DSM Agro B.V.
P.O. Box 601, 6160 AP Geleen (The Netherlands)
Phone: (31) 46 476 00 55, Fax: (31) 46 452 86 15, Internet: www.dsm-agro.com

Safety Data Sheet

Conforms to 1907/2006/EC

Version 3
Issue date 10-8-2009

Granular3

1 Identification of the substance/preparation and of the company/undertaking

Commercial product name	Granular3
Common chemical name	Ammonium sulphate
Synonyms	Sulphate of ammonia; Sulphate of ammonia 21 (+24)
Chemical formula	(NH4)2SO4
Use of the substance/preparation	EC FERTILISER
EU category number	
Company name	DSM Agro B.V.
Company address	P.O. Box 601 6160 AP Geleen The Netherlands
Company telephone	(31) 46 476 00 55
Company e-mail	dsm.agro@dsm.com
Emergency telephone	(31) 46 476 55 55 24/24 hours 7/7 days

2 Hazards identification

Physical/chemical hazards	Based on the available data of this product no hazardous properties are known.
Environmental hazards	Harmful to aquatic organisms.
Effect(s) of (over)exposure	
Symptom(s) of (over)exposure	Dust may cause mechanical irritation. May be harmful if swallowed. Coughing. Sore throat . shortness of breath/breathing difficulty
Inhalation	May be mildly irritating. Coughing. Sore throat . shortness of breath/breathing difficulty
Ingestion	May be harmful if swallowed. Nausea, vomiting, diarrhoea.
Skin contact	May be mildly irritating.
Eye contact	May cause eye irritation. (redness).

3 Composition/information on ingredients

Chemical name	CAS no.	EC no.	% (w/w)	Symbol	R phrases
Ammonium sulphate	7783-20-2	231-984-1	100	-	-

EC no. means EINECS or ELINCS number.

4 First aid measures

General	Move exposed person to fresh air.
Inhalation	If inhaled, remove to fresh air. Obtain medical attention if symptoms occur.
Ingestion	If swallowed, rinse mouth with water (only if the person is conscious). Obtain medical attention if symptoms occur.
Skin contact	Rinse with plenty of running water. Remove contaminated clothing and shoes. Obtain medical attention if symptoms occur.
Eye contact	Rinse with plenty of running water. Obtain medical attention if symptoms occur.
Note to physician	

5	Fire-fighting measures	
	Extinguishing media	
	Small fire	Non-combustible. Use extinguishing media suitable for surrounding materials.
	Large fire	Non-combustible. Use extinguishing media suitable for surrounding materials.
	Extinguishing media not to be used	
	Unusual fire and explosion hazards	No specific hazard.
	Hazardous thermal decomposition and combustion products	In case of fire, may produce hazardous decomposition products such as nitrogen oxides (NO, NO2), ammonia (NH3), amines, sulphur oxides (SO2, SO3).
	Special fire fighting procedures	Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. Wear suitable protective clothing. Self-contained breathing apparatus.

6	Accidental release measures	
	Personal precautions	Avoid creating dusty conditions and prevent wind dispersal. Use suitable protective equipment (section 8).
	Environmental precautions	Prevent entry into sewers, basements or confined areas. Dyke if necessary. In case of contamination of aquatic environment, inform local authorities.
	Methods for cleaning up	
	Small spill and leak	Vacuum or sweep up material and place in a designated labelled waste container. Clean up affected area with a large amount of water.
	Large spill and leak	Prevent entry into sewers, basements or confined areas. Dyke if necessary. Vacuum or sweep up material and place in a designated labelled waste container. Recycle, if possible. Prevent formation of dust clouds. Avoid release to the environment. This material and its container must be disposed of as hazardous waste
	Remarks	
	Note: see section 8 for personal protective equipment and section 13 for waste disposal.	

7	Handling and storage	
	Handling	Use with adequate ventilation. Local exhaust ventilation should be provided. Avoid creating dusty conditions and prevent wind dispersal. Do not allow to enter drains or watercourses.
	Storage	Use appropriate containment to avoid environmental contamination. Keep container tightly closed. Segregate from oxidising materials. Store away from bases, metals.
	Specific use(s)	
	Packaging materials	Stainless steel. Synthetic materia
	Note: See section 10 for stability and reactivity	

8	Exposure controls / Personal protection	
	Exposure limit values	
	Engineering measures	None required. However, use of adequate ventilation is good industrial practice.
	Hygienic measures	When using do not eat, drink or smoke. Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.
	Personal protection	Production scale
	Respiratory system	Wear dust protection mask P2.
	Skin and body	Working clothes.
	Hands	Wear suitable gloves. 4-8 hours (breakthrough time): Butyl rubber. PVC.
	Eyes	Safety glasses with side shields.
	Environmental exposure controls	
	Advice on personal protection is applicable for high exposure levels.	
	Select proper personal protection based on a risk	

