

Voluntary safety information following the Safety Data Sheet format according to Regulation (EC) No. 1907/2006 (REACH)



Alkaline phosphatase $\geq 2\ 000$ Glycin U/mg protein (approx. 6000 DEA U/mg protein)

article number: **6024**
Version: **2.0 en**
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Version: (1)

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

1.1 Product identifier

Identification of the substance	Alkaline phosphatase $\geq 2\ 000$ Glycin U/mg protein (approx. 6000 DEA U/mg protein)
Article number	6024
EC number	232-631-4
CAS number	9001-78-9

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

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
National Poisons Information Centre Beaumont Hospital	Beaumont Road	Dublin 9	+353 1 809 2166	https://www.poisons.ie/

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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.

2.2 Label elements

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Labelling according to Regulation (EC) No 1272/2008 (CLP)

not required

2.3 Other hazards

Results of PBT and vPvB assessment

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	Alkaline phosphatase
Molar mass	~ 120.000 g/mol
CAS No	9001-78-9
EC No	232-631-4
Purity	1 – 2 %

Impurities and additives:

Name of substance	Identifier	Wt%
Glycerine	CAS No 56-81-5 EC No 200-289-5	50
TRIS-HCl	CAS No 1185-53-1 EC No 214-684-5	< 0,1
Zinc chloride	CAS No 7646-85-7 EC No 231-592-0 Index No 030-003-00-2	< 0,1
Magnesium chloride	CAS No 7786-30-3 EC No 232-094-6	< 0,1

Remarks

For full text of abbreviations: see SECTION 16

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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 spray, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂), May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

No special measures are necessary.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Other information relating to spills and releases

Place in appropriate containers for disposal.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

No special measures are necessary.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep in a cool place.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Specific designs for storage rooms or vessels

Recommended storage temperature: 2 – 8 °C

7.3 Specific end use(s)

No information available.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

Relevant DNELs of components						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Glycerine	56-81-5	DNEL	220 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
Zinc chloride	7646-85-7	DNEL	1 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Zinc chloride	7646-85-7	DNEL	8,3 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
TRIS-HCl	1185-53-1	DNEL	152,8 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
TRIS-HCl	1185-53-1	DNEL	216,6 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Glycerine	56-81-5	PNEC	1.000 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Magnesium chloride	7786-30-3	PNEC	1,6 mg/l	aquatic organisms	freshwater	short-term (single instance)
Magnesium chloride	7786-30-3	PNEC	0,16 mg/l	aquatic organisms	marine water	short-term (single instance)
Magnesium chloride	7786-30-3	PNEC	42 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Magnesium chloride	7786-30-3	PNEC	1.050 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Magnesium chloride	7786-30-3	PNEC	105 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Magnesium chloride	7786-30-3	PNEC	1.045 mg/kg	terrestrial organisms	soil	short-term (single instance)
Zinc chloride	7646-85-7	PNEC	117,8 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Zinc chloride	7646-85-7	PNEC	56,5 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Zinc chloride	7646-85-7	PNEC	35,6 mg/kg	terrestrial organisms	soil	short-term (single instance)

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Relevant PNECs of components						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Zinc chloride	7646-85-7	PNEC	6,1 $\mu\text{g}/\text{l}$	aquatic organisms	marine water	short-term (single instance)
Zinc chloride	7646-85-7	PNEC	20,6 $\mu\text{g}/\text{l}$	aquatic organisms	freshwater	short-term (single instance)
Zinc chloride	7646-85-7	PNEC	100 $\mu\text{g}/\text{l}$	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



- **hand protection**

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

- **type of material**

NBR (Nitrile rubber)

- **material thickness**

>0,11 mm

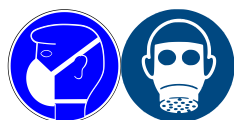
- **breakthrough times of the glove material**

>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: Aerosol or mist formation.

Environmental exposure controls

Keep away from drains, surface and ground water.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	clear - light beige
Odour	odourless
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	not determined
Flammability	this material is combustible, but will not ignite readily
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	not determined
<u>Solubility(ies)</u>	
Water solubility	not determined
<u>Partition coefficient</u>	
Partition coefficient n-octanol/water (log value):	this information is not available
Vapour pressure	not determined
<u>Density and/or relative density</u>	
Density	1,1 g/cm ³
Relative vapour density	Information on this property is not available.
Particle characteristics	not relevant (liquid)
<u>Other safety parameters</u>	
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.

