

Material Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Hakaphos Spezial 16-8-22



Version: 3.12

Date of last issue: 06.04.2023

Date of first issue: 22.05.2017

Revision Date:

15.06.2023

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

1.1 Product identifier

Trade name : Hakaphos Spezial 16-8-22

UFI : RAR5-E0CX-0005-R8PN

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

Use of the : Fertilizer
Substance/Mixture

1.3 Details of the supplier of the safety data sheet

Company : COMPO EXPERT GmbH
Krögerweg 10
D-48155 Münster

Telephone : +49 (0) 251 29 79 81 – 000

Telefax : +49 (0) 251 29 79 81 - 111

E-mail address of person : info@compo-expert.com
responsible for the SDS

1.4 Emergency telephone number

GBK GmbH - Global Regulatory Compliance - 24h
Telephone: +49 (0) 6132 - 84463

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Oxidizing solids, Category 3 H272: May intensify fire; oxidizer.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



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Signal word	:	Warning	
Hazard statements	:	H272	May intensify fire; oxidizer.
Precautionary statements	:	Prevention: P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
		P220	Keep away from clothing and other combustible materials.
		Response: P370 + P378	In case of fire: Use water spray to extinguish.
Further information	:	German "Hazardous Substances" legislation (Gefahrstoffverordnung) appendix I, No. 5 (Ammonium Nitrate group C III)	

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Mixture of nutrient salts based on various inorganic salts.

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification	Concentration (% w/w)
ammonium nitrate	6484-52-2 229-347-8 01-2119490981-27-XXXX	Ox. Sol. 3; H272 Eye Irrit. 2; H319	>= 10 - < 45
potassium nitrate	7757-79-1 231-818-8 01-2119488224-35-XXXX	Ox. Sol. 3; H272	> 10 - < 50

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Boric acid	11113-50-1 234-343-4 01-2119486683-25-XXXX	Repr. 1B; H360FD	$\geq 0,1 - < 0,3$
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For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- If inhaled : Move to fresh air.
Obtain medical attention.
If unconscious place in recovery position and seek medical advice.
In case of lung irritation, first treatment with dexametason aerosol (spray).
- In case of skin contact : Wash off with soap and water.
- In case of eye contact : Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Ingestion may provoke the following symptoms:
Methaemoglobinemia
- Risks : Later control for pneumonia and lung oedema.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.
There is no specific antidote available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Water
- Unsuitable extinguishing media : Foam
Dry chemical
Carbon dioxide (CO₂)

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Sand

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Thermal decomposition can lead to release of irritating gases and vapours.
Nitrogen oxides (NO_x)
ammonia

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Keep away from children.

6.2 Environmental precautions

Environmental precautions : Do not empty into drains.
Retain and dispose of contaminated wash water.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Use mechanical handling equipment.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Keep away from direct sunlight.
Keep away from heat.
Protect from contamination.
Protect from moisture.

Advice on protection against fire and explosion : The product is not flammable. Keep away from heat and sources of ignition. Keep away from combustible materials.

Hygiene measures : Wash hands before breaks and at the end of workday.

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7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep away from heat. Keep away from sources of ignition - No smoking. Keep away from combustible material. Protect from contamination. When stored loose do not mix with other fertilizers. Protect from moisture.

Advice on common storage : Keep away from strong acids.
Keep away from strong bases.
Keep away from combustible materials.

Storage class (TRGS 510) : 5.1C, Ammonium nitrate and ammonium nitrate containing preparations

Dampness : Keep in a dry place.

