Safety Data Sheet
Urea Ammonium Nitrate (UAN) Solution

SDS Revision Date: **02/21/2017**

1. Identification

1.1. Product identifier

Product Identity	Urea Ammonium Nitrate (UAN) Solution
Alternate Names	ACL-001, UAN Solution 28% UAN Solution 32% , Urea Ammonium Nitrate (UAN) Solution

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use	See Technical Data Sheet.
Application Method	See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name

7420 Airport Road - Unit 202

Mississauga, ON L4T 4E5

Emergency

24 hour Emergency Telephone No.	AGRICO (MISSISSAUGA) EMERGENCY ASSISTANCE (905) 672-5700 CANUTEC 24 HOUR EMERGENCY 1-888-CAN-UTEC (226-8832)
Customer Service:	(502)842 2633

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Ox. Liq. 3;H272	May intensify fire; oxidizer.
Eye Irrit. 2;H319	Causes serious eye irritation.

2.2. Label elements

Warning

H272 May intensify fire; oxidizer.

H319 Causes serious eye irritation.

[Prevention]:

P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.

P221 Take any precaution to avoid mixing with combustibles.

P280 Wear protective gloves / eye protection / face protection.

[Response]:

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P337+313 If eye irritation persists: Get medical advice / attention.

[Storage]:

[Disposal]:

P501 Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the Controlled Products Regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Ammonium nitrate **CAS Number: 0006484-52-2**	**42**	**Ox. Liq. 3;H272** **Eye Irrit. 2;H319**	**[1]**
Urea **CAS Number: 0000057-13-6**	**33**	**Not classified**	**[1]**

[1] Substance classified with a health or environmental hazard.
[2] Substance with a workplace exposure limit.
[3] PBT-substance or vPvB-substance.
*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion If the person is conscious, have them drink water or milk. Contact a physician immediately. Do not induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Overview Contact with skin or eyes may cause irritation. See section 2 for further details.

Eyes Causes serious eye irritation.

5. Fire-fighting measures

5.1. Extinguishing media

Use media needed to control surrounding fire. Water content of product prevents ignition. The product can support combustion if water evaporates.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Combustion: oxides of nitrogen and carbon, ammonia, ammonium compounds, cyanide compounds, biuret. When the water in UAN evaporates, it leaves a residue of solid ammonium nitrate and urea; solid ammonium nitrate can explode.

Keep away from heat / sparks / open flames / hot surfaces - No smoking.

Take any precaution to avoid mixing with combustibles.

5.3. Advice for fire-fighters

Avoid welding or burning on pipes, valves, or tanks, which have contained UAN solution until they have been thoroughly washed out. Residual ammonium nitrate may explode under conditions of confinement and high temperature.

Wear self-contained breathing apparatus and protective clothing.

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6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

EMERGENCY ACTION: Keep unnecessary people away, and isolate hazard area.
SMALL SPILLS: Stop leak, if you can do so without risk. Collect product for recovery and use as a fertilizer.
LARGE SPILLS: For release to land, contain discharge by constructing dykes or applying inert absorbent. Keep out of streams. Check for contamination of drinking water supply. Notify applicable government authority if release is reportable or could adversely affect the environment.

7. Handling and storage

7.1. Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

May be toxic to cattle (ruminants) when ingested. Practically non-toxic to aquatic life (> 103 mg/L 9 hours LC50 Fish)

See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Store in a tightly closed container. Protect from freezing. Avoid heat, flames, sparks and other sources of ignition and do not allow material to become dry. Do not use zinc or copper (brass, bronze, etc.) alloys in contact with nitrogen solution. Also, cast iron, malleable iron or ductile iron is much more susceptible to corrosion than aluminum or carbon steel. Be especially wary of plugs and fittings on storage tanks made from these materials.

