

## Hakaphos® 20-19-19

Version: 2.7  
Date of last issue: 23.12.2022  
Date of first issue: 08.07.2016

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

#### 1.1 Product identifier

Trade name : Hakaphos® 20-19-19

#### 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

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

Hazard statements : Not a hazardous substance or mixture  
according to Regulation (EC) No.  
1272/2008.

Supplemental Hazard : EUH210 Safety data sheet available on request.  
Statements

Further information : German "Hazardous Substances" legislation (Gefahrstoffverordnung) appendix I, No. 5 (Ammonium Nitrate group C III)

# Material Safety Data Sheet

according to Regulation (EC) No. 1907/2006

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### 2.3 Other hazards

According to our experience and to the information provided to us, the product does not have any harmful effects if it is used and handled as specified.

## 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)
potassium nitrate	7757-79-1  231-818-8  01-2119488224-35-XXXX	Ox. Sol. 3; H272	>= 10 - <= 45
Boric acid	11113-50-1  234-343-4  01-2119486683-25-XXXX	Repr. 1B; H360FD	<= 0,2

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice : Take off immediately all contaminated clothing.

If inhaled : Move to fresh air.  
If symptoms persist, call a physician.  
If unconscious place in recovery position and seek medical advice.

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.

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If swallowed : Clean mouth with water and drink afterwards plenty of water.

### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

### 4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Water  
Water spray  
Dry chemical

Unsuitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Foam  
Sand

### 5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Can decompose at above 130 °C. Thermal decomposition products: Nitrogen monoxide, nitrogen dioxide, dinitrogen oxide, ammonia, chloride, hydrogen chloride.

### 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.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Remove all sources of ignition.

### 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.

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#### 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 : not required under normal use
- Advice on protection against fire and explosion : The product is not flammable.
- Hygiene measures : Wash hands before breaks and at the end of workday.

#### 7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : To maintain product quality, do not store in heat or direct sunlight. Keep away from sources of ignition - No smoking. Keep away from combustible material. Protect from contamination. Protect from moisture.
- Storage class (TRGS 510) : 5.1C, Ammonium nitrate and ammonium nitrate containing preparations

#### 7.3 Specific end use(s)

- Specific use(s) : Always read the label and product information before use.

### 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 <sup>3</sup>	DE TRGS 900
		STEL	5,2 mg/m <sup>3</sup>	DE TRGS 900
			0,5 mg/m <sup>3</sup>	

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

Substance name	End Use	Exposure routes	Potential health effects	Value
potassium nitrate	Workers	Inhalation	Systemic effects	36,7 mg/m <sup>3</sup>
	Workers	Skin contact	Systemic effects	20,8 mg/kg

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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
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

## 8.2 Exposure controls

### Personal protective equipment

Eye protection : In case of dust formation:  
Tightly fitting safety goggles

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Hand protection

Material : Gloves

Skin and body protection : Wearing of closed work clothing is recommended.

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.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state	: crystalline
Colour	: various
Odour	: odourless
pH	: ca. 5, Concentration: 100 g/l (20 °C)
Melting point/range	: No data available
Boiling point/boiling range	: Not applicable
Flash point	: Not applicable
Evaporation rate	: Not applicable
Flammability (solid, gas)	: The product is not flammable.
Upper explosion limit	: Not explosive
Lower explosion limit	: Not explosive
Vapour pressure	: Not applicable
Relative vapour density	: Not applicable
Relative density	: Not applicable

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Bulk density	: ca. 1.200 kg/m <sup>3</sup>
Solubility(ies)	
Water solubility	: soluble
Partition coefficient: n-octanol/water	: Not applicable
Decomposition temperature	: ca. 130 °C To avoid thermal decomposition, do not overheat.
Viscosity	
Viscosity, dynamic	: Not applicable
Viscosity, kinematic	: Not applicable
Explosive properties	: Not explosive
Oxidizing properties	: Method: Manual of tests and criteria. Test O.1 (United Nations Recommendations on the Transport of Dangerous Goods). Not considered an oxidizing substance
<b>Particle characteristics</b>	
Particle Size Distribution	: D50 = 400 µm D50 Tolerance range = 320 µm - 480 µm Measurement technique: Sieve analysis

### 9.2 Other information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No decomposition if stored and applied as directed.

