

MATERIAL SAFETY DATA SHEET**DISTRIBUTOR:**

Lange-Stegmann Company
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SECTION I - PRODUCT IDENTITY AND MANUFACTURING INFORMATION**PRODUCT:** Lange-Stegmann Fertilizer Urea Ammonium Nitrate Solution 28%**PRODUCT CODE:** NITSOL28A**DATE PREPARED/REVISED:** Jan 2008**SECTION II - INGREDIENTS AND IDENTITY INFORMATION**

<u>INGREDIENTS:</u>	<u>Percentage by Weight</u>	<u>CAS Number</u>
Ammonium Sulfate	37-41%	6484-52-2
Urea	29-32%	57-13-6
Water	34-27%	7732-18-5
Free Ammonia	< .05%	7664-41-7
UAN Solution		15978-77-5

<u>Exposure Limits</u>	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>IDLH</u>
Ammonia	25ppm	35ppm	50ppm	300ppm

*No limits established for Urea or Ammonium Nitrate

SECTION III - PHYSICAL AND CHEMICAL PROPERTIES**Physical Form:** Liquid**Color:** Colorless**Odor:** Slight ammonia odor (pungent)**Boiling Point:** Approximately 225° F (107°C)**Melting/Freezing Point:** 0°F (- 18°C)**pH:** 6.8-7.5**Solubility:** 100%**Specific Gravity:** 1.281**Vapor Density:** Approximately 1.07 (at 60°F)**Vapor Pressure:** 8.6-17.5 mmHg (at 100°F)**% Volatile by Volume:** No test results**Molecular weight:** N/A**Density:** 10.67 lb/gal at 60° F**Critical Temperature:** No test results**Critical Pressure:** No test results**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

UAN is not flammable.

Extinguishing Media:

Use water to extinguish a fire involving UAN, if water is compatible with the burning material.

Special Fire Fighting Media:

- Apply cooling water to sides of containers that are exposed to flames until well after the fire is out.

- b) Positive pressure self-contained breathing apparatus (SCBA) should be used when there is a potential for inhalation of vapors and/or fumes.
- c) Wear full fire fighting protective equipment that is appropriate for conditions.

Caution:

- a) Run off from fire control or dilution water may cause pollution.
- b) When the water in UAN evaporates, residue may include solid ammonium nitrate and urea. When sensitized or during decomposition, solid ammonium nitrate may become unstable and/or explosive. UAN pumps operated with blocked discharge have been known to detonate. When UAN is heated to decomposition it may produce vapors containing nitrogen oxides (NO_x) and ammonia
- c) Avoid welding or burning on pipes, valves, or tanks that have contained UAN solution until they have been thoroughly rinsed. Residual ammonium nitrate may explode under conditions of confinement and high temperature.

SECTION V - HEALTH HAZARD INFORMATION

Primary Routes of Entry: Skin Contact/absorption and eye contact

General Acute Exposure: Contact with skin or eyes may cause irritation. UAN is not acutely toxic by oral route of exposure.

General Chronic Exposure: No test data available

Carcinogenicity:

NTP: Not Listed

IARC: Not Listed

OSHA Not Regulated

Medical Conditions Aggravated by exposure: No test data available

EMERGENCY AND FIRST AID PROCEDURES:

EYES: Immediately flush eyes with water for at least 15 minutes. If irritation, pain, swelling, excessive tearing, or light sensitivity persist, the patient should be seen in a health care facility.

SKIN: Immediately flush exposed area with water for at least 15 minutes followed by washing area thoroughly with soap and water. If irritation or pain persists, the patient should be seen in a health care facility.

INHALATION: Generally not considered an inhalation hazard. If irritation develops, move patient to fresh air and monitor. If cough or difficulty breathing develops, evaluate for respiratory tract infection. If needed, administer supplemental oxygen if trained to do so. If irritation, coughing, or difficulty breathing persist, the patient should be seen at a health care facility.

INGESTION: If conscious, give the patient large quantities of milk or water to drink immediately. Do not induce vomiting. Seek Medical attention immediately.

SECTION VI - REACTIVITY DATA

Stability: This material is stable.

Hazardous Polymerization: This will not occur.

Decomposition:

When the water in UAN evaporates, residue may include solid ammonium nitrate and urea. When sensitized or during decomposition, solid ammonium nitrate may become unstable and/or explosive. UAN pumps operated with blocked discharge have been known to detonate. When UAN is heated to decomposition it may produce vapors containing nitrogen oxides (NO_x) and ammonia.

Incompatibilities:

UAN will form trichloride, which may be explosive, when mixed with chlorine and hypochlorites. If UAN solution has been dehydrated to ammonium nitrate and urea, refer to the incompatibility/decomposition information for those chemical. UAN will form urea nitrate when mixed with nitric acid at a low pH. Urea nitrate may become unstable and/or explosive under certain conditions.

