

## Floranid Twin Permanent

Version: 2.7

Revision Date:  
14.05.2019

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

#### 1.1 Product identifier

Trade name : Floranid Twin Permanent

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

Use of the Sub-  
stance/Mixture : Fertilizer

#### 1.3 Details of the supplier of the safety data sheet

Company : COMPO EXPERT GmbH  
Kroegerweg 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  
responsible for the SDS : info@compo-expert.com

#### 1.4 Emergency telephone number

Quality / Safety / Environment  
Telephone:+49 (0) 2151 - 579 - 0

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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.

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

#### 2.3 Other hazards

None known.

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### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

Chemical nature : NPK-Fertilizer on basis: N,N"-(isobutylidene)diurea, crotonyl-

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idenediurea, ammonium nitrate, potassium salt, ammonium salts, phosphates, magnesium salts, calcium salts, other nutrients.

### 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
iron sulphate	7720-78-7 231-753-5 01-2119513203-57-XXXX	Acute Tox. 4; H302 Eye Irrit. 2; H319 Skin Irrit. 2; H315	< 3
Borates, tetra sodium salts, pentahydrate	12179-04-3 215-540-4 01-2119490790-32-XXXX	Repr. 1B; H360FD Eye Irrit. 2; H319	< 0,2
zinc sulphate	7733-02-0 231-793-3 01-2119474684-27-XXXX	Acute Tox. 4; H302 Eye Dam. 1; H318 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	<= 0,05
disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON']cuprate(2-)	14025-15-1 237-864-5 05-2114842509-41-0000	Acute Tox. 4; H302	<= 0,5

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : Wash hands with water as a precaution.
- If inhaled : Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.  
Obtain medical attention.  
In case of lung irritation, first treatment with dexametason aerosol (spray).
- In case of skin contact : Wash off with plenty of water.
- In case of eye contact : Rinse thoroughly with plenty of water for at least 15 minutes

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and consult a physician.

If swallowed : Clean mouth with water and drink afterwards plenty of water.  
Call a physician immediately.

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

Symptoms : Ingestion may provoke the following symptoms:  
Methaemoglobinemia  
Inhalation of decomposition products in high concentration  
may cause shortness of breath (lung oedema).

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

Treatment : Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

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

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

Specific hazards during fire-fighting : Can decompose at above 100 °C. Thermal decomposition products:  
Nitrogen monoxide, nitrogen dioxide, dinitrogenoxide, ammonia  
Isobutyraldehyd

### 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 flush into surface water or sanitary sewer system.  
Retain and dispose of contaminated wash water.

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### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Use mechanical handling equipment.

### 6.4 Reference to other sections

none

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

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

Advice on protection against fire and explosion : The product is not flammable. Keep away from sources of ignition - No smoking. Keep away from combustible materials. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Risk of explosion if heated under confinement.

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 : When stored loose do not mix with other fertilizers. Store well away from other substances. Keep away from direct sunlight. Protect against heat. Protect from contamination. Protect from moisture.

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)

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Borates, tetra sodium salts, pentahydrate			3 mg/m <sup>3</sup>	DE TRGS 900
Peak-limit: excursion factor (category)	8;(II)			

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Further information	Commission for dangerous substances, The threshold value is based on the element content of the corresponding metal., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the un-born child			
		AGW	0,5 mg/m <sup>3</sup> (Borate)	DE TRGS 900
Peak-limit: excursion factor (category)	2;(I)			
Further information	Commission for dangerous substances, The threshold value is based on the element content of the corresponding metal., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the un-born child			
			1 mg/m <sup>3</sup>	ACGIHTLV

Contains no substances with occupational exposure limit values.

### 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	Specific effects	36 mg/m <sup>3</sup>
Remarks:	Exposure time: 1 d			
	Workers	Skin contact	Specific effects	5,12 mg/kg
Remarks:	Exposure time: 1 d			
	Consumers	Ingestion	Specific effects	2,56 mg/kg bw/day
Remarks:	Exposure time: 1 d			
	Consumers	Inhalation	Specific effects	8,9 mg/m <sup>3</sup>
Remarks:	Exposure time: 1 d			
iron sulphate	Workers	Skin contact	Acute effects, systemic effects	2,8 mg/kg
Remarks:	Exposure time: 24 h			
	Workers	Inhalation	Acute effects, systemic effects	9,9 mg/m <sup>3</sup>
	Workers	Skin contact	Chronic effects, systemic effects	2,8 mg/kg
Remarks:	Exposure time: 24 h			
	Workers	Inhalation	Chronic effects, systemic effects	9,9 mg/m <sup>3</sup>
	Consumers	Ingestion	Acute effects, systemic effects	1,4 mg/kg
Remarks:	Exposure time: 24 h			

