

article number: **6024** Version: **2.0 en** Replaces version of: 2021-09-21 Version: (1)

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

1.1 Product identifier

Identification of the substance

Article number6024EC number232-631-4CAS number9001-78-9

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

Relevant identified uses:

Uses advised against:

Do not use for private purposes (household). Food, drink and animal feedingstuffs.

Alkaline phosphatase ≥2 000 Glycin U/mg pro-

tein (approx. 6000 DEA U/mg protein)

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 Department Health, Safety and Environment sheet:

e-mail (competent person):

sicherheit@carlroth.de

Laboratory chemical

Laboratory and analytical use

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

2.1 Classification of the substance or mixture

Classification acc. to GHS

This substance does not meet the criteria for classification.

2.2 Label elements

Labelling

not required



date of compilation: 2021-09-21 Revision: 2024-03-03 Alkaline phosphatase ≥2 000 Glycin U/mg protein (approx. 6000 DEA U/mg protein)

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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 $\ge 0,1\%$.

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	50
	EC No 200-289-5	
TRIS-HCI	CAS No 1185-53-1	< 0,1
	EC No 214-684-5	
Zinc chloride	CAS No 7646-85-7	< 0,1
	EC No 231-592-0	
	Index No 030-003-00-2	
Magnesium chloride	CAS No 7786-30-3	< 0,1
	EC No 232-094-6	

Remarks

For full text of abbreviations: see SECTION 16

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

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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 (CO $_2$), 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.

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

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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 sub- stance	CAS No	End- point	Threshol d level	Protection goal, route of exposure	Used in	Exposure time				
Glycerine	56-81-5	DNEL	220 mg/m ³	human, inhalat- ory	worker (industry)	chronic - local ef- fects				
Zinc chloride	7646-85-7	DNEL	1 mg/m ³	human, inhalat- ory	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-HCI	1185-53-1	DNEL	152,8 mg/ m ³	human, inhalat- ory	worker (industry)	chronic - systemic effects				
TRIS-HCI	1185-53-1	DNEL	216,6 mg/ kg bw/day	human, dermal	worker (industry)	chronic - systemic effects				

Relevant PNECs of components

Name of sub- stance	CAS No	End- point	Threshol d level	Organism	Environmental compartment	Exposure time				
Glycerine	56-81-5	PNEC	1.000 ^{mg} / _I aquatic organ- isms sewage treatment plant (STP)		short-term (single instance)					
Magnesium chlor- ide	7786-30-3	PNEC	1,6 ^{mg} / _l	aquatic organ- isms	freshwater	short-term (single instance)				
Magnesium chlor- ide	7786-30-3	PNEC	0,16 ^{mg} / _l	aquatic organ- isms	marine water	short-term (single instance)				
Magnesium chlor- ide	7786-30-3	PNEC	42 ^{mg} / _l	aquatic organ- isms	sewage treatment plant (STP)	short-term (single instance)				
Magnesium chlor- ide	7786-30-3	PNEC	1.050 ^{mg} / _{kg}	aquatic organ- isms	freshwater sedi- ment	short-term (single instance)				
Magnesium chlor- ide	7786-30-3	PNEC	105 ^{mg} / _{kg}	aquatic organ- isms	marine sediment	short-term (single instance)				
Magnesium chlor- ide	7786-30-3	PNEC	1.045 ^{mg} / _{kg}	terrestrial organ- isms	soil	short-term (single instance)				
Zinc chloride	7646-85-7	PNEC	117,8 ^{mg} / _{kg}	aquatic organ- isms	freshwater sedi- ment	short-term (single instance)				
Zinc chloride	7646-85-7	PNEC	56,5 ^{mg} / _{kg}	aquatic organ- isms	marine sediment	short-term (single instance)				
Zinc chloride	7646-85-7	PNEC	35,6 ^{mg} / _{kg}	terrestrial organ- isms	soil	short-term (single instance)				
Zinc chloride	7646-85-7	PNEC	6,1 ^{µg} / _l	aquatic organ- isms	marine water	short-term (single instance)				

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



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Relevant PNECs of components										
Name of sub- stance	CAS No	End- point	Threshol d level	Organism	Environmental compartment	Exposure time				
Zinc chloride	7646-85-7	PNEC	20,6 ^{µg} / _l	aquatic organ- isms	freshwater	short-term (single instance)				
Zinc chloride	7646-85-7	PNEC	100 ^{µg} / _l	aquatic organ- isms	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.