7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Boric acid	11113-50-1	TWA	2,6 mg/m ³	DE TRGS 900
		STEL	5,2 mg/m ³	DE TRGS 900
			0,5 mg/m ³	

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
ammonium nitrate	Workers	Inhalation	Long-term systemic effects	36 mg/m ³
	Workers	Skin contact	Long-term systemic effects	5,12 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	2,56 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	8,9 mg/m ³

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	Consumers	Skin contact, Ingestion	Long-term systemic effects	2,56 mg/kg bw/day
potassium nitrate	Workers	Inhalation	Systemic effects	36,7 mg/m3
	Workers	Skin contact	Systemic effects	20,8 mg/kg
Remarks:	Exposure time: 1 d			
	Consumers	Ingestion	Systemic effects	12,5 mg/kg
Remarks:	Exposure time: 1 d			
	Consumers	Skin contact	Systemic effects	12,5 mg/kg
Remarks:	Exposure time: 1 d			
	Consumers	Inhalation	Systemic effects	10,9 mg/m3
Boric acid	Workers	Inhalation	Long-term exposure, Systemic effects	8,28 mg/m3
	Workers	Skin contact	Long-term exposure, Systemic effects	392 mg/kg
	Consumers	Ingestion	Short-term exposure, Systemic effects	0,98 mg/kg
	Consumers	Ingestion	Long-term exposure, Systemic effects	0,98 mg/kg
	Consumers	Inhalation	Long-term exposure, Systemic effects	4,15 mg/m3
	Consumers	Skin contact	Long-term exposure, Systemic effects	196 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
ammonium nitrate	Sewage treatment plant	18 mg/l
potassium nitrate	Fresh water	0,45 mg/l
	Marine water	0,045 mg/l
	Ceiling Limit Value	4,5 mg/l
	Sewage treatment plant	18 mg/l

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8.2 Exposure controls

Personal protective equipment

Eye protection : In case of dust formation:

Safety glasses

Hand protection

Material : Gloves

Skin and body protection : No special protective equipment required.

Respiratory protection : Particle filtering disposable mask DIN EN 149 with filter FFP2.

Environmental exposure controls

General advice : Do not empty into drains.

Retain and dispose of contaminated wash water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : solid

Colour : red

Odour : odourless

Odour Threshold : No data available

pH : ca. 5, Concentration: 100 g/l (20 °C)

Melting point/range : No data available

Boiling point/boiling range : Not applicable

Flash point : Not relevant

Evaporation rate : Not applicable

Flammability (solid, gas) : The product is not flammable.

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Upper explosion limit	: Not explosive
Lower explosion limit	: Not explosive
Vapour pressure	: Not applicable
Relative vapour density	: Not applicable
Relative density	: Not applicable
Bulk density	: ca. 1.150 kg/m ³
Solubility(ies)	
Water solubility	: soluble
Partition coefficient: n-octanol/water	: Not applicable
Decomposition temperature	: > 130 °C To avoid thermal decomposition, do not overheat.
Viscosity	
Viscosity, dynamic	: Not applicable
Viscosity, kinematic	: Not applicable
Explosive properties	: Not explosive
Oxidizing properties	: Not considered an oxidizing substance
Particle characteristics	
Particle Size Distribution	: D50 = 350 µm D50 Tolerance range = 280 µm - 420 µm Measurement technique: Sieve analysis

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

No decomposition if stored and applied as directed.

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Decomposes on heating.

10.3 Possibility of hazardous reactions

Hazardous reactions : Evolution of ammonia under influence of alkalis.

10.4 Conditions to avoid

Conditions to avoid : Keep away from heat and sources of ignition.

10.5 Incompatible materials

Materials to avoid : Sulphur, chlorites, chloride, chlorates, Hypochlorites, acid or alkaline reacting substances, flammable oxidizable substances, nitrites, metallic salts, metallic powder, herbicide, chlorinated hydrocarbons, organic compounds.

10.6 Hazardous decomposition products

Hazardous decomposition products : Nitrogen oxides (NO_x)
ammonia

SECTION 11: Toxicological information

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

Acute toxicity

Product:

Acute oral toxicity : Remarks: This information is not available.
Health injuries are not known or expected under normal use.

Components:

ammonium nitrate:

Acute oral toxicity : LD50 (Rat): > 2.950 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : > 88,8 mg/l
Method: No information available.

