

Date of issue/ Date of revision : 05/20/2020
Date of previous issue : 05/08/2019
Version : 4.0



SAFETY DATA SHEET

UAN 28%

Section 1. Identification

Product identifier : UAN 28%
Product type : Liquid
Product code : PA443L

Uses

Area of application : Industrial applications, Professional applications

Supplier

Supplier's details : Yara Belle Plaine Inc.

Address

Street : 2 Kalium Road
Number : Box 39
Postal code : S0G 0G0
City : Belle Plaine
Country : Canada

Telephone number : 306 345 4200
Fax no. : 306 345 2353
e-mail address of person responsible for this SDS : waqar.khan@yara.com
Emergency telephone number (with hours of operation) : 1 (306) 345 4200 (24/7)

National advisory body/Poison Center

Name : Poisons and Drug Information Service
Telephone number : +1 403 944 1414, (800) 332 1414 (Alberta only)

Section 2. Hazards identification

Classification of the substance or mixture. : EYE IRRITATION - Category 2A

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Precautionary statements

Prevention : P280-a Wear eye protection.
P264-a Wash hands thoroughly after handling.

Response : P305 IF IN EYES:
P351 Rinse cautiously with water for several minutes.
P338 Remove contact lenses, if present and easy to do. Continue rinsing.
P337 If eye irritation persists:
P313-a Get medical attention.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	CAS number	% (w/w)
Ammonium nitrate	6484-52-2	40.075

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Remark : Aqueous solution

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Rinse with plenty of running water. Check for and remove any contact lenses. If irritation persists, get medical attention.

Inhalation : Avoid inhalation of vapor, spray or mist. If inhaled, remove to fresh air.

Skin contact : Wash with soap and water. Get medical attention if irritation develops.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink.

Most important symptoms/effects, acute and delayed**Potential acute health effects**

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following: pain or irritation, watering, redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures**Extinguishing media**

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None identified.
- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials: nitrogen oxides, ammonia, Avoid breathing dusts, vapors or fumes from burning materials., In case of inhalation of decomposition products in a fire, symptoms may be delayed.
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : Non-explosive.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

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- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. DO NOT allow any pump handling the product to run dry or over-heat e.g. due to blockage or closed valve in the associated lines, resulting in pumping against a dead-end. Under such conditions if over-heating occurs this may cause vaporization and possible decomposition of the product. This can create pressure build-up in the pump and, if unchecked, lead to an explosion. Ensure that the pump is used correctly according to the manufacturers instructions at all times when pumping the product.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Bund storage facilities to prevent soil and water pollution in the event of spillage. The tank/container should be placed within a bunker able to take the whole tank/container volume.
- Specific recommendations to end users** : Store in a segregated and approved area. Do not store above the following temperature: 60° C

Section 8. Exposure controls/personal protection

Control parameters

- Occupational exposure limits** : None.
- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure** : Emissions from ventilation or work process equipment should

controls

be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures**Hygiene measures**

- : A washing facility or water for eye and skin cleaning purposes should be present. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Wash contaminated clothing before reusing.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: Tightly-fitting goggles,

Skin protection**Hand protection**

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. For general applications, we recommend gloves with a thickness typically greater than 0.35 mm. It should be emphasized that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material.

Body protection

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

Other skin protection

- : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

- : In case of inadequate ventilation wear respiratory protection.

Personal protective equipment (Pictograms)**Section 9. Physical and chemical properties****Appearance****Physical state**

- : Liquid

Color

- : Not determined.

Odor

- : odorless or slight ammoniacal

Odor threshold

- : Not determined.

pH

- : 6 - 8 @ 15 °C (59 °F)

Melting/freezing point	: -16 °C
Boiling/condensation point	: 121 °C (250 °F)
Sublimation temperature	: Not determined.
Flash point	: Not determined.
Evaporation rate	: Not determined.
Flammability (solid, gas)	: Non-flammable.
Lower and upper explosive (flammable) limits	: Lower: Not determined. Upper: Not determined.
Vapor pressure	: 6.99825 hPa @ 20 °C (68 °F)
Density	: 1.28 - 1.30 g/cm ³
Relative density	: Not determined.
Solubility	: Not determined.
Partition coefficient: n-octanol/water	: Not determined.
Auto-ignition temperature	: Not determined.
Decomposition temperature	: Not determined.
Viscosity	: Dynamic: Not determined. Kinematic: Not determined.
Explosive properties	: Non-explosive.
Oxidizing properties	: None

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Urea reacts with calcium hypochlorite or sodium hypochlorite to form the explosive nitrogen trichloride.
Conditions to avoid	: Avoid contamination by any source including metals, dust and organic materials.
Incompatible materials	: alkalis combustible materials, reducing materials, Urea reacts with calcium hypochlorite or sodium hypochlorite to form the explosive nitrogen trichloride., organic materials, Acids

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Method	Species	Result	Exposure	References
Ammonium nitrate					
	OECD 401 LD50 Oral	Rat	2,950 mg/kg	Not applicable.	CSR
	OECD 402 LD50 Dermal	Rat	> 5,000 mg/kg	Not applicable.	

Conclusion/Summary : No known significant effects or critical hazards.

