Material Safety Data Sheet
according to Regulation (EC) No. 1907/2006

K+S nitrogen

Ammonium Sulphate Granammon 21 N+24 S

Version 2.1 Printing date 13/12/2010
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1. Identification of the substance/mixture and of the company/undertaking

Product identifier

Ammonium Sulphate Granammon 21 N+24 S

REACH Registriernummer: 01-2119455044-46-0046

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

Relevant identified uses: Chemical
Recommended use: fertilizers, Chemical, Intermediate, process chemical, Fire extinguishing compounds, Laboratory chemicals

Details of the supplier of the safety data sheet

Company:
K+S Nitrogen GmbH
Reichskanzler-Müller-Str. 23
D-68165 Mannheim

Telephone: +49 621 87209-0
E-mail address: info@ks-nitrogen.com

Emergency telephone number

International emergency number:
Telephone: +49 621-60-43333

2. Hazards Identification

Label elements

According to Regulation (EC) No 1272/2008 [CLP]

The product does not require a hazard warning label in accordance with GHS criteria.

According to Directive 67/548/EEC or 1999/45/EC

The product does not require a hazard warning label in accordance with EC Directives.

Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

No need for classification according to GHS criteria for this product.

According to Directive 67/548/EEC or 1999/45/EC

Possible Hazards:
No specific dangers known, if the regulations/notes for storage and handling are considered.

Other hazards

Assessment PBT / vPvB:
According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria.. Self classification
According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling vPvB (very persistent/very bioaccummulative) criteria.. Self classification

3. Composition/Information on Ingredients

Substances

Chemical nature

Ammonium sulphate
CAS Number: 7783-20-2
EC-Number: 231-984-1
caprolactam (Content (W/W): < 0.5 %)
CAS Number: 105-60-2
EC-Number: 203-313-2
INDEX-Number: 613-069-00-2

4. First-Aid Measures

Description of first aid measures

Remove contaminated clothing.

If inhaled:
After inhalation of dust. Fresh air. If difficulties occur: Seek medical attention. After inhalation of decomposition products: Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:
Wash thoroughly with soap and water.

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open. Seek medical attention.

On ingestion:
Rinse mouth immediately and then drink plenty of water, seek medical attention.

Most important symptoms and effects, both acute and delayed
Hazards: After inhalation of decomposition products: Risk of pulmonary edema. Symptoms can appear later.

Indication of any immediate medical attention and special treatment needed
Treatment: After inhalation of decomposition products: Pulmonary odema prophylaxis.

5. Fire-Fighting Measures

Extinguishing media
Suitable extinguishing media:
water spray, foam, dry powder

Special hazards arising from the substance or mixture
At temperatures of 235 °C can be emitted: ammonia

Advice for fire-fighters
Further information:
Product itself is non-combustible; fire extinguishing method of surrounding areas must be considered. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures
Information regarding personal protective measures see, chapter 8.

Environmental precautions
Do not discharge into drains/surface waters/groundwater. Retain and dispose of contaminated wash water.

Methods and material for containment and cleaning up
For large amounts: Sweep/shovel up.
For residues: Sweep/shovel up. Rinse away with water.

Reference to other sections
Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

7. Handling and Storage

Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities
Segregate from alkalies and alkalizing substances. Segregate from nitrites and alkaline substances. Further information on storage conditions: Protect against moisture. The substance/product may cake under the influence of moisture.

8. Exposure Controls/Personal Protection

Control parameters

Components with workplace control parameters

7783-20-2: Ammonium sulphate

PNEC
freshwater: 0.312 mg/l

marine water: 0.0312 mg/l

intermittent release: 0.53 mg/l

STP: 16.18 mg/l

sediment (freshwater): 0.063 mg/kg

soil: 62.6 mg/kg

DNEL

worker
Long-term exposure- systemic effects, dermal: 42.67 mg/kg bw/day

worker

Long-term exposure- systemic effects, Inhalation: 11.17 mg/m3

consumer
Long-term exposure- systemic effects, oral: 6.4 mg/kg bw/day

consumer
Long-term exposure- systemic effects, Inhalation: 1.67 mg/m3

consumer
Long-term exposure- systemic effects, dermal: 12.8 mg/kg bw/day

Exposure controls

Personal protective equipment

Respiratory protection:
Breathing protection if breathable aerosols/dust are formed. Particle filter with low efficiency for solid particles (e.g. EN 143 or 149, Type P1or FFP1)

Hand protection:
Chemical resistant protective gloves (EN 374)
e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinylchloride (0.7 mm) and other
Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

General safety and hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Handle in accordance with good industrial hygiene and safety practice. At the end of the shift the skin should be cleaned and skin-care agents applied.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Form:	crystalline
Colour:	white
Odour:	odourless
pH value:	approx. 5 (100 g/l, 20 °C)
melting point (decomposition):	approx. 350 °C The substance / product decomposes.
Flash point:	(other) The substance/product is non-combus

Flammability:	does not ignite	(other)
Vapour pressure:	0.0000001 hPa (25 °C) Literature data.	(measured)
Density:	1.766 g/cm3 (20 °C)	
Relative density:	1.77 (25 °C, 1,013 hPa) Literature data.	(other)
Solubility in water:	764 g/l (20 °C) 843 g/l (50 °C)	
Partitioning coefficient n-octanol/water (log Kow):	not applicable	
Self ignition:	not self-igniting	Test type: Spontaneous self-ignition at room-temperature (Method: other)
	The value has not be determined because of the low risk of self-ignition in consequence of the high flash-point.	Test type: Self-ignition at high temperatures. (Method: other)

Thermal decomposition: > 235 °C
To avoid thermal decomposition, do not overheat.

Viscosity, dynamic:
not applicable

Other information

Bulk density: 1,000 kg/m3
(20 °C)

adsorption:
Study scientifically not justified.

Surface tension: (other)
Based on chemical structure, surface activity is not to be expected.

Grain size distribution > 1000 µm (other)

Test substance	other TS
particles > 500 µm	16.91 %
particles < 100 µm	40.85 %

particles	0.09 %

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Formation of flammable gases:	Remarks: Forms no flammable gases in the presence of water.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
Evolution of ammonia under influence of alkalies. Reacts with alkalis and nitrites.

Conditions to avoid
See MSDS section 7 - Handling and storage.

Incompatible materials

Substances to avoid:
alkaline reactive substances, nitrites

Hazardous decomposition products

Hazardous decomposition products:
ammonia

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:
Of low toxicity after single ingestion. Virtually nontoxic after a single skin contact.

Experimental/calculated data:
LD50 rat (oral): 4,250 mg/kg (BASF-Test)

LD50 rat (dermal): > 2,000 mg/kg
Literature data.

Irritation

Assessment of irritating effects:
Not irritating to the skin. Not irritating to the eyes.

Experimental/calculated data:
Skin corrosion/irritation rabbit: non-irritant (BASF-Test)

Serious eye damage/irritation rabbit: non-irritant (BASF-Test)

Respiratory/Skin sensitization

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:
Guinea pig maximization test guinea pig: Non-sensitizing. (other)
The product has not been tested. The statement has been derived from products of a similar structure or composition.

Germ cell mutagenicity

Assessment of mutagenicity:
The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in studies with mammals.

Carcinogenicity

Assessment of carcinogenicity:
In long-term animal studies in which the substance was given in high concentrations by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:

No indications of a developmental toxic / teratogenic effect were seen in animal studies. The product has not been tested. The statement has been derived from products of a similar structure or composition.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
No substance-specific organotoxicity was observed after repeated administration of high doses to animals.

Aspiration hazard

not applicable

12. Ecological Information

Toxicity

Assessment of aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:
LC50 (96 h) 53 mg/l, Oncorhynchus mykiss (Fish test acute)

Aquatic invertebrates:
EC50 (48 h) 121.7 mg/l, Ceriodaphnia sp. (Daphnia test acute, static)

Aquatic plants:
EC50 (18 d) 2,700 mg/l (growth rate), Chlorella vulgaris (other)
The details of the toxic effect relate to the nominal concentration.

Microorganisms/Effect on activated sludge:
EC20 (0.5 h) approx. 1,050 mg/l, activated sludge (OECD Guideline 209, aquatic)
The product has not been tested. The statement has been derived from products of a similar structure or composition.

Chronic toxicity to aquatic invertebrates:
EC10 (70 d), 3.12 mg/l (semistatic)

Soil living organisms:
LC50 (14 d) 201 mg/kg, Eisenia foetida (artificial soil)
The product has not been tested. The statement has been derived from products of a similar structure or composition.

Other terrestrial non-mammals:
Study scientifically not justified.

Persistence and degradability

Assessment biodegradation and elimination (H2O):
Inorganic product which cannot be eliminated from water by biological purification processes. Can be oxidized to nitrate, or be reduced to nitrogen, by microorganisms.
Inorganic product which cannot be eliminated from water by biological purification processes. Can be oxidized to nitrate, or be reduced to nitrogen, by microorganisms.

Elimination information:
Study scientifically not justified.

Bioaccumulative potential

Assessment bioaccumulation potential:
Accumulation in organisms is not to be expected.

Bioaccumulation potential:
Study scientifically not justified.

Mobility in soil (and other compartments if available)

Assessment transport between environmental compartments:
Adsorption to solid soil phase is not expected.

Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria.. Self classification

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Not fulfilling vPvB (very persistent/very bioaccummulative) criteria.. Self classification

13. Disposal Considerations

Waste treatment methods

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.

14. Transport Information

Land transport

ADR

Not classified as a dangerous good under transport regulations

RID

Not classified as a dangerous good under transport regulations

Inland waterway transport
ADNR

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

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

Chemical Safety Assessment

Chemical Safety Assessment performed

16. Other Information

Vertical lines in the left hand margin indicate an amendment from the previous version.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.