

CALCIUM AMMONIUM NITRATE

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

Product/Trade name	CALCIUM AMMONIUM NITRATE (CAN)
Common chemical name	Calcium Ammonium Nitrate (20-27% N)
Synonyms	CAN (20-27% N)
Chemical formula	Mixture. Main ingredient NH_4NO_3
EU index number	Not applicable
EC No	Not applicable
CAS No.	Not applicable
REACH Registration Number.	Not applicable, as the fertilizer is a mixture.
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Use of the substance/mixture	Fertilizer
Uses advised against	Other non-specified industry
1.3 Details of the supplier of the safety data sheet	
Manufacturer/Importer/Supplier	McCreath Simpson & Prentice (A Trading Division of Simpsons Malt Ltd), Tweed Valley Maltings, Tweedside Trading Estate, Berwick-upon-Tweed, TD15 2UZ, Tel: 01289 330022
Email address of the person responsible for SDS	AndyRichardson@mspagriculture.co.uk
1.4 Emergency telephone number	Tel: 01289 33002

2.0 Hazards identification

2.1 Classification of the substance or mixture	
Z	Non-hazardous.
Hazard statement(s)	Not applicable
Classification in accordance with Directive 67/548 (DSD)	Not applicable
Risk phrase(s)	Not applicable
2.2 Label elements	
Hazard pictogram(s)	None.
Signal word	Not applicable
Hazard Statement(s)	None.
Precautionary Statements	None.
2.3 Other hazards	
PBT/vPvB criteria	: Ammonium nitrate is not considered as PBT or vPvB according to criteria defined in Annex XIII of the 1907/2006 regulation
Other hazards which do not result in classification	According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since ammonium nitrate is inorganic.

Physical and chemical hazards

Fertilizers are basically harmless products when handled correctly. However, the following points should be noted for fire, heating and detonation: The fertilizer is not itself combustible but it can support combustion, even in the absence of air. On heating it melts and further heating can cause decomposition, releasing toxic fumes containing nitrogen oxides and ammonia. It has high resistance to detonation. Heating under strong confinement can lead to explosive behaviour.

Health hazards

The fertilizers are basically harmless products when handled correctly. However, prolonged or repeated contact with skin may cause discomfort, ingestion of large quantities may give rise to gastro-intestinal disorders and inhalation of dust at high concentrations may cause irritation of the nose and upper respiratory tract with symptoms such as sore throat and coughing. There are no known long term effects.

Environmental hazards

The product is a nitrogen fertilizer. Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters or nitrate contamination. See Section 12.

3.0 Composition/information on ingredients

Mixture

Hazardous ingredients

Chemical name	CAS no.	EC no.	Generic REACh Reg No.)	Classification Regulation (EC) No. 1272/2008	Classification Directive 67/548/EEC	% (w/w)
Ammonium nitrate	6484-52-2	229-347-8	01-2119490981-27	Ox. Sol 3, H272 Eye Irrit. 2, H319	O; R8, Xi; R36	~78

Other possible ingredients

calcium carbonate and/or	471-34-1	207-439-9	N/A	N/A	N/A	~21
dolomite	16389-88-1	240-440-2	N/A	N/A	N/A	-
Magnesium Sulphate	14168-73-1	231-298-2	Exempt	-	-	
Potassium Sulphate	7778-80-5	231-915-5	01-2119489441-34-xxxx	-	-	

4.0 First aid measures**4.1 Description of first aid measures**

General In some cases medical attention necessary (see below).

Inhalation Remove from source of exposure to dusts.
Obtain medical attention if ill effects occur.

Ingestion Do not induce vomiting.
Rinse mouth and then give water or milk to drink.
Obtain medical attention if more than a small quantity has been swallowed.

Skin contact Wash the affected area with water.

Eye contact Flush/irrigate eyes with copious amounts of water for at least 15 minutes.
Remove contact lenses if present and easy to do so.
Obtain medical attention if symptoms persist.

4.2 Most important symptoms and effects, both acute and delayed

Acute effects None known.

Delayed effects None known.

4.3 Indication of any immediate medical attention and special treatment needed**Note to physician**

Inhalation of fire and thermal decomposition gases, containing oxides of nitrogen and ammonia, can cause irritation and corrosive effects on the respiratory system. Some lung effects may be delayed. Give oxygen, especially if there is blueness around the mouth.