### 10.2 Chemical stability

No decomposition if stored and applied as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

### 10.4 Conditions to avoid

Conditions to avoid : Temperature 130 degrees Celsius  
Heat, flames and sparks.

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### 10.5 Incompatible materials

Materials to avoid : Acids  
Bases  
Organic materials  
Powdered metals

### 10.6 Hazardous decomposition products

Hazardous decomposition products : Nitrogen oxides (NO<sub>x</sub>)  
ammonia

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## SECTION 11: Toxicological information

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

#### Acute toxicity

##### Product:

Acute oral toxicity : Assessment: The substance or mixture has no acute oral toxicity  
Remarks: Calculation method

##### Components:

##### **potassium nitrate:**

Acute oral toxicity : LD<sub>50</sub> (Rat): > 2.000 mg/kg

Acute inhalation toxicity : LC<sub>50</sub> (Rat): 0,527 mg/l

Acute dermal toxicity : LD<sub>50</sub> (Rat): > 5.000 mg/kg

##### **Boric acid:**

Acute oral toxicity : LD<sub>50</sub> (Mouse): 3.450 mg/kg

LD<sub>50</sub> (Rat): 2.660 mg/kg

Acute inhalation toxicity : LC<sub>50</sub> (Rat): 2 mg/l

Acute dermal toxicity : LD<sub>50</sub> Dermal (Rabbit): > 2.000 mg/kg

#### Skin corrosion/irritation

##### Product:

Species: Rabbit

Method: OECD Test Guideline 404

Result: non-irritant

##### Components:

##### **potassium nitrate:**



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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:**

**potassium nitrate:**

Species: Rabbit  
Result: No eye irritation

**Boric acid:**

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

**Respiratory or skin sensitisation**

**Product:**

Result: non-sensitizing

**Components:**

**potassium nitrate:**

Result: non-sensitizing

**Boric acid:**

Method: OECD Test Guideline 406  
Result: non-sensitizing

**germ cell mutagenicity**

**Product:**

Genotoxicity in vitro : Remarks: Contains no hazardous ingredients according to GHS

**Components:**

**potassium nitrate:**

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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:**

Remarks: Contains no ingredient listed as a carcinogen

**Components:**

**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: Contains no ingredient listed as toxic to reproduction

Effects on foetal development : Remarks: Contains no ingredient listed as toxic to reproduction

**Components:**

**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:

##### **potassium nitrate:**

Species: Rat

NOAEL:  $\geq 1.500$  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.

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### Further information

#### Product:

Remarks: The toxicological data has been taken from products of similar composition.

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Product:

Ecotoxicology Assessment

Toxicity Data on Soil : Not expected to adsorb on soil.

#### Components:

##### **potassium nitrate:**

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

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

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

### 12.2 Persistence and degradability

#### Components:

##### **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: Does not accumulate in organisms.

#### Components:

##### **potassium nitrate:**

Bioaccumulation : Remarks: Does not bioaccumulate.

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### 12.4 Mobility in soil

**Product:**

Distribution among environmental compartments : Remarks: Slightly mobile in soils

**Components:**

**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 : Additional ecological information  
The following ecotoxicological data refer to:  
potassium nitrate

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Dispose of wastes in an approved waste disposal facility.

Contaminated packaging : Contaminated packaging should be emptied as far as

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possible; then it can be passed on for recycling after being thoroughly cleaned.

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### SECTION 14: Transport information

#### 14.1 UN number or ID number

Not regulated as a dangerous good

#### 14.2 UN proper shipping name

Not regulated as a dangerous good

#### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

#### 14.4 Packing group

Not regulated as a dangerous good

#### 14.5 Environmental hazards

Not regulated as a dangerous good

#### 14.6 Special precautions for user

Not applicable

#### 14.7 Maritime transport in bulk according to IMO instruments

Remarks : Not relevant

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### 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

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

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.

#### 15.2 Chemical Safety Assessment

Not relevant

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### SECTION 16: Other information

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### Full text of H-Statements

H272 : May intensify fire; oxidizer.  
H360FD : May damage fertility. May damage the unborn child.

### Full text of other abbreviations

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, 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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