Irritation/Corrosion

Product/ingredient name	Method	Species	Result	Exposure	References
Ammonium nitrate					
	OECD 405 Eyes	Rabbit	Irritant		CSR

Conclusion/Summary

Skin : No known significant effects or critical hazards.

Eyes : Causes serious eye irritation.

Respiratory : No known significant effects or critical hazards.

Sensitization

Product/ingredient name	Method	Species	Result	References
Ammonium nitrate				
	OECD 429 Skin	Mouse	Not sensitizing	

Conclusion/Summary

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Product/ingredient name	Method	Test detail	Result	References
Ammonium nitrate				
	OECD 473	Mammalian Toxicity - Genotoxicity - In vitro Mammalian Chromosome Aberration Test or Mammalian Bone Marrow Chromosomal Abberation Test or Mammalian Erythrocyte Micronucleus Test In vitro	Negative	CSR
	OECD 471	Bacteria In vitro	Negative	IUCLID

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Product/ingredient name	Method	Species	Result	Exposure	References
Ammonium nitrate					
	OECD 422 Oral	Rat	Fertility effects-Negative Developmental-Negative NOAEL > 1500 mg/kg bw/day	28 days	CSR

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

No known significant effects or critical hazards.

Aspiration hazard

No known significant effects or critical hazards.

Information on the likely routes of exposure: : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact : No known significant effects or critical hazards.
Ingestion : Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following: pain or irritation, watering, redness
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure**Short term exposure**

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Method	Species	Result	Exposure	References
Ammonium nitrate					
	OECD 422 Chronic NOAEL Oral	Rat	256 mg/kg	28 days	CSR
	OECD 412 Sub-acute NOEC Inhalation	Rat	> 185 mg/m ³	2 weeks 5 hours per day	CSR

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Effects on or via lactation : No known significant effects or critical hazards.

Other effects : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following: pain or irritation, watering, redness

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	7,363 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Method	Species	Result	Exposure	References
Ammonium nitrate					
	Acute LC50 Fresh water	Fish	447 mg/l	48 h	CSR
	Acute EC50 Fresh water	Daphnia	490 mg/l	48 h	CSR
	Acute EC50 Salt water	Algae	1,700 mg/l	10 d	CSR

Conclusion/Summary : No known significant effects or critical hazards.

Persistence and degradability

Conclusion/Summary : No known significant effects or critical hazards.

Bioaccumulative potential

Conclusion/Summary : No known significant effects or critical hazards.

Mobility in soil

Soil/water partition : Not available.

coefficient (KOC)	
Mobility	: Not available.
Other adverse effects	: No known significant effects or critical hazards.

Section 13. Disposal considerations

Product

Methods of disposal	: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
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Section 14. Transport information

Regulation: UN Class	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
<u>Environmental hazards</u>	: No.

Regulation: IMDG	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.

14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
<u>Marine pollutant</u>	: No.

Regulation: IATA	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
<u>Marine pollutant</u>	: No.

Regulation: DOT Classification	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
<u>Marine pollutant</u>	: Not available.

Regulation: TDG Class	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
Not applicable.	
<u>Environmental hazards</u>	: No.

- 14.6 Special precautions for user** : Transport within user's premises: Ensure that persons transporting the product know what to do in the event of an accident or spillage.
- IMSB** : Not applicable.
- Transport in bulk according to Annex II of MARPOL and the IBC Code**
- | | | |
|-----------------------------|---|----------------------------------|
| Proper shipping name | : | Urea / Ammonium nitrate solution |
| Ship type | : | 3 |
| Pollution category | : | Z |

Section 15. Regulatory information

Canadian lists

- Canadian NPRI** : The following components are listed: Ammonium nitrate
- CEPA Toxic substances** : None of the components are listed.

Inventory list

New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.

Japan inventory: All components are listed or exempted.

China inventory (IECSC): All components are listed or exempted.

Australia inventory (AICS): All components are listed or exempted.

United States inventory (TSCA 8b): All components are listed or exempted.

Section 16. Other information

- Key to abbreviations** :
- ADNR/ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
 - ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
 - ATE = Acute Toxicity Estimate
 - BCF = Bioconcentration Factor
 - bw = Body weight
 - GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 - IATA = International Air Transport Association
 - IBC = Intermediate Bulk Container
 - IMDG = International Maritime Dangerous Goods
 - LogPow = logarithm of the octanol/water partition coefficient
 - MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 - RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
 - SUSMP - Standard Uniform Schedule of Medicine and Poisons
 - SGG = Segregation Group
 - UN = United Nations

Procedure used to derive the classification

Classification	Justification
EYE IRRITATION - Category 2A	Calculation method

Key data sources :

- EU REACH ECHA/IUCLID5 CSR.
- National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda Registry of Toxic Effects of Chemical Substances.
- Sphera Solutions Inc., 4777 Levy Street, St Laurent, Quebec HAR 2P9, Canada.

History

Date of printing : 11/30/2020
Date of issue/Date of revision : 05/20/2020
Date of previous issue : 05/08/2019
Revision comments : The following sections contain new and updated information: 2, 3, 8, 11.

Version : 4.0
Prepared by : Yara Chemical Compliance (YCC).

|| Indicates information that has changed from previously issued version.

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