Incompatible materials: Avoid contact with combustible, organic or other readily oxidizable materials. Avoid contact with strong acids and chlorates or other strong oxidizers. Avoid heat, sparks and other sources of ignition. UAN will form urea nitrate when mixed with nitric acid at low pH; urea nitrate may become unstable and/or explosive under certain conditions. Contact with alkaline materials may liberate ammonia. Corrosive to brass and copper.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0000057-13-6	Urea	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	AIHA Workplace Environmental Exposure Limit (WEEL): 10mg/m3, 8-hr TWA
0006484-52-2	Ammonium nitrate	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit

8.2. Exposure controls

Respiratory If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators.

Eyes	Wear splash goggles, if exposed to splashing liquids.
Skin	Rubber coated gloves and suitable clothing to minimize skin contact are recommended.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

9. Physical and chemical properties

Appearance	Color may be clear, green, blue or pink. Liquid
Odor	It may have a faint to pungent ammonia odor.
Odor threshold	Not determined
pH	6.5 – 7.5
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	> 100 (°C)
Flash Point	Not Measured
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** Not Measured **Upper Explosive Limit:** Not Measured
Vapor pressure (Pa)	
Vapor Density	Not Measured
Specific Gravity	(H2)=1) 28% 1.280 32% 1.327
Solubility in Water	100%
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured
Density	@ 16°C 28% 10.67 32% 11.08 lbs/U.S. gal

9.2. Other information

No other relevant information.

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

Avoid contact with combustible, organic or other readily oxidizable materials. Avoid contact with strong acids and chlorates or other strong oxidizers. Avoid heat, sparks and other sources of ignition. UAN will form urea nitrate when mixed with nitric acid at low pH; urea nitrate may become unstable and/or explosive under certain conditions. Contact with alkaline materials may liberate ammonia. Corrosive to brass and copper.

10.6. Hazardous decomposition products

Combustion: oxides of nitrogen and carbon, ammonia, ammonium compounds, cyanide compounds, biuret. When the water in UAN evaporates, it leaves a residue of solid ammonium nitrate and urea; solid ammonium nitrate can explode.

11. Toxicological information

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Ammonium nitrate - (6484-52-2)	No data available	No data available	No data available	No data available	No data available
Urea - (57-13-6)	14,300.00, Rat - Category: NA	No data available	No data available	No data available	No data available

Carcinogen Data

CAS No.	Ingredient	Source	Value
0000057-13-6	Urea	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0006484-52-2	Ammonium nitrate	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	2	Causes serious eye irritation.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

12. Ecological information

12.1. Toxicity

Harmful to aquatic life.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Ammonium nitrate - (6484-52-2)	100.00, Fish (Piscis)	490.00,	1,700.00 (96 hr), Selenastrum capricornutum
Urea - (57-13-6)	6,810.00, Fish	22,998.00, Daphnia magna	5,001.00 (72 hr), Algae

12.2. Persistence and degradability

When released to soil, urea will hydrolyze into ammonium in a matter of days to several weeks. When released into water, this material may biodegrade to a moderate extent. When released into water, urea is expected to evaporate significantly bioaccumulation. When released into the air, urea is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, urea is expected to have a half-life of less than 1 day.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

Whatever cannot be saved for recovery or recycling should be managed in appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	Not Applicable	Not Regulated	Not Regulated
14.2. UN proper shipping name	Not Regulated	Not Regulated	Not Regulated
14.3. Transport hazard class(es)	**DOT Hazard Class:** Not Applicable	**IMDG:** Not Applicable **Sub Class:** Not Applicable	**Air Class:** Not Applicable
14.4. Packing group	Not Applicable	Not Applicable	Not Applicable

14.5. Environmental hazards

IMDG Marine Pollutant: No;

14.6. Special precautions for user

No further information

15. Regulatory information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all of the information required by those regulations.

Components are DSL Listed, NDSL Listed and/or are exempt from listing.

WHMIS Classification D2B C

16. Other information

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The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H272 May intensify fire; oxidizer.

H319 Causes serious eye irritation.

The information contained herein is furnished without warranty of any kind. The above information is believed to be correct but does not purport to be all inclusive and should be used only as a guide. Users should make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

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