

Safety Data Sheet, Fertilizer Material - **Ammonium Nitrate Solution**

1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY

Designation	EC Nitrogen Fertilizer Solution
Trade name	
Commonly used synonyms	
CAS Number	6484-52-2
EINECS Number	229-347-8
EINECS Name	Ammonium nitrate solution (80-93 weight %)
Molecular formula	Main ingredient NH_4NO_3

2. COMPOSITION/INFORMATION ON INGREDIENTS

2.1 Nature of ingredients and concentration

Concentrated solution of ammonium nitrate in water

2.2 Classification

Not classed as hazardous material according to EEC Directive 67/548/EEC.

3. HAZARDS IDENTIFICATION

3.1 Human health

These solutions are not dangerous.

Skin Contact

Material will not cause burns.

Eye Contact

Splashes will not cause eye burns or permanent eye damage.

Ingestion

Small quantities of ammonium nitrate are unlikely to cause toxic effect. Large quantities may give rise to gastro-intestinal disorders and in extreme cases, formation of methaemoglobin (blue baby syndrome) and cyanosis (indicated by blueness around the mouth) may occur.

Inhalation

Ammonia will not be released from cold solutions.

Long term effects

No adverse effects are known.

Fire and thermal decomposition products

Inhalation of decomposition gases, containing nitrogen oxides and ammonia, can cause irritation and corrosive effects on the respiratory system. Some lung effects may be delayed.

3.2 Environment

Ammonium nitrate is a nitrogen fertilizer. Heavy spillage is not possible with quantities involved in cold packs so adverse environmental impacts such as eutrophication in confined surface waters or nitrate contamination are not possible.

3.3 Other

Fire, heating and detonation

When strongly heated, concentrated ammonium nitrate solutions may decompose giving off nitrogen oxides and ammonia.

Decomposition may start if the solutions become acidic (this is catalysed by Cl, Fe, Co Ni, Cr, Zn and Cu), but can be arrested by correcting the acidity by the addition of gaseous ammonia. Heating under strong confinement can lead to explosive behaviour. Addition of alkaline materials may cause evolution of ammonia vapours.

4. FIRST-AID MEASURES

4.1 Product

Skin Contact

Do not remove contaminated clothing.

Flush skin immediately with large amounts of cold water.

If possible, submerge affected area in cold water and pack with ice.

Obtain immediate medical attention.

Eye Contact

Flush/irrigate eyes with copious amounts of water for at least 10 minutes.

Obtain immediate medical attention.

Ingestion

In case of ingestion, do not induce vomiting.

Wash out mouth with water and give 2 or 3 glasses of water to drink.

Obtain immediate medical attention.

Inhalation

Unless subjected to heating, ingress by inhalation is most unlikely, however, if toxic vapours are inhaled:

Move the injured person to fresh air at once.

Keep the patient warm and at rest.

Administer oxygen, especially if the person is blue in the face.

Apply artificial respiration, if breathing has stopped.

Obtain immediate medical attention.

4.2 Fire and decomposition products

Inhalation

Move the person from the source of exposure to fumes.

Keep warm and at rest even though no symptoms may be evident.

Give oxygen, especially if the person is blue in the face.

Apply artificial respiration, if breathing has stopped.

Obtain medical attention immediately.

Following exposures, the patient should be kept under medical review for at least 48 hours as delayed pulmonary Œdema may develop.

5. FIRE-FIGHTING MEASURES

The product is not combustible, but it will support combustion even in absence of air.

5.1 If fertilizer is not directly involved in the Fire

Use the best means available to extinguish the Fire.

5.2 If fertilizer is involved in the Fire

Call the Fire brigade.

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

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

Use plenty of water to smother the Fire.

Cool Fire-exposed containers and structures with water spray.

If water containing fertilizer enters any drains or watercourse, inform the local authorities immediately.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions

Put on protective equipment before entering danger area.

Keep combustible materials (wood, paper, oil, etc.) away from spilled product.

6.2 Environmental precautions

With bulk product not individual packs, take care to avoid the contamination of watercourses and drains. Inform appropriate authority in case of accidental contamination of watercourses.

6.3 Methods for cleaning

Swill away small spillage with copious quantities of water.

Contain large spillage with sand or earth as necessary.

Allow material to solidify and scrape up.

Place material in suitable containers for recycling or waste disposal.

7. HANDLING AND STORAGE

7.1 Handling

Wear eye and hand protection.

Provide adequate ventilation.

Avoid contamination, especially with incompatible materials.

7.2 Storage

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

8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Occupational exposure limits

No official specific limits.

8.2 Precautionary and engineering measures

Avoid exposure to vapours and provide local exhaust ventilation where necessary.

Provide safety showers and eye washing facility at any location where skin or eye contact can occur.

8.3 Personal Protection

In emergency situations, use suitable respiratory protection.

Wear heat resistant gloves and protective clothing.

Use chemical safety goggles or full face shield.

9. PHYSICAL AND CHEMICAL PROPERTIES

% concentration figures below refer to ammonium nitrate content.

Appearance	Colourless clear liquid when free from crystals.
Odour	Weak ammonia odour.
pH water solution (conc. 10%)	> 4.5.
Freezing point	110°C (91-93%).
Boiling point	130°C (81.4%); 159°C (93.0%).
Vapour pressure at 100°C	39.6kPa (80%); 22.6kPa (89.9%).
Oxidizing properties	Not classed as an oxidizing material according to Directive 67/548/EEC
Explosive properties	Heating under confinement can lead to a violent reaction or explosion. Not classed as explosive.
Solubility in water	Miscible in all proportions.
Density	1.41g/cm ³ at 100°C (91%).

10. STABILITY AND REACTIVITY

10.1 Stability

The product is stable when properly stored, handled and used.

10.2 Conditions to avoid

Temperatures below crystallisation point and above 150°C (decomposition).

Maximum temperature 140°C in transport - IMDG Code.

Acidification of solutions.

Dewatering of solutions.

10.3 Materials to avoid

Contact with combustible materials, reducing agents, acids, alkalis, soda ash, chlorides, chlorates, chromates, nitrites, metals such as copper, iron, cobalt, nickel, zinc and zinc alloys.

10.4 Hazardous reactions/decomposition products

Concentrated ammonium nitrate solutions react with organic materials (e.g. wood, oil or grease) in some situations after some time delay. They react vigorously with zinc and zinc alloys. (See Section 3.3.)

11. TOXICOLOGICAL INFORMATION

11.1 General

See Section 3.1

11.2 Toxicity Data

LD50 (oral, rat) > 2000mg/kg

May cause methæmoglobinæmia

(See Section 3.1.)

12. ECOLOGICAL INFORMATION

12.1 Mobility

Very soluble in water. The NO₃⁻ ion is mobile. The NH₄⁺ ion is adsorbed by soil.

12.2 Persistence/Degradability

The nitrate ion is the predominant form of plant nutrition. It follows the natural nitrification/denitrification cycle to give nitrogen, the product is biodegradable.

12.3 Bio-accumulation

The product does not show any bio-accumulation phenomena.

12.4 Ecotoxicity

Low toxicity to aquatic life. TLM 96 between 10-100ppm.

13. DISPOSAL CONSIDERATIONS

13.1 General

Disposal should be in accordance with local or national legislation.

Ice packs can be disposed of with household waste.

14. TRANSPORT INFORMATION

14.1 UN Classification

Class 5, Division 5.1 Oxidizing Substances, UN No 2426.

14.2 Details

Composition	UN No	Class	Transport Mode Particulars	Label
³ 93% AN			IMDG:	
² 0.2% combustible			Packaging gr.:	
			Tanks only	
² 7% water	2426	5.1	Stowage cat.: D	5.1
² 0.02% Cl ⁻ ions			Max. allowable transp.	
pH 5-7			temperature: 140°C	
			Code page: 5125 (94)	
> ⁸ 0 and ² 93%	2426	5.1	ADR/RID:	5.1
pH 5-7			Item 20°(C)	

15. REGULATORY INFORMATION

15.1 EEC Directives

76/116/EEC (Law relating to fertilizers)

82/501/EEC, 87/216/EEC and 88/610/EEC (Seveso Major Accident Hazard)

15.2 National laws

16. OTHER INFORMATION

The information in this safety data sheet is given in good faith and belief in its accuracy based on our knowledge of the substance/preparation concerned at the date of publication. It does not imply the acceptance of any legal liability or responsibility whatsoever by the Company for the consequences of its use or misuse in any particular circumstances.