Acute dermal toxicity : LD50 (Rat): > 5.000 mg/kg
Method: OECD Test Guideline 402

potassium nitrate:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0,527 mg/l

Acute dermal toxicity : LD50 (Rat): > 5.000 mg/kg

Boric acid:

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Acute oral toxicity	: LD50 (Mouse): 3.450 mg/kg
	LD50 (Rat): 2.660 mg/kg
Acute inhalation toxicity	: LC50 (Rat): 2 mg/l
Acute dermal toxicity	: LD50 Dermal (Rabbit): > 2.000 mg/kg

Skin corrosion/irritation

Product:

Result: non-irritant

Remarks: The product has not been tested. The information is derived from the properties of the individual components.

Components:

ammonium nitrate:

Species: Rabbit

Method: OECD Test Guideline 404

Result: non-irritant

potassium nitrate:

Species: Rabbit

Result: No skin irritation

Boric acid:

Species: Rabbit

Result: No skin irritation

Serious eye damage/eye irritation

Product:

Species: Rabbit

Method: OECD Test Guideline 405

Result: non-irritant

Components:

ammonium nitrate:

Species: Rabbit

Method: OECD Test Guideline 405

Result: Irritant

potassium nitrate:

Species: Rabbit

Result: No eye irritation

Boric acid:

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Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

Respiratory or skin sensitisation

Product:

Result: non-sensitizing

Remarks: The product has not been tested. The information is derived from the properties of the individual components.

Components:

ammonium nitrate:

Result: Does not cause skin sensitisation.

potassium nitrate:

Result: non-sensitizing

Boric acid:

Method: OECD Test Guideline 406

Result: non-sensitizing

germ cell mutagenicity

Product:

Genotoxicity in vitro : Remarks: No data available

Components:

ammonium nitrate:

Genotoxicity in vitro : Method: OECD Test Guideline 471
Result: negative

potassium nitrate:

Genotoxicity in vitro : Remarks: No data available

Boric acid:

Genotoxicity in vitro : Test Type: Mammalian cell gene mutation assay
Result: Mutagenicity tests revealed no genotoxic potential.
Remarks: In vitro tests did not show mutagenic effects

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Product:

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Remarks: Contains no ingredient listed as a carcinogen

Components:

ammonium nitrate:

Species: Rat

Remarks: Animal testing did not show any carcinogenic effects.

potassium nitrate:

Remarks: Did not show carcinogenic effects in animal experiments.

Boric acid:

Species: Rat

Application Route: Oral

Method: OECD Test Guideline 451

Remarks: Animal testing did not show any carcinogenic effects.

Reproductive toxicity

Product:

Effects on fertility :
Remarks: No toxicity to reproduction

Effects on foetal development :
Remarks: Did not show teratogenic effects in animal experiments.
Information given is based on data obtained from similar substances.

Components:

ammonium nitrate:

Effects on fertility : Species: Rat

Remarks: Animal testing did not show any effects on fertility.

Effects on foetal development : Species: Rat
Remarks: Did not show teratogenic effects in animal experiments.

potassium nitrate:

Effects on fertility :
Remarks: No toxicity to reproduction

Effects on foetal development :
Remarks: Did not show teratogenic effects in animal experiments.

Boric acid:

Effects on foetal development :
Remarks: Animal ingestion studies in several species, at high doses, indicate that borates cause reproductive and developmental effects.

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Reproductive toxicity - Assessment : May damage fertility. May damage the unborn child.

STOT - single exposure

Product:

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

Components:

potassium nitrate:

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

Product:

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Components:

potassium nitrate:

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

ammonium nitrate:

Species: Rat

NOAEL: > 1.500 mg/kg

Application Route: Oral

Exposure time: 28 d

Species: Rat

NOAEL: = 256 mg/kg

Application Route: Oral

Exposure time: 52 w

Method: OECD Test Guideline 453

Species: Rat

NOAEL: >= 185 mg/kg

Application Route: by inhalation

Exposure time: 2 w

Method: Repeated Dose Inhalation Toxicity: 28-day or 14-day Study.

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potassium nitrate:

Species: Rat

NOAEL: ≥ 1.500 mg/kg

Exposure time: 1 d

Aspiration hazard

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

11.2 Information on other hazards

Endocrine disrupting properties

No data available

Experience with human exposure

Product:

General Information : Danger of methaemoglobin formation.