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

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ECTION

SEC	SECTION 9: Physical and chemical properties						
9.1	Information on basic physical and chemical pro	perties					
	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					
	Solubility(ies)						
	Water solubility	not determined					
	Partition coefficient						
	Partition coefficient n-octanol/water (log value):	this information is not available					
	Vapour pressure	not determined					
	Density and/or relative density						
	Density	1,1 ^g / _{cm³}					
	Relative vapour density	Information on this property is not available.					
	Particle characteristics	not relevant (liquid)					
	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.					



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



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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 toxicological effects

Classification acc. to GHS

This substance does not meet the criteria for classification.

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 ^{mg} / _{kg}	rabbit		
Glycerine	56-81-5	oral	LD50	27.200 ^{mg} / _{kg}	rat		
Glycerine	56-81-5	inhalation: dust/mist	LC50	>5.850 ^{mg} / _{m³} / 4h	rat		
Magnesium chloride	7786-30-3	oral	LD50	>5.000 ^{mg} / _{kg}	rat		
Magnesium chloride	7786-30-3	dermal	LD50	>2.000 ^{mg} / _{kg}	rat		
Zinc chloride	7646-85-7	oral	LD50	1.100 ^{mg} / _{kg}	rat		
Zinc chloride	7646-85-7	dermal	LD50	>2.000 ^{mg} / _{kg}	rat		
TRIS-HCI	1185-53-1	oral	LD50	>5.000 ^{mg} / _{kg}	rat		
TRIS-HCI	1185-53-1	dermal	LD50	>5.000 ^{mg} / _{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 \ge 0,1%.

11.3 Information on other hazards

There is no additional information.



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

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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 sub- stance	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-HCI	1185-53-1	LC50	460 ^{mg} / _l	fish	96 h				
TRIS-HCI	1185-53-1	EC50	>117 ^{mg} / _l	aquatic invertebrates	48 h				
TRIS-HCI	1185-53-1	ErC50	473 ^{mg} / _l	algae	48 h				

Aquatic toxicity (chronic) of components

Name of sub- stance	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-HCI	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	Degrada- tion rate	Time	Method	Source			
Glycerine	56-81-5	biotic/abiotic	63 %	14 d					
TRIS-HCI	1185-53-1	biotic/abiotic	89 %	28 d	OECD-301D				
TRIS-HCI	1185-53-1	oxygen deple- tion	100,7 %	28 d		ECHA			
TRIS-HCI	1185-53-1	carbon dioxide generation	65,9 %	28 d		ECHA			
TRIS-HCI	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-HCI	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 $\ge 0,1\%$.

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
- 14.2 UN proper shipping name
- 14.3 Transport hazard class(es)
- 14.4 Packing group
- 14.5 Environmental hazards

not subject to transport regulations

not assigned

none

not assigned

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)**

Seveso Directive

2012/18/EU (Seveso III)			
Νο	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the ap- plication of lower and upper-tier re- quirements	Notes
	not assigned		

Deco-Paint Directive

VOC content	100 %
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Industrial Emissions Directive (IED)

VOC content

100 %

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



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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

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

ECSIEC Substance Inventory (EINECS, ELINCS, NLP)IECSCInventory of Existing Chemical Substances Produced or Imported in ChinaKECIKorea Existing Chemicals InventoryNCINational Chemical InventoryNZIoCNew Zealand Inventory of ChemicalsTCSITaiwan Chemical Substance InventoryTSCAToxic Substance Control Act

15.2 Chemical safety assessment

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



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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- 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 in- formation: 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
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 concern- ing 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)
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 identi- fier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor
EINECS	European Inventory of Existing Commercial Chemical Substances

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Abbr.	Descriptions of used abbreviations
ELINCS	European List of Notified Chemical Substances
ErC50	= 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
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 Na- tions
ΙΑΤΑ	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
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
РВТ	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 (Regula- tions concerning the International carriage of Dangerous goods by Rail)
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

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.