5.0 Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

If fertilizer is not directly involved in the fire

Use the best means available to extinguish the fire.

If fertilizer is involved in the fire

Use plenty of water.

Unsuitable extinguishing media

Do not use chemical extinguishers or foams or attempt to smother the fire with steam or sand.

5.2 Special hazards arising from the substance or mixture

Specific hazards

Potential explosion hazard under fire conditions when severely confined and/or contaminated with incompatible materials (e.g. organic materials, halogenated compounds - see Section 10)
Do not allow molten fertilizers to run into drains.

Hazardous thermal decomposition and combustion products

Oxides of nitrogen and ammonia.

5.3 Advice for firefighters

Special fire fighting procedures

Open doors and windows of the store to give maximum ventilation.

Avoid breathing the fumes (toxic). Stand up-wind of the fire.

Prevent any contamination of fertilizer by oils or other combustible materials.

Special protective equipment for fire-fighters

Use a self-contained breathing apparatus if fumes are being entered.

6.0 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid walking through spilled product and exposure to dust.

6.2 Environmental precautions

Take care to avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses.

6.3 Methods and material for containment and cleaning up

Any spillage of fertilizer should be cleaned up promptly, swept up and placed in a clean labelled open container for safe disposal, avoiding dusty conditions.

Do not mix with sawdust and other combustible or organic substances.

Dilute any contaminated or fine grained fertilizer with inert materials such as limestone/dolomite, mineral phosphate, gypsum, sand or dissolve in water.

6.4 Reference to other sections

See section 1 for emergency contact information, section 8 for personal protective equipment and section 13 for waste disposal.

7.0 Handling and storage

Precautions for safe handling

Avoid excessive generation of dust.

Avoid contamination by combustible (e.g. diesel oil, grease, etc.) and/or other incompatible materials.

Avoid unnecessary exposure to the atmosphere to prevent moisture pick-up.

When handling the product over long periods use appropriate personal protective equipment, e.g. gloves.

Carefully clean all equipment prior to maintenance and repair.

Conditions for safe storage, including any incompatibilities

Store in compliance with national and local regulations

Locate away from the sources of heat or fire.

Keep away from combustible materials and substances mentioned under Section 10.

On farm, ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc.

When stored loose, take particular care to avoid mixing with other fertilizers.

Ensure high standard of housekeeping in the storage area.

Do not permit smoking and use of naked lights in the storage areas.

Restrict stack size (according to local regulations) and keep at least 1m distance around the stacks of bagged products.

Any building used for the storage should be dry and well ventilated.

Where the nature of the bagged product and climatic conditions so require, store under conditions that will avoid product breakdown by thermal cycling (wide variation in temperature).

The product should not be stored in direct sunlight to avoid physical breakdown due to thermal cycling.

Packaging materials:

Plastic synthetic materials, steel and aluminum are suitable. Avoid use of copper and zinc.

Specific end use(s)

Fertiliser

8.0 Exposure controls/personal protection

8.1 Control parameters

Regulated Exposure limit values	No specific EU official limit.
Recommended occupational and consumer exposure limit values (following from the performed CSA): For Ammonium nitrate	Exposure pattern Derived No Effect Level (DNEL) Workers General population Oral Not applicable 12.8 mg/kg bw/day Dermal 21.3 mg/kg bw/day 12.8 mg/kg bw/day Inhalation 37.6 mg/m ³ 11.1 mg/m ³ The long-term DNEL is considered sufficient to ensure that effects from acute exposure to the substance do not occur.
PNEC For ammonium nitrate	fresh water: 0.45 mg/l marine water: 0.045 mg/l Intermittent use/release: 4.5 mg/l Sewage treatment plant: 18 mg/l

8.2 Exposure controls

Appropriate engineering measures	Avoid high dust concentration and provide ventilation where necessary.
Hygienic measures	When handling the product do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the working period.
Individual protection	Respiratory system If dust concentration is high and/or ventilation is inadequate, use suitable dust mask or respirator with an appropriate filter (e.g. EN 143, 149, filters P1) Skin and body Working clothes. Hands Wear suitable gloves (e.g. rubber or leather) when handling the product over long periods. Eyes Use appropriate safety eye wear depending on the task being carried out.
Environmental exposure controls	Avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses. Do not flush into surface water or sanitary sewer system.

9.0 Physical and chemical properties

Appearance	White, off-white or grey granules or prills unless deliberately coloured during manufacture.
Odour	Odourless.
Odour threshold	Not applicable.
pH	>4.5
Melting point/freezing point	160-170°C depending on moisture content. 169.6 – 169.7°C (from peer-reviewed handbook)
Initial boiling point and boiling range	No boiling point, decomposes > 210 °C
Flash point	Not relevant, as the fertilizer is a mixture of inorganic solids.
Evaporation rate	Not applicable
Flammability (solid, gas)	Non flammable.
Upper/lower flammability or explosive limits	Not applicable.
Explosive properties	The fertilizer has a high resistance to detonation. This resistance is decreased by the presence of contaminants and/or high temperatures. Heating under strong confinement (e.g. in tubes or drains) may lead to a violent reaction or explosion especially if there is contamination by some of the substances mentioned under Section 10.
Auto-ignition temperature	Not combustible.
Decomposition temperature	Starts to decompose above approx. 170°C
Minimum ignition energy	Not applicable
Oxidising properties	Not classified as an oxidizer.
Critical temperature	Not applicable
Relative density	Not applicable.
Density	1725 kg/m ³ for main ingredient ammonium nitrate as solid material
Loose bulk density	Normally between 900-1200 kg/m ³
Vapour pressure at 20°C	Considered negligible (based on melting and boiling point).
Vapour density	Not applicable
Partition coefficient (n-octanol/water)	Not applicable.
Viscosity	Not applicable to solids
Water solubility	>100 g/l at 20°C. Hygroscopic - readily picks up moisture from the air.
Surface tension	Not surface active (based on molecular structure)

10.0 Stability and reactivity

10.1	Reactivity	Stable under recommended storage and handling conditions (see section 7, handling and storage).
	Chemical stability	Stable under recommended storage and handling conditions (see section 7, handling and storage).
10.2		
10.3	Possibility of hazardous reactions	When heated, can decompose.
10.4	Conditions to avoid	Heating above 170°C (decomposes to gases). Contamination by incompatible materials. Unnecessary exposure to the atmosphere. Sources of heat or fire close to the product. Heating under confinement. Welding or hot work on equipment or plant which may have contained fertilizer without first washing thoroughly to remove all fertilizer.
10.5	Conditions to avoid	Combustible materials, reducing agents, acids, alkalis, sulphur, chlorates, chlorides, chromates, nitrites, permanganates, metallic powders and substances containing metals such as copper, nickel, cobalt, zinc and their alloys.
10.6	Hazardous decomposition products	For fire situation: see section 5. When strongly heated, it melts and decomposes releasing toxic fumes (e.g. NO _x , ammonia) When in contact with alkaline material such as lime, may give off ammonia gas. See also Sections 2 and 9.

11.0 Toxicological information

11.1 Information on toxicological effects

Toxicokinetics, metabolism and distribution	Not available	
Acute effects	Ingredients name	
	Acute oral toxicity Ammonium nitrate	LD50: 2950 mg/kg bw (OECD 401)
	Acute dermal toxicity Ammonium nitrate	LD50: > 5000 mg/kg bw (OECD 402)
	Acute inhalation toxicity Ammonium nitrate	LC50: > 88.8 mg/l (no guideline followed)
Local effects		
	Skin irritation Product	No critical or specific hazard
	Eye irritation Product	Not classified as irritating; see section 16.
Skin sensitisation	Not sensitizing (OECD 429, with magnesium nitrate, nitric acid ammonium calcium salt, sodium nitrate)	
Other		
	Sub-acute toxicity Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate) Oral 52-week NOAEL = 256 mg/kg bw/day (OECD 453, with ammonium sulfate) Inhalation 2-weeks NOAEL ≥ 185 mg/m ³ (OECD 412)	
	Mutagenicity Negative (OECD 471, 473, with nitric acid ammonium calcium salt) Negative (OECD 476, with potassium nitrate)	
	Reproductive toxicity Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)	
	Carcinogenicity Not carcinogenic (OECD 453, with ammonium sulfate)	
Remarks	Adverse health effects are considered unlikely when the product is used and handled correctly. If large quantities are ingested may give rise to gastro-intestinal disorders.	

12.0 Ecological information

12.1 Toxicity

Ammonium nitrate	Fish (short-term)	48-h LC50: 447 mg/l (no guideline followed)
	Fish (long-term)	No data
	Daphnia magna (short-term)	48-h EC50: 490 mg/l (no guideline followed, with potassium nitrate)
	Daphnia magna (long-term)	No data
	Algae	10-d EC50: > 1700 mg/l (seawater, no guideline followed, performed with potassium nitrate)
	Inhibition of microbial activity	3-h EC50: >1000 mg/l, NOEC: 180 mg/l (OECD 209, with sodium nitrate)

12.2 Persistence and degradability	Ingredient name	Ammonium Nitrate
	Biodegradation	Standard test is not applicable as the substance is inorganic.
	Hydrolysis	No hydrolysable group is present, will completely dissociate into ions.
12.3 Bioaccumulative potential	Octanol-water partition coefficient	Not relevant as the mixture is inorganic, but considered to be low (based on high water solubility)
	Bioconcentration factor (BCF)	Low potential for bioaccumulation (based on main ingredient prop
12.4 Mobility in soil	Low potential for adsorption (based on main ingredient properties) Very soluble in water. The NO ₃ ⁻ ion is mobile. The NH ₄ ⁺ ion is adsorbed by soil.	
12.5 Results of PBT and vPvB assessment	According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since ammonium nitrate is inorganic.	
12.6 Other adverse effects	Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters.	

13.0 Disposal considerations

13.1 Waste treatment methods	In accordance with local and national regulations, disposed by landfill or incineration. Controlled biodegradation in waste water treatment is possible.
Container	Containers should be cleaned by appropriate method and then re-used or disposed by landfill or incineration as appropriate, in accordance with local and national regulations. Do not remove label until container is thoroughly cleaned.
Methods of disposal	Depending on degree and nature of contamination dispose of by use as fertilizer on farm, as raw material for liquid fertilizer, or to an authorised waste facility. Do not empty into drains; dispose of this material and its container in a safe way and in accordance with all applicable local and national regulations. See chapters 06 03 and 06 10 of the list of wastes (Commission decision 2000/532/EC)
Package waste disposal	Empty the bag by shaking to remove as much as possible of its contents. If approved by local authorities, empty bags may be disposed of as non-hazardous material or returned for recycling.

Note: see section 7 for safe handling and storage

14.0 Transport information

	ADR/RID	ADN/ADNR	IMDG	ICAO/IATA
14.1 UN Number			Not classified	
14.2 UN Proper shipping name	Ammonium nitrate based fertilizer	Ammonium nitrate based fertilizer	Ammonium nitrate based fertilizer	Ammonium nitrate based fertilizer
14.3 Transport hazard class(es)			Not classified	
14.4 Packing group			Not applicable.	
Label			Not applicable.	
14.5 Environmental hazards	Not applicable.			
14.6 Special precautions for user	None.			
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.			

15.0 Regulatory information

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture	EC 2003/2003, 96/82 EC; Seveso <i>Directive</i> .
Other regulations	Regulation EC 1907/2006 (REACH), EC 2003/2003, 96/82 EC. Decision No 1348/2008/EC of the European Parliament & of the Council and Commission Regulation (EC) No 552/2009.
15.2 Chemical safety assessment	In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for themain ingredient Ammonium Nitrate as a substance.

16.0 Other 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 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.

Classification in accordance with Regulation 1272/2008, as listed in Annex VI: None.

Classification in accordance with Regulation 1272/2008, by self-classification based on the performed CSA Not classified.
No eye irritation (tested on mixtures with similar compositions according to OECD 437 and OECD 405)

Risk phrases
R8 Contact with combustible material may cause fire.
R36 Irritating to eye.

Symbols
O oxidizing
Xi irritant

Abbreviations and acronyms
Oxidizing solids category 3 (Ox. Sol 3)
May intensify fire; oxidizer (H272)
Eye irritation Category 2 (Eye Irrit. 2)
Causes serious eye irritation (H319)

Disclaimer

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