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	Consumers	Skin contact	Acute effects, systemic effects	1,4 mg/kg
Remarks:	Exposure time: 24 h			
	Consumers	Inhalation	Acute effects, systemic effects	2,5 mg/m <sup>3</sup>
	Consumers	Ingestion	systemic effects, Chronic effects	1,4 mg/kg
Remarks:	Exposure time: 24 h			
	Consumers	Skin contact	Chronic effects, systemic effects	1,4 mg/kg
Remarks:	Exposure time: 24 h			
	Consumers	Inhalation	Chronic effects, systemic effects	2,5 mg/m <sup>3</sup>

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

Substance name	Environmental Compartment	Value
ammonium nitrate	Fresh water	0,45 mg/l
	Marine water	0,045 mg/l
	Ceiling Limit Value	4,5 mg/l
iron sulphate	Water	
Remarks:	This product has no known ecotoxicological effects.	
	Behaviour in waste water treatment plants	2483 mg/l
	Fresh water sediment	246000 mg/kg
	Marine sediment	246000 mg/kg
	Soil	276000 mg/kg

## 8.2 Exposure controls

### Personal protective equipment

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

Hand protection  
Material : Gloves

Skin and body protection : No special protective equipment required.

Respiratory protection : respiratory protection only if aerosol or dust is formed.

### Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.

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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

Appearance	: granular
Colour	: various
Odour	: odourless
Odour Threshold	: No data available
pH	: ca. 6,2, 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.
Upper explosion limit	: Not applicable
Lower explosion limit	: Not applicable
Vapour pressure	: Not applicable
Relative vapour density	: Not applicable
Bulk density	: ca. 860 kg/m <sup>3</sup>
Solubility(ies)	
Water solubility	: soluble
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: 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

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Oxidizing properties : Not applicable

### 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.  
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 : oxidizable substances  
Strong acids and strong bases

### 10.6 Hazardous decomposition products

Hazardous decomposition products : Nitrogen monoxide, nitrogen dioxide, dinitrogenoxide, ammonia  
Isobutyraldehyd

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Product:

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

Acute dermal toxicity : Remarks: No data available  
Contains no hazardous ingredients according to GHS  
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



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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

### **iron sulphate:**

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg  
Method: OECD Test Guideline 401

LD50 (Rat): 657 - 4.390 mg/kg  
Method: Calculation method

Acute toxicity estimate: 500 mg/kg  
Method: Converted acute toxicity point estimate

Acute inhalation toxicity : Remarks: This information is not available.

Acute dermal toxicity : LD50 (Rat): > 1.992 mg/kg  
Method: Converted acute toxicity point estimate

### **Borates, tetra sodium salts, pentahydrate:**

Acute oral toxicity : LD50 (Rat): 3.200 - 3.400 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2,0 mg/l  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg

### **zinc sulphate:**

Acute oral toxicity : LD50 (Rat): 862 - 4.429 mg/kg

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

### **disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON']cuprate(2-):**

Acute oral toxicity : LD50 Oral (Rat): > 1.750 mg/kg

### **Skin corrosion/irritation**

#### **Product:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: non-irritant

#### **Components:**

##### **ammonium nitrate:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: non-irritant

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### **iron sulphate:**

Method: OECD Test Guideline 404

Result: Skin irritation

Remarks: Irritating to skin and mucous membranes

### **Borates, tetra sodium salts, pentahydrate:**

Species: Rabbit

Result: No skin irritation

### **zinc sulphate:**

Species: Rabbit

Assessment: Irritating to skin.

### **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

##### **iron sulphate:**

Method: OECD Test Guideline 405

Result: Eye irritation

##### **Borates, tetra sodium salts, pentahydrate:**

Species: Rabbit

Assessment: Irritant

Result: Moderate eye irritation

##### **zinc sulphate:**

Species: Rabbit

Result: Risk of serious damage to eyes.

### **Respiratory or skin sensitisation**

#### **Product:**

Result: non-sensitizing

#### **Components:**

##### **ammonium nitrate:**

Result: Does not cause skin sensitisation.

##### **iron sulphate:**

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Method: OECD TG 429  
Result: Did not cause sensitisation on laboratory animals.

### **Borates, tetra sodium salts, pentahydrate:**

Test Type: Buehler Test  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: Does not cause skin sensitisation.

### **Germ cell mutagenicity**

#### **Product:**

Genotoxicity in vitro : Remarks: No data available

#### **Components:**

##### **ammonium nitrate:**

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

##### **Borates, tetra sodium salts, pentahydrate:**

Germ cell mutagenicity- Assessment : In vitro tests showed mutagenic effects

### **Carcinogenicity**

#### **Product:**

Remarks: Contains no ingredient listed as a carcinogen

#### **Components:**

##### **ammonium nitrate:**

Species: Rat  
Remarks: Animal testing did not show any carcinogenic effects.