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SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

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

Classification according to GHS (1272/2008/EC, CLP)

This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity of components					
Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Glycerine	56-81-5	dermal	LD50	$>10.000\ \text{mg}/\text{kg}$	rabbit
Glycerine	56-81-5	oral	LD50	$27.200\ \text{mg}/\text{kg}$	rat
Glycerine	56-81-5	inhalation: dust/mist	LC50	$>5.850\ \text{mg}/\text{m}^3/4\text{h}$	rat
Magnesium chloride	7786-30-3	oral	LD50	$>5.000\ \text{mg}/\text{kg}$	rat
Magnesium chloride	7786-30-3	dermal	LD50	$>2.000\ \text{mg}/\text{kg}$	rat
Zinc chloride	7646-85-7	oral	LD50	$1.100\ \text{mg}/\text{kg}$	rat
Zinc chloride	7646-85-7	dermal	LD50	$>2.000\ \text{mg}/\text{kg}$	rat
TRIS-HCl	1185-53-1	oral	LD50	$>5.000\ \text{mg}/\text{kg}$	rat
TRIS-HCl	1185-53-1	dermal	LD50	$>5.000\ \text{mg}/\text{kg}$	rat

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

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Serious eye damage/eye irritation

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

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

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

Specific target organ toxicity - repeated 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

• **If swallowed**

Data are not available.

• **If in eyes**

Data are not available.

• **If inhaled**

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.

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SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Glycerine	56-81-5	LC50	54.000 mg/l	fish	96 h
Magnesium chloride	7786-30-3	LC50	541 mg/l	fish	96 h
Zinc chloride	7646-85-7	LC50	168 µg/l	fish	96 h
Zinc chloride	7646-85-7	EC50	360 µg/l	aquatic invertebrates	48 h
TRIS-HCl	1185-53-1	LC50	460 mg/l	fish	96 h
TRIS-HCl	1185-53-1	EC50	>117 mg/l	aquatic invertebrates	48 h
TRIS-HCl	1185-53-1	ErC50	473 mg/l	algae	48 h

Aquatic toxicity (chronic) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Magnesium chloride	7786-30-3	ErC50	>100 mg/l	algae	3 d
Magnesium chloride	7786-30-3	EC50	>900 mg/l	microorganisms	3 h
Zinc chloride	7646-85-7	LC50	330 µg/l	fish	95 h
Zinc chloride	7646-85-7	EC50	5,2 mg/l	microorganisms	3 h
TRIS-HCl	1185-53-1	EC50	>1.000 mg/l	microorganisms	3 h

12.2 Persistence and degradability

Degradability of components						
Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
Glycerine	56-81-5	biotic/abiotic	63 %	14 d		
TRIS-HCl	1185-53-1	biotic/abiotic	89 %	28 d	OECD-301D	
TRIS-HCl	1185-53-1	oxygen depletion	100,7 %	28 d		ECHA
TRIS-HCl	1185-53-1	carbon dioxide generation	65,9 %	28 d		ECHA
TRIS-HCl	1185-53-1	DOC removal	97,1 %	28 d		ECHA

12.3 Bioaccumulative potential

Data are not available.

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Bioaccumulative potential of components				
Name of substance	CAS No	BCF	Log KOW	BOD5/COD
Glycerine	56-81-5		-1,75 (pH value: 7,4, 25 °C)	
Zinc chloride	7646-85-7	96,05		
TRIS-HCl	1185-53-1		-3,6 (20 °C)	

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

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

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

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.

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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 dangerous 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.
- International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information**
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)**
- Restrictions according to REACH, Annex XVII**
not listed
- List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list**
Not listed.
- Seveso Directive**

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	100 %
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Industrial Emissions Directive (IED)

VOC content	100 %
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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

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
CN	IECSC	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

ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
KECI	Korea Existing Chemicals Inventory
NCI	National Chemical Inventory
NZIoC	New Zealand Inventory of Chemicals
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical safety assessment

According to REACH, Article 14 (1) a chemical safety assessment has been carried out for this substance or components of this mixture when the substance has been registered in quantities of 10 tonnes or more per year per registrant.

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SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.	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		National inventories: change in the listing (table)	yes
15.2	Chemical Safety Assessment: No Chemical Safety Assessment has been carried out for this substance.	Chemical safety assessment: According to REACH, Article 14 (1) a chemical safety assessment has been carried out for this substance or components of this mixture when the substance has been registered in quantities of 10 tonnes or more per year per registrant.	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)
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
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
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ErC50	\equiv EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association

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Abbr.	Descriptions of used abbreviations
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
log KOW	n-Octanol/water
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
SVHC	Substance of Very High Concern
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

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.