



## MATERIAL SAFETY DATA SHEETS

33

Ammonium nitrate

### 1. CHEMICAL IDENTITY

**Chemical Name :** Ammonium nitrate

**Chemical Classification:** Toxic, Reactive

**Trade Name :** Nitram

**Synonyms:** Nitric acid, Ammonium salt, Ammonium saltpeter

**Formula :** H<sub>4</sub>N<sub>2</sub>O<sub>3</sub>

**CAS No:** 6484-52-2

**UN No:** 1942

### Regulated Identification

**Shipping Name :** Ammonium nitrate

**Hazchem Code :** 1Z

**Codes / Label :** Class 5.1, Toxic, Reactive

**Hazardous Waste ID No :** 17

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S. No.
1 Ammonium nitrate	6484-52-2	3	
2		4	

### 2. PHYSICAL / CHEMICAL DATA

**Boiling Pt. °C:** 210 °C at 11 mm Hg      **Physical State:** Solid      **Appearance:** White crystals. Colorless (pure) to gray or brown.

**Melting Pt °C:** 169.6      **Vapour Pressure @ 35°C mmHg:** 0.003 (79 °C)      **Odour:** Odourless

**Vapour Density(Air =1):**      **Solubility in water at 30°C g/100ml:** 675 g/L (25 °C).      **Others:** Soluble in alcohol and methanol, alkalies. Decomposes around 210 °C hygroscopic, deliquescent.

**Specific Gravity (Water =1 ):** 1.72 g/cm<sup>3</sup> at 25 °C(solid)      **pH :** 0.1 M Soln. 5.43

### 3. FIRE / EXPLOSION HAZARD DATA

**Flammability :** No      **LEL:**      **Flash Point °C in OC:**

**TDG Flammability:**      **UEL:**      **Flash Point °C in CC:**

**Autoignition Temperature °C :**

**Explosion sensitivity to impact:** Stable

**Explosion sensitivity to static Electricity:** Stable

**Hazardous Combustion Products :** Emits highly toxic fumes of Nox

**Hazardous Polymerization :** Will not occur.

**Combustible Liquid:** No      **Explosive Material:** No      **Corrosive Material** No  
**Flammable Material:** No      **Oxidiser :** Yes      **Others:**  
**Pyrophoric Material:** No      **Organic Peroxide :** No

### 4. REACTIVITY DATA

**Chemical Stability :** Stable

**Incompatibility with other material :** Incompatible with acetic acid, aluminum, ammonium chloride, antimony bismuth, cadmium, carbon, chlorides, chromium cobalt, potassium and

ammonium sulfate.

**Reactivity** : Spontaneous reaction with acetic anhydride + nitric acid, ammonium sulfate + K, copper iron (II) sulfide, saw dust, urea, barium nitrate, hot water, ammonium chloride + water + Zn.

**Hazardous** : Reaction with alkali metals forms an explosive product.

**Reaction Products**

## 5. HEALTH HAZARD DATA

**Routes of entry:** Inhalation, skin, eyes and ingestion

**Effects of Exposure / Symptoms:**

Causes irritation of eyes and mucous membrane. Absorption via inhalation or ingestion causes urination or acid urine. Large amount causes systemic acidosis and methemoglobinemia.

**Emergency Treatment :**

**Inhalation:** Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Skin:** Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

**LD50 (oral-rat) mg/kg:** 4500 mg/kg.

**STEL:**

**LC50 (rat) mg/kg:** >88.8 mg/L/4hr

**Odour Threshold:**

**Permissible Exposure Limit:**

**TLV (ACGIH) :**

NFPA Hazard	Health	Flammability	Reactivity	Special
Signals	0	0	3	0

## 6. PREVENTIVE MEASURES

**Personal Protective Equipment** : Provide full personal protective equipments such as hand gloves, face shield, self- contained breathing apparatus, body overclothing and shoes.

**Handling** : Use with adequate ventilation. Minimize dust generation and accumulation. Keep container tightly closed. Avoid contact with heat, sparks and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage** : A relatively stable explosive which has however caused many industrial explosions. It is important that the mass of the materials be kept cool, well ventilated. Prevent contact with combustible substances and reducing materials.

**Precautions** : Avoid contact with solid or dust.

## 7. EMERGENCY / FIRST AID MEASURES

**FIRE:**

**Fire Extinguishing Media** : Use large quantity of water in early stages of fire.

**Special Procedure** : Keep the containers cool by spraying water if exposed to heat or flame. Containers may explode in fire. Poisonous gases may be produced.

**Unusual Hazards** : Containers may explode in fire. Poisonous gases may be produced.

**EXPOSURE: First Aid Measures:**

**Inhalation:** Remove from exposure to fresh air immediately. If not breathing, give artificial

respiration. If breathing is difficult, give oxygen. Get medical aid.

**Skin:** Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

#### **Antidotes / Dosages:**

#### **SPILLS :**

**Steps To Be Taken** : Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, using the appropriate protective equipment. Avoid generating dusty conditions. Remove all sources of ignition.

**Waste Disposal Method:** Slowly collect the material and seal in vapour tight plastic bags for eventual disposal.

### **8. ADDITIONAL INFORMATION / REFERENCES**

A powerful oxidiser. A relatively stable explosive which has however caused industrial explosions. Forms heat or shock sensitive, explosive mixtures with acetic acid, aluminium + calcium nitrate + formamide (a blasting explosive), ammonia, charcoal + metal oxides, chloride salts, fertilizers, hydrocarbon oils, powdered metals, non-metals, organic fuels, potassium permanganate, sugar, sulphur and trinitroanisole. Reaction with alkali metals forms an explosive product. Ignites on contact with ammonium potassium dichromate, potassium chromate. Barium chloride, sodium chloride, potassium nitrate and chromium (VI) salts. Can ignite when mixed with acetic acid. Occasional explosions in presence of oils,  $(\text{NH}_4)_2\text{SO}_4$  with K or Na.

### **9. MANUFACTURERS / SUPPLIERS DATA**

<b>NAME OF FIRM :</b>	<b>Contact person</b>
<b>MAILING ADDRESS :</b>	<b>in Emergency :</b>
<b>TELEPHONE / TELEX NOS :</b>	<b>Local Bodies involved :</b>
<b>TELEGRAPHIC ADDRESS :</b>	<b>Standard Packing :</b>
<b>OTHERS :</b>	<b>Trem Card Details / Ref :</b>

### **10. DISCLAIMER**

Information contained in this material data sheet is believed to be reliable but no representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. It is up to the manufacturer/ seller to ensure that the information contained in the material safety data sheet is relevant to the product manufactured / handled or sold by him as the case may be. The Government makes no warranties expressed or implied in the respect of the adequacy of this document for any particular purpose.

*End of document*

*Total No. of Pages: 3*