Further information

Product:

Remarks: The product was not tested. The statement was derived from products of similar structure and composition.

SECTION 12: Ecological information

12.1 Toxicity

Components:

ammonium nitrate:

Toxicity to fish : LC50 (Fish): > 100 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): 490 mg/l
Exposure time: 48 h

LC50 : 490 mg/l

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 1.700 mg/l
Exposure time: 10 d

potassium nitrate:

Toxicity to fish : LC50 (Fish): > 100 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 490 mg/l
Exposure time: 48 h

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Toxicity to algae : LC50 : ≥ 1.700 mg/l
Exposure time: 10 d

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Components:

ammonium nitrate:

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

potassium nitrate:

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

Boric acid:

Biodegradability : Remarks: Not applicable

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Components:

ammonium nitrate:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: -3,1

potassium nitrate:

Bioaccumulation : Remarks: Does not bioaccumulate.

12.4 Mobility in soil

Product:

Mobility : Remarks: Groundwater contamination is unlikely.

Distribution among environmental compartments : Remarks: No data available

Components:

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potassium nitrate:

Mobility : Remarks: No data available

Boric acid:

Mobility : Remarks: No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : Remarks: No data available

Components:

potassium nitrate:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB)..

Boric acid:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT)..
Remarks: Not applicable

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Product:

Additional ecological information : Information refers to the main component.
Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Check if agriculture use is possible.
Contact manufacturer.

Contaminated packaging : Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

SECTION 14: Transport information

14.1 UN number or ID number

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ADN	: UN 1477
ADR	: UN 1477
RID	: UN 1477
IMDG	: UN 1477
IATA	: UN 1477

14.2 UN proper shipping name

ADN	: NITRATES, INORGANIC, N.O.S.
ADR	: NITRATES, INORGANIC, N.O.S.
RID	: NITRATES, INORGANIC, N.O.S.
IMDG	: NITRATES, INORGANIC, N.O.S.
IATA	: Nitrates, inorganic, n.o.s.

14.3 Transport hazard class(es)

ADN	: 5.1
ADR	: 5.1
RID	: 5.1
IMDG	: 5.1
IATA	: 5.1

14.4 Packing group

ADN	
Packing group	: III
Classification Code	: O2
Hazard Identification Number	: 50
Labels	: 5.1

ADR	
Packing group	: III
Classification Code	: O2
Hazard Identification Number	: 50
Labels	: 5.1
Tunnel restriction code	: (E)

RID	
Packing group	: III
Classification Code	: O2
Hazard Identification Number	: 50
Labels	: 5.1

IMDG	
Packing group	: III
Labels	: 5.1

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EmS Code : F-A, S-Q
Segregation group : 2: Ammonium compounds

IATA

Packing instruction (cargo aircraft) : 563
Packing instruction (passenger aircraft) : 559
Packing instruction (LQ) : Y546
Packing group : III
Labels : 5.1

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : contains Boric acid

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

	Quantity 1	Quantity 2
ANNEX I;6 Potassium nitrate: composite potassium-nitrate based fertilisers composed of potassium	1.250 t	5.000 t

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nitrate in crystalline form

Water contaminating class : WGK 1 slightly water endangering
(Germany)

Other regulations : This product is subject to Regulation (EU) 2019/1148;
suspicious transactions, disappearance or theft of the product
must be reported to the relevant authority.

TRGS 511 'Ammonium nitrate'

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance.

SECTION 16: Other information

Full text of H-Statements

H272 : May intensify fire; oxidizer.
H319 : Causes serious eye irritation.
H360FD : May damage fertility. May damage the unborn child.

Full text of other abbreviations

Eye Irrit. : Eye irritation
Ox. Sol. : Oxidizing solids
Repr. : Reproductive toxicity

(Q)SAR - (Quantitative) Structure Activity Relationship; ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; DIN - Standard of the German Institute for Standardisation; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent,

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Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TRGS - Technical Rule for Hazardous Substances; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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