SECTION VII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

UAN alone does not pose an inhalation hazard. Decomposition of UAN may produce nitrogen oxides (NO_x vapors) and ammonia. Use fresh air supply systems to protect against NO_x and/or ammonia vapors. If necessary to enter a confined area that contains UAN, monitor for ammonia vapors. If ammonia vapors are present, protect as follows:

- >25ppm: No protection required
- 25 – 35ppm: Protection required if the daily TWA is exceeded
- 35 – 50ppm: Protection required if exposed for more than 15 min
- 50 – 250ppm: Minimum of an air-purifying respirator equipped with ammonia canister(s) or cartridge(s)
- 250 – 300ppm: Minimum of a full-face air-purifying respirator equipped with ammonia canister(s) or cartridge(s)
- <300ppm: A fresh air supply system must be used. (i.e. positive pressure self contained breathing apparatus)

SKIN PROTECTION:

It is recommended that if a person may come in contact with UAN for an extended length of time, or if a person demonstrates sensitivity to UAN, skin protection should be used. Most liquid tight gloves and liquid tight clothes are acceptable.

EYE PROTECTION:

If there is a potential for UAN to contact eyes, it is recommended that safety glasses or goggles be used.

OTHER PROTECTIVE EQUIPMENT:

Safety shower and eyewash station or at least 5 gallons of accessible clean water should be provided in a UAN handling area.

SECTION VIII - SPILL OR LEAK PROCEDURES

Keep unnecessary people away, isolate hazard area, and deny entry. UAN may be toxic to cattle(ruminants)or poultry if ingested.

Small Spill:

- a) Stop leak
- b) Spilled area may become slippery
- c) Wash contaminated areas with large volumes of water if approved by local, state, and federal environmental agencies. (Runoff may cause pollution)

Large Spills:

- a) Dike ahead of liquid spill for later recovery of useable product and proper disposal of any residue.
- b) Stop leak if you can do so without risk.
- c) Spilled area may become slippery.
- d) Wash contaminated areas with large volumes of water if approved by local, state, and federal environmental agencies. (Runoff may cause pollution)

SECTION IX – HANDLING AND STORAGE

Do not use zinc or copper (brass, bronze, etc.) alloys in contact with UAN solution due to corrosion. Also, cast irons, malleable irons, or ductile irons are much more susceptible to corrosion than aluminum or carbon steel. Be especially wary of plugs and fittings on storage tanks made from these materials.

Handling Precautions:

Use proper personal protective equipment when working with or around UAN. (see section 8)

SECTION X – TOXICOLOGICAL INFORMATION

Toxicity

Acute Oral Toxicity:

LD₅₀ Rat: > 2,000 mg/kg bw (OECD425)

Ecotoxicity

Acute Toxicity to fish:

LC₅₀ Oncorhynchus mykiss: 103 mg/L (96 hrs)

LC₅₀ Pimephalas promelas: 100- 500 mg/l (96 hrs)

*Source: TFI Product Testing Program 2003

SECTION XI – ECOLOGICAL INFORMATION

Notify local health and wild life officials and operators of any nearby water intakes of contamination or discharge into or leading to waterways.

Fertilizers containing ammonium nitrate and urea can cause poisoning in livestock and poultry. Nitrogen solutions can be toxic to aquatic life and spills may cause algae blooms in static waters. The conversion of ammonia to nitrites/nitrates by bacteria in aquatic systems can reduce the concentration of dissolved oxygen (referred to as nitrogenous oxygen demand)

SECTION XII – DISPOSAL CONSIDERATIONS

UAN is not listed by the federal EPA as a hazardous waste. Consult state/provincial and local environmental agencies for acceptable disposal methods. Recover product for use as a fertilizer if possible.

SECTION XIII – TRANSPORTATION INFORMATION

UAN is not listed by and U.S. or Canadian transportation authority as a hazardous material and as such, no specific information is available.

SECTION XIV – REGULATORY INFORMATION

SARA TITLE III:

UAN contains ammonia and nitrate ions from ammonium nitrate which are subject to the reporting requirements of 313 of SARA and 40 CFR Part 372. Lange-Stegmann is required to notify certain customers as to which of its mixtures or trade name products contain those substances. The purpose of that notification requirement is to ensure that facilities that may be subject to the reporting requirements of section 313 and that use products of unknown formulation will have knowledge that they are receiving products that contain substances subject to those reporting requirements.

CERCLA HAZARDOUS SUBSTANCE LIST:

Not Listed

TSCA INVENTORY:

Listed