

1. Identification

Product identifier UAN Solution <28%
Other means of identification
SDS number KAS_UAN28_CA_EN
Synonyms Urea Ammonium Nitrate Solution, UAN off-spec
Recommended use Fertiliser.
Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Manufacturer/Supplier Koch Agronomic Services, LLC
 4111 E 37th St N
 Wichita, KS 67220 US
 kochmsds@kochind.com
 1.866.863.5550

Emergency

For Chemical Emergency
 Call CHEMTREC Day or Night
 USA/Canada - 1.800.424.9300
 Mexico - 1.800.681.9531
 Outside USA/Canada - 1.703.527.3887
 (collect calls accepted)

2. Hazard identification

Physical hazards Not classified.

Health hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Supplemental information None.

Other hazards None known.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Water		7732-18-5	46 - 54
Urea		57-13-6	14 - 50
Ammonium nitrate		6484-52-2	0.5 - 40
Free Ammonia		7664-41-7	<0.05

Composition comments	All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. This Safety Data Sheet is not a guarantee of product specification or NPK value(s). NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.
4. First-aid measures	
Inhalation	Move person to fresh air. If the affected person is not breathing, apply artificial respiration. Get medical attention if discomfort develops or persists.
Skin contact	Immediately flush skin with plenty of water. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Get medical attention immediately.
Ingestion	Rinse mouth thoroughly. Drink 1 or 2 glasses of water. Do not induce vomiting without advice from poison control centre. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention.
Most important symptoms/effects, acute and delayed	Symptoms include itching, burning, redness, and tearing of eyes.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.
5. Fire-fighting measures	
Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Slight fire hazard. When water evaporates from this product residues may contain ammonium nitrate, and solid ammonium nitrate when sensitized during decomposition may become unstable and explosive.
Special protective equipment and precautions for firefighters	Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do it without risk. Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	The product is not flammable.
6. Accidental release measures	
Personal precautions, protective equipment and emergency procedures	Avoid inhalation of vapours and spray mist and contact with skin and eyes. Wear suitable protective clothing. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dyke the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. After removal flush contaminated area thoroughly with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers or watercourses.
7. Handling and storage	
Precautions for safe handling	Avoid inhalation of vapours/spray and contact with skin and eyes. Use only with adequate ventilation. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values (TLV)

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	STEL	35 ppm
	TWA	25 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2), as amended

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	STEL	24 mg/m3
		35 ppm
	TWA	17 mg/m3 25 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	STEL	35 ppm
	TWA	25 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act), as amended

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	STEL	35 ppm
	TWA	25 ppm

Canada. New Brunswick OELs: Threshold Limit Values (TLVs) Based on the 1991 and 1997 ACGIH TLVs and BEIs Publication (New Brunswick Regulation 91-191)

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	STEL	35 ppm
	TWA	25 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents), as amended

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	STEL	35 ppm
	TWA	25 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	STEL	24 mg/m3
		35 ppm
	TWA	17 mg/m3 25 ppm

Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21), as amended

Components	Type	Value
Free Ammonia (CAS 7664-41-7)	15 minute	35 ppm
	8 hour	25 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Follow standard monitoring procedures.

Appropriate engineering controls	Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and spray mist. Provide adequate general and local exhaust ventilation. Provide eyewash station.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear approved safety glasses or goggles.
Skin protection	
Hand protection	Chemical resistant gloves are recommended. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
Other	Wear appropriate clothing to prevent repeated or prolonged skin contact.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of vapours, use suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practices.

9. Physical and chemical properties

Physical state	Liquid.
Form	Liquid.
Colour	Colourless.
Odour	Slight ammonia.
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	107.22 °C (225 °F)
Flammability	Not available.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Flash point	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
pH	> 6.8 - < 8.5
Kinematic viscosity	Not available.
Solubility	
Solubility (water)	100%
Partition coefficient (n-octanol/water) (log value)	Not available.
Vapour pressure	Not available.
Density and/or relative density	
Relative density	> 1.05 - < 1.35 (30 °C)
Vapour density	Not available.
Particle characteristics	Not available.

10. Stability and reactivity

Reactivity	Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerisation does not occur.
Conditions to avoid	Contact with incompatible materials. Heat, sparks, flames, elevated temperatures. UAN will form urea nitrate when mixed with nitric acid at low pH. Urea nitrate may become unstable and/or explosive under certain conditions.

Incompatible materials Strong oxidizers, chlorates, and nitrates.
Hazardous decomposition products Carbon oxides. Nitrogen oxides (NOx). Ammonia. Biuret. Cyanide compounds.

11. Toxicological information

Information on likely routes of exposure

Inhalation Vapours and spray mist may irritate throat and respiratory system and cause coughing.
Skin contact Prolonged or repeated skin contact may cause irritation.
Eye contact May cause eye irritation.
Ingestion Ingestion may cause irritation and malaise.

Symptoms related to the physical, chemical and toxicological characteristics Symptoms can include irritation, redness, scratching of the cornea, and tearing.

Information on toxicological effects

Acute toxicity May cause discomfort if swallowed.

Components	Species	Test Results
Ammonium nitrate (CAS 6484-52-2)		
Acute		
Dermal		
LD50	Rat	> 5000 mg/kg
Inhalation		
<i>Dust</i>		
LC50	Rat	> 88.8 mg/l, 4 Hours
Oral		
LD50	Rat	> 2000 mg/kg
Free Ammonia (CAS 7664-41-7)		
Acute		
Inhalation		
LC50	Rat	5.1 mg/l, 1 Hours
Oral		
LD50	Rat	350 mg/kg as Ammonium hydroxide
Skin corrosion/irritation	Prolonged exposure may cause skin irritation.	
Serious eye damage/eye irritation	May cause eye irritation.	
Respiratory or skin sensitisation		
Respiratory sensitisation	Not a respiratory sensitiser.	
Skin sensitisation	Not a skin sensitiser.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Ammonium nitrate (CAS 6484-52-2)	2A Probably carcinogenic to humans.	
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	No data available.	
Specific target organ toxicity - repeated exposure	No data available.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Prolonged inhalation may be harmful.	
Further information	No other specific acute or chronic health impact noted.	

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components	Species	Test Results	
Ammonium nitrate (CAS 6484-52-2)			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Daphnia magna	555 mg/l, 24 Hours
Fish	LC50	Oncorhynchus mykiss	> 100 mg/l, 96 Hours
Free Ammonia (CAS 7664-41-7)			
Aquatic			
<i>Acute</i>			
Fish	LC50	Chinook salmon (Oncorhynchus tshawytscha)	>= 0.43 - <= 0.47 mg/l, 96 hours

Persistence and degradability No data available.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Free Ammonia (CAS 7664-41-7) -2.66

Mobility in soil This product is water soluble and may disperse in soil.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

TDG

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

15. Regulatory information

Canadian regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto Protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date	17-May-2017
Revision date	04-February-2025
Version No.	02
List of abbreviations	EC50: Effective Concentration, 50%. LC50: Lethal Concentration, 50%.
References	EPA: Acquire database HSDB® - Hazardous Substances Data Bank
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