##### **iron sulphate:**

Carcinogenicity - Assessment : Did not show carcinogenic, teratogenic or mutagenic effects in animal experiments.

##### **Borates, tetra sodium salts, pentahydrate:**

Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

### **Reproductive toxicity**

#### **Product:**

Effects on fertility :  
Remarks: No toxicity to reproduction

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

### 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.

#### **Borates, tetra sodium salts, pentahydrate:**

Reproductive toxicity - Assessment : In animal testing, risk of impaired fertility was shown only after administration of very high doses of this substance.  
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.

### **STOT - repeated exposure**

#### Product:

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

### Components:

#### **iron sulphate:**

Remarks: No known effect.

### **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

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Species: Rat  
NOAEL:  $\geq$  185 mg/kg  
Application Route: by inhalation  
Exposure time: 2 w  
Method: Repeated Dose Inhalation Toxicity: 28-day or 14-day Study.

### **iron sulphate:**

Species: Rat  
NOAEL: 284 - 324 mg/kg  
Application Route: Oral  
Exposure time: 90 d  
Remarks: Information given is based on data obtained from similar substances.

Species: Rat  
NOAEL: 100 mg/kg  
Application Route: Oral  
Exposure time: 49 d

Application Route: by inhalation  
Remarks: This information is not available.

Application Route: Dermal  
Remarks: This information is not available.

### **Further information**

#### **Product:**

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

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

#### **Product:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Method: Directive 84/449/EEC, C.2

Toxicity to algae : EC50 (Scenedesmus subspicatus): > 100 mg/l  
Exposure time: 72 h  
Method: DIN 38412

#### **Components:**

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### **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

### **iron sulphate:**

Ecotoxicology Assessment

- Acute aquatic toxicity : This product has no known ecotoxicological effects.

### **Borates, tetra sodium salts, pentahydrate:**

- Toxicity to fish : LC50 (dab): 74 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 242 mg/l  
Exposure time: 24 h
- Toxicity to algae : EC10 (Scenedesmus subspicatus): 24 mg/l  
Exposure time: 96 h

### **zinc sulphate:**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,43 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,86 mg/l  
Exposure time: 48 h
- Toxicity to algae : EC50 (Scenedesmus quadricauda (Green algae)): 0,52 mg/l  
Exposure time: 120 h
- Toxicity to bacteria : EC50 (Bacteria): 22,75 mg/l  
Exposure time: 0,5 h

### **disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON']cuprate(2-):**

- Toxicity to fish : LC50 (Fish): > 100 mg/l
- Toxicity to algae : EC50 : 30 mg/l  
Exposure time: 96 h

## 12.2 Persistence and degradability

### **Product:**

- Biodegradability : Remarks: No data available

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Physico-chemical removability : DOC reduction  
ca. 85 %  
Method: OECD 301E/92/69/EWG, C.4-B  
Remarks: Readily eliminated from water

### **Components:**

#### **ammonium nitrate:**

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

#### **iron sulphate:**

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

### 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

##### **iron sulphate:**

Bioaccumulation : Remarks: Accumulation in aquatic organisms is unlikely.

### 12.4 Mobility in soil

#### **Product:**

Mobility : Remarks: No data available

Distribution among environmental compartments : Remarks: Moderately mobile in soils

#### **Components:**

##### **iron sulphate:**

Distribution among environmental compartments : Medium:Soil  
Remarks: immobile

### 12.5 Results of PBT and vPvB assessment

#### **Product:**

Assessment : Remarks: Not applicable

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### Components:

#### **iron sulphate:**

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

### 12.6 Other adverse effects

#### Product:

Additional ecological information : Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations.  
There is a high probability that the product is acute not harmful to aquatic organisms.

## 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

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 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Remarks : Not relevant

## SECTION 15: Regulatory information



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

Water contaminating class (Germany)	: WGK 1 slightly water endangering
Other regulations	: TRGS 511 'Ammonium nitrate'

### 15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this product.

## SECTION 16: Other information

### Full text of H-Statements

H272	: May intensify fire; oxidizer.
H302	: Harmful if swallowed.
H315	: Causes skin irritation.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H360FD	: May damage fertility. May damage the unborn child.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.

### Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Acute aquatic toxicity
Aquatic Chronic	: Chronic aquatic toxicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Ox. Sol.	: Oxidizing solids
Repr.	: Reproductive toxicity
Skin Irrit.	: Skin irritation

(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

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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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