

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Mixture
Product name	: Uran® (Nitrogen Fertilizