3. **Other hazards**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII. This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
107-21-1	ethanediol, ethylene glycol			10 - < 20 %
	203-473-3		01-2119456816-28	
	Acute Tox. 4, STOT RE 2; H302 H373			
110-91-8	morpholine			0.1 - < 1 %
	203-815-1		01-2119496057-30	
	Flam. Liq. 3, Repr. 2, Acute Tox. 3, Acute Tox. 3, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1; H226 H361fd H331 H311 H302 H314 H318			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
107-21-1	203-473-3	ethanediol, ethylene glycol	10 - < 20 %
	dermal: LD50 = >3500 mg/kg; oral: LD50 = 1600 mg/kg		
110-91-8	203-815-1	morpholine	0.1 - < 1 %
	inhalation: LC50 = 8 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); dermal: LD50 = ca. 500 mg/kg; oral: LD50 = ca. 1900 mg/kg		

SECTION 4: First aid measures

4.1. **Description of first aid measures**

General information

First aider: Pay attention to self-protection! Remove persons to safety. Never give anything by mouth to an unconscious person or a person with cramps.

After inhalation

Remove person to fresh air and keep comfortable for breathing. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with skin

Wash with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with eyes

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of troubles or persistent symptoms, consult an ophthalmologist.

After ingestion

Do NOT induce vomiting. Observe risk of aspiration if vomiting occurs. Call a physician in any case!

4.2. **Most important symptoms and effects, both acute and delayed**

Headache, nausea, dizziness, fatigue, skin irritation

4.3. **Indication of any immediate medical attention and special treatment needed**

Treat symptomatically. Call a POISON CENTER. Symptoms can occur only after several hours.

SECTION 5: Firefighting measures

5.1. **Extinguishing media**

Suitable extinguishing media

Water fog. Foam. Carbon dioxide (CO2). Extinguishing powder.

Unsuitable extinguishing media

High power water jet.

5.2. **Special hazards arising from the substance or mixture**

Incomplete combustion and thermolysis gases of different toxicity can occur. In the case of hydrocarbonaceous products such as CO, CO2, aldehydes and soot. These can be very dangerous if they are inhaled in high concentrations or in enclosed spaces.

5.3. **Advice for firefighters**

In case of fire and/or explosion do not breathe fumes. Move undamaged containers from immediate hazard area if it can be done safely. In case of fire: Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. **Personal precautions, protective equipment and emergency procedures**

General advice

Wear breathing apparatus if exposed to vapours/dusts/aerosols. Remove all sources of ignition. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Wear personal protection equipment.

For non-emergency personnel

First aider: Pay attention to self-protection!

For emergency responders

Fight fire with normal precautions from a reasonable distance.

6.2. **Environmental precautions**

Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). Ensure all waste water is collected and treated via a waste water treatment plant.

6.3. **Methods and material for containment and cleaning up**

For containment

Prevent spread over a wide area (e.g. by containment or oil barriers).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Clean contaminated articles and floor according to the environmental legislation.

6.4. **Reference to other sections**

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. **Precautions for safe handling**

Advice on safe handling

Observe instructions for use.

Dust must be exhausted directly at the point of origin. Vapours/aerosols must be exhausted directly at the point of origin. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.

When using do not eat, drink, smoke, sniff.

Wear personal protection equipment (refer to section 8).

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking.

Advice on general occupational hygiene

Avoid exposure. Wear suitable protective clothing. Draw up and observe skin protection programme.

Further information on handling

Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Observe legal regulations and provisions.

Hints on joint storage

Do not store together with: Oxidizing agents. Pyrophoric or self-heating substances. Food and feedingstuffs.

Further information on storage conditions

Store in a cool dry place. Observe legal regulations and provisions.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
107-21-1	Ethane-1,2-diol, vapour	20	52		TWA (8 h)	WEL
		40	104		STEL (15 min)	WEL
110-91-8	Morpholine	10	36		TWA (8 h)	WEL
		20	72		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance		
DNEL type	Exposure route	Effect	Value
110-91-8	morpholine		
Worker DNEL, long-term	inhalation	systemic	91 mg/m³
Worker DNEL, long-term	inhalation	local	36 mg/m³
Worker DNEL, acute	inhalation	local	72 mg/m³
Worker DNEL, long-term	dermal	systemic	1,04 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	6,3 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment		Value
110-91-8	morpholine	
Freshwater		0,163 mg/l
Freshwater (intermittent releases)		0,09 mg/l
Marine water		0,016 mg/l
Freshwater sediment		1,83 mg/kg
Marine sediment		0,183 mg/kg
Micro-organisms in sewage treatment plants (STP)		10 mg/l
Soil		0,269 mg/kg

Additional advice on limit values

a no restriction

b End of exposure or end of shift

c at long-term exposure:

d before next shift

blood (B)

Urine (U)

8.2. **Exposure controls**

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection: Tightly sealed safety glasses.

EN 166

Hand protection

Protect skin by using skin protective cream. When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

Suitable material: NBR (Nitrile rubber) Breakthrough time: 480min

Thickness of the glove material 0,45 mm

EN ISO 374

Skin protection

Wear suitable protective clothing. Take off immediately all contaminated clothing and wash it before reuse.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

When exceeding the relevant workplace exposure limits, note the following:

Suitable respiratory protective equipment: Combination filter device (DIN EN 141)..

Filtering device with filter or ventilator filtering device of type: A

Observe the wear time limits as specified by the manufacturer.

Observe legal regulations and provisions.

Environmental exposure controls

Observe legal regulations and provisions.

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SECTION 9: Physical and chemical properties

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

Physical state:	liquid
Colour:	greenish blue
Odour:	Lemon

		Test method
Melting point/freezing point:	not determined	
Boiling point or initial boiling point and boiling range:	100 °C	
Flammability:	not applicable	
	not applicable	
Lower explosion limits:	3,2 vol. %	
Upper explosion limits:	28 vol. %	
Flash point:	> 100 °C	ISO 3679
Decomposition temperature:	not determined	
pH-Value (at 20 °C):	9,5	DIN 19268

Viscosity / kinematic: (at 40 °C)		
DIN EN ISO 3104		
Water solubility:	easily soluble	
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:	not determined	
Vapour pressure:	not determined	
Density (at 20 °C):	1,02 g/cm³	DIN 51757
Relative vapour density:	not determined	

9.2. **Other information**

Information with regard to physical hazard classes

Self-ignition temperature		
Solid:	not applicable	
Gas:	not applicable	
Oxidizing properties		
Not oxidising.		

Other safety characteristics

Evaporation rate:	not determined	
Solid content:	not determined	
Viscosity / dynamic:		DIN 53019-1
Flow time: (at 20 °C)		DIN EN ISO 2431

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SECTION 10: Stability and reactivity

10.1. **Reactivity**

No hazardous reaction when handled and stored according to provisions.

10.2. **Chemical stability**

The product is stable under normal conditions.

10.3. **Possibility of hazardous reactions**

No hazardous reaction when handled and stored according to provisions.

10.4. **Conditions to avoid**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Take precautionary measures against static discharges.

10.5. **Incompatible materials**

Oxidizing agents. Pyrophoric or self-heating substances.

10.6. **Hazardous decomposition products**

Incomplete combustion and thermolysis gases of different toxicity can occur. In the case of hydrocarbonaceous products such as CO, CO2, aldehydes and soot. These can be very dangerous if they are inhaled in high concentrations or in enclosed spaces.

Further information

Do not mix with other chemicals.

SECTION 11: Toxicological information

11.1. **Information on hazard classes as defined in GB CLP Regulation**

Toxicocinetics, metabolism and distribution

There are no data available on the mixture itself.

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
107-21-1	ethanediol, ethylene glycol					
	oral	LD50 mg/kg	1600	Rat		
	dermal	LD50 mg/kg	>3500	Rabbit		
110-91-8	morpholine					
	oral	LD50 mg/kg	ca. 1900	Rat	Study report (1967)	OECD Guideline 401
	dermal	LD50 mg/kg	ca. 500	Rabbit	Arch. Ind. Hyg Occup. Med. 10 61–68 (195	OECD Guideline 402
	inhalation (4 h) vapour	LC50	8 mg/l	Rat		
	inhalation dust/mist	ATE	0,5 mg/l			

Irritation and corrosivity

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.
No indications of human carcinogenicity exist.
No indications of human germ cell mutagenicity exist.
No indications of human reproductive toxicity exist.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure. (ethanediol, ethylene glycol)

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

Ingestion, Inhalation, Skin contact, Eye contact.
Reference to other sections: 2.1, 4.2.

Specific effects in experiment on an animal

No information available.

Additional information on tests

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

11.2. **Information on other hazards**

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.

Other information

No information available.

SECTION 12: Ecological information

12.1. **Toxicity**

The product is not: Ecotoxic.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] | [d]	Species	Source	Method
107-21-1	ethanediol, ethylene glycol					
	Acute fish toxicity	LC50 72860 mg/l	96 h	Pimephales promelas		
	Acute algae toxicity	ErC50 6500 - 13000 mg/l	96 h	Selenastrum capricornutum		
	Acute crustacea toxicity	EC50 > 100 mg/l	48 h	Daphnia magna		
	Fish toxicity	NOEC 72860 mg/l	7 d	Pimephales promelas		
	Crustacea toxicity	NOEC 8590 mg/l	7 d	Ceriodaphnia spec		
110-91-8	morpholine					

	Acute fish toxicity	LC50	380 mg/l	96 h	Oncorhynchus mykiss	Chemosphere 9: 753-762 (1980)	other: IRSA
	Acute algae toxicity	ErC50	28 mg/l	96 h	Pseudokirchneriella subcapitata	Chemosphere 9: 753-762 (1980)	other: EPA, National Eutrophication Rese
	Acute crustacea toxicity	EC50 mg/l	44,5	48 h	Daphnia magna	Study report (1997)	OECD Guideline 202
	Algae toxicity	NOEC	10 mg/l	4 d	Desmodesmus subspicatus		
	Crustacea toxicity	NOEC	5 mg/l	21 d	Daphnia magna	Study report (1997)	OECD Guideline 211

12.2. **Persistence and degradability**

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
110-91-8	morpholine			
	OECD 301E	93%	25	
	Easily biodegradable (concerning to the criteria of the OECD)			

12.3. **Bioaccumulative potential**

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
107-21-1	ethanediol, ethylene glycol	-1,36
110-91-8	morpholine	-2,55

BCF

CAS No	Chemical name	BCF	Species	Source
110-91-8	morpholine	0	Cyprinus carpio	Review article or ha

12.4. **Mobility in soil**

The product has not been tested.

12.5. **Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.
The product has not been tested.

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**

No information available.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

List of Wastes Code - residues/unused products

070701 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fine chemicals and chemical products not otherwise specified; aqueous washing liquids and mother liquors; hazardous waste

List of Wastes Code - used product

070701 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fine chemicals and chemical products not otherwise specified; aqueous washing liquids and mother liquors; hazardous waste

List of Wastes Code - contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances; hazardous waste

Contaminated packaging

Water (with cleaning agent). Completely emptied packages can be recycled.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.
Marine pollutant:	no

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name:	No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es):	No dangerous good in sense of this transport regulation.
14.4. Packing group:	No dangerous good in sense of this transport regulation.

14.5. **Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

14.6. **Special precautions for user**

No information available.

14.7. **Maritime transport in bulk according to IMO instruments**

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

Directive 2010/75/EU on industrial emissions:	No information available.
Directive 2004/42/EC on VOC in paints and varnishes:	No information available.

Additional information

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National regulatory information

Water hazard class (D):	1 - slightly hazardous to water

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SECTION 16: Other information

Abbreviations and acronyms

Flam. Liq: Flammable liquids Acute Tox: Acute toxicity Skin Corr: Skin corrosion Eye Dam: Eye damage Repr: Reproductive toxicity
STOT RE: Specific target organ toxicity - repeated exposure
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA: International Air Transport Association
IMDG: International Maritime Code for Dangerous Goods
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL/DMEL: Derived No Effect Level / Derived Minimal Effect Level
WEL: Workplace Exposure Limits
TWA (EC): Time-Weighted Average
ATE: Acute Toxicity Estimate
ATEL (EC): Short Term Exposure Limit
LC50: Lethal Concentration
EC50:half maximal Effective Concentration
ErC50: means EC50 in terms of reduction of growth rate

Classification for mixtures and used evaluation method according to GB CLP Regulation

Classification	Classification procedure
STOT RE 2; H373	Calculation method

Relevant H and EUH statements (number and full text)

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)