acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060 date of compilation: 2021-09-08 Version: **2.0 en** Revision: 2024-03-02

Replaces version of: 2021-09-08

Version: (1)



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

Product identifier 1.1

Identification of the substance Lactate dehydrogenase (LDH) ≥290 U/mg pro-

tein

Article number 6060

EC number 232-617-8 CAS number 9001-60-9

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

Relevant identified uses: Laboratory chemical

Laboratory and analytical use

Uses advised against: Do not use for private purposes (household).

Food, drink and animal feedingstuffs.

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co. KG Schoemperlenstr. 3-5 D-76185 Karlsruhe Germany

Telephone:+49 (0) 721 - 56 06 0 **Telefax:** +49 (0) 721 - 56 06 149 e-mail: sicherheit@carlroth.de Website: www.carlroth.de

sheet:

e-mail (competent person):

sicherheit@carlroth.de

1.4 **Emergency telephone number**

Name	Street	Postal code/city	Telephone	Website
National Poisons Information Service City Hospital	Dudley Rd	B187QH Birmingham	844 892 0111	

SECTION 2: Hazards identification

Classification of the substance or mixture 2.1

Classification acc. to GHS

This substance does not meet the criteria for classification.

2.2 **Label elements**

Labelling

not required

United Kingdom (en) Page 1 / 12

acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of \geq 0,1%.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance Lactate dehydrogenase (LDH)

CAS No 9001-60-9 EC No 232-617-8

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Rinse cautiously with water for several minutes.

Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings! water, foam, dry extinguishing powder, ABC-powder

United Kingdom (en) Page 2 / 12



Other hazards

Results of PBT and vPvB assessment

acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



water jet

5.2 Special hazards arising from the substance or mixture

Combustible.

ing.

onable distance. Wear self-contained breathing apparatus.



For non-emergency personnel

Control of dust.

Environmental precautions

of it.

6.3

Advice on how to contain a spill

Covering of drains. Take up mechanically.

Advice on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Reference to other sections 6.4

patible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 **Precautions for safe handling**

Keep away from food, drink and animal feedingstuffs.

Conditions for safe storage, including any incompatibilities

Observe hints for combined storage.

United Kingdom (en) Page 3 / 12



Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂), May produce toxic fumes of carbon monoxide if burn-

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reas-

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures 6.1



6.2

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose

Methods and material for containment and cleaning up

Place in appropriate containers for disposal. Ventilate affected area.

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incom-

No special measures are necessary.

Advice on general occupational hygiene

7.2

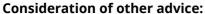
Store in a dry place. Keep in a cool place.

Incompatible substances or mixtures

acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



Use local and general ventilation.

Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Coun try	Name of agent	CAS No	Identifi- er	TWA [mg/ m³]	STEL [mg/ m³]	Ceil- ing-C [mg/ m³]	Nota- tion	Source
GB	dust		WEL	10			i	EH40/2005
GB	dust		WEL	4			r	EH40/2005

Notation

Ceiling value is a limit value above which exposure should not occur Inhalable fraction

Respirable fraction

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-

TWA

8.2

Eye/face protection





Use safety goggle with side protection.

Skin protection





hand protection

type of material

>0,11 mm

United Kingdom (en) Page 4 / 12



Ventilation requirements

Specific designs for storage rooms or vessels

Recommended storage temperature: -20 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1

Coun try	Name of agent	CAS No	Identifi- er	TWA [mg/ m³]	STEL [mg/ m³]	Ceil- ing-C [mg/ m³]	Nota- tion	Source
GB	dust		WEL	10			i	EH40/2005
GB	dust		WEL	4			r	EH40/2005

Ceiling-C

minute period (unless otherwise specified)
Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Exposure controls

Individual protection measures (personal protective equipment)









Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374.

NBR (Nitrile rubber)

material thickness

acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



>480 minutes (permeation: level 6)

other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection





Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P1 (filters at least 80 % of airborne particles, colour code: White).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state solid
Form powder
Colour whitish

Odour characteristic

Melting point/freezing point not determined

Boiling point or initial boiling point and boiling not determined

range

Flammability this material is combustible, but will not ignite

readily

Lower and upper explosion limit not determined
Flash point not applicable
Auto-ignition temperature not determined
Decomposition temperature not relevant
pH (value) not applicable
Kinematic viscosity not relevant

Solubility(ies)

Water solubility not determined

Partition coefficient

Partition coefficient n-octanol/water (log value): this information is not available

Vapour pressure not determined

United Kingdom (en) Page 5 / 12



acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060

Density and/or relative density

Density not determined

Relative vapour density Information on this property is not available.

Particle characteristics No data available.

Other safety parameters

Oxidising properties none

9.2 Other information

Information with regard to physical hazard

classes:

hazard classes acc. to GHS (physical hazards): not relevant

Other safety characteristics: There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: strong oxidiser

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to GHS

This substance does not meet the criteria for classification.

Acute toxicity

Shall not be classified as acutely toxic.

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

United Kingdom (en) Page 6 / 12



acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



Carcinogenicity

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Shall not be classified as a specific target organ toxicant (single exposure).

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

Data are not available.

• If in eyes

Data are not available.

Data are not available.

• If on skin

Data are not available.

Other information

Health effects are not known.

11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0.1\%$.

11.3 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

United Kingdom (en) Page 7 / 12



Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Shall not be classified as carcinogenic.

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated exposure

If swallowed

If inhaled

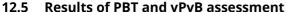
12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



Data are not available.

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0.1\%$.

13.1 Waste treatment methods



Consult the appropriate local waste disposal expert about waste disposal.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions. Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1	UN number or ID number	not subject to transport regulations

14.2 UN proper shipping name not assigned

14.3 Transport hazard class(es) none

14.4 Packing group not assigned

14.5 Environmental hazards non-environmentally hazardous acc. to the dan-

gerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

International Maritime Dangerous Goods Code (IMDG) - Additional information

Not subject to IMDG.

United Kingdom (en) Page 8 / 12



12.6 Endocrine disrupting properties

12.7 Other adverse effects

Data are not available.

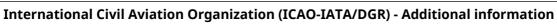
SECTION 13: Disposal considerations



acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



Not subject to ICAO-IATA.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Relevant provisions of the European Union (EU)

Seveso Directive

2012/	2012/18/EU (Seveso III)					
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes			
	not assigned					

Deco-Paint Directive

VOC content	0 %
-------------	-----

Industrial Emissions Directive (IED)

VOC content	0 %
-------------	-----

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

not listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Water Framework Directive (WFD)

not listed

Regulation on the marketing and use of explosives precursors

not listed

Regulation on drug precursors

not listed

Regulation on substances that deplete the ozone layer (ODS)

not listed

Regulation concerning the export and import of hazardous chemicals (PIC)

not listed

Regulation on persistent organic pollutants (POP)

not listed

National regulations(GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list not listed

Restrictions according to GB REACH, Annex 17

not listed

United Kingdom (en) Page 9 / 12



acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

Country	Inventory	Status
AU	AIIC	substance is listed
CA	DSL	substance is listed
EU	ECSI	substance is listed
KR	KECI	substance is listed
NZ	NZIoC	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed (ACTIVE)
VN	NCI	substance is listed

Legend

AIIC Australian Inventory of Industrial Chemicals

DSL ECSI

Domestic Substances List (DSL)
EC Substance Inventory (EINECS, ELINCS, NLP)
Korea Existing Chemicals Inventory
National Chemical Inventory
New Zealand Inventory of Chemicals KECI NZIoC Taiwan Chemical Substance Inventory

Toxic Substance Control Act

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety- relev- ant
2.1	Classification according to Regulation (EC) No 1272/2008 (CLP): This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.	Classification acc. to GHS: This substance does not meet the criteria for classification.	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.	yes
14.8	Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information: Not subject to ADR, RID and ADN.		yes
15.1	Restrictions according to REACH, Annex XVII: not listed		yes
15.1	List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list: Not listed.		yes
15.1		National regulations(GB)	yes

United Kingdom (en) Page 10 / 12

acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



Section	Former entry (text/value)	Actual entry (text/value)	Safety- relev- ant
15.1		List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list: not listed	yes
15.1		Restrictions according to GB REACH, Annex 17: not listed	yes
15.1		National inventories: change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations		
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)		
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)		
Ceiling-C	Ceiling value		
DGR	Dangerous Goods Regulations (see IATA/DGR)		
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)		
ED	Endocrine disruptor		
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)		
EINECS	European Inventory of Existing Commercial Chemical Substances		
ELINCS	European List of Notified Chemical Substances		
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)		
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations		
IATA	International Air Transport Association		
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)		
ICAO	International Civil Aviation Organization		
IMDG	International Maritime Dangerous Goods Code		
NLP	No-Longer Polymer		
PBT	Persistent, Bioaccumulative and Toxic		
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals		
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regula- tions concerning the International carriage of Dangerous goods by Rail)		
STEL	Short-term exposure limit		
TWA	Time-weighted average		
VOC	Volatile Organic Compounds		
vPvB	Very Persistent and very Bioaccumulative		
WEL	Workplace exposure limit		

United Kingdom (en) Page 11 / 12

acc. to Regulation (EC) No. 1907/2006 (REACH)

Lactate dehydrogenase (LDH) ≥290 U/mg protein

article number: 6060



Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

United Kingdom (en) Page 12 / 12