9	Physical and chemical properties	
	Appearance	Solid. (Granular)
	Color	White
	Odor	Odourless.
	Odor threshold	
	Molecular weight	132.16

pH	5 to 6 (Concentration 5%)
Boiling point	Not applicable.
Melting point/ range	Decomposes. >235 °C
Flash point	Not applicable.
Flammability	Not applicable.
Autoignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Lower explosion limit	Not applicable.
Upper explosion limit	Not applicable.
Minimum ignition energy	Not applicable.
Critical temperature	Not applicable.
Relative density	
Density	1.78 g/cm3 (20°C)
Loose bulk density	1010 kg/m3
Vapour pressure at 20°C	
Vapour density	
Partition coefficient n-octanol/water	
Viscosity	
Mean particle size	3,3 +/- 0,3 mm
Solubility in water	76 g/100 ml (20°C) Easily soluble in cold water
Miscibility	
Fat solubility	
Conductivity	
Gas group	
Remarks	

10 Stability and reactivity

Stability	Stable under recommended storage and handling conditions (see section 7).
Conditions to avoid	Exposure to sources of heat.
Materials to avoid	Oxidizing substances and bases.
Hazardous decomposition products	In case of fire: see section 5.

11 Toxicological information

Acute toxicity

Ingredient name	Test	Species	Route	Result
Ammoniumsulfaat	LD_{50}	Rat	Oral	2840 mg/kg
	LD_{50}	Rat	Oral	4540 mg/kg
	LD_{50}	Mouse	Oral	640 mg/kg
	LD_{50}	Rat	Dermal	>2000 mg/kg
	LD_{Lo}	Domestic animals	Oral	3500 mg/kg
	LC_{50}	Rat	Inhalation	>1000 mg/m3 (8hours)

Irritation	May be mildly irritating.
Sensitization	
Chronic toxicity	
Carcinogenicity	
Mutagenicity	Non-mutagenic for bacteria and/or yeast.
Reproductive toxicity	
Remarks	The following applies to ammonium salts in general: After swallowing: nausea, vomiting, diarrhoea. Systemic effects: After intake of large quantities: drop in blood pressure, collapse, CNS disorders, respiratory paralysis, narcosis, haemolysis.

12 Ecological information

Ingredient name	Aquatic half-life	Photolysis	Biodegradability
Ammonium sulphate	-	-	readily

Ingredient name	Test	Period	Result
Ammonium sulphate	Oncorhynchus mykiss (LC50) Daphnia magna (LC50) Pimephales promelas (LC50) Oncorhynchus mykiss (LC50) Oncorhynchus mykiss (LC50)	96 hours 96 hours 96 hours 96 hours 96 hours	6.6 mg/l >20 mg/l >20 mg/l 36.7 mg/l 39.2 mg/l

Ingredient name	LogPow	Bio-concentration factor	Bioaccumulative potential
Ammonium sulphate	-5,1	-	low

Mobility	For data on physical state and : solubility see section 9.
Persistence and degradability	Methods for the determination of biodegradability are not applicable to inorganic substances.
Bioaccumulative potential	
Ecotoxicity	

13 Disposal considerations

Responsibility of the receiver to have knowledge of national and local regulations.

Methods of disposal	Waste must be disposed of in accordance with national and local environmental regulations. Controlled biodegradation in waste water treatment is possible.

14 Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
ADR/RID Class	Not regulated.	Sulphate of ammonia 21 (+24)	-	-		-
ADNR Class	Not regulated.	Sulphate of ammonia 21 (+24)	-	-		-
IMDG Class	Not regulated.	Sulphate of ammonia 21 (+24)	-	-		-
IATA Class	Not regulated.	Sulphate of ammonia 21 (+24)	-	-		-

15	Regulatory information	
	Responsibility of the receiver to have knowledge of national and local regulations.	
	EU regulations	EC FERTILISER
	Hazard symbol	According to EU Directives 67/548/EEC and 1999/45/EC this product does not require labelling.
	R- and S phrases	According to EU Directives 67/548/EEC and 1999/45/EC this product does not require labelling.
	National Fire protection Association (U.S.A)	none

16	Other information	
	Risk phrases	-
	Safety phrases	-
	Symbols	-
	Storage classification	-
	Date previous SDS	18-9-2007
	Modifications in this version	Adress change
	References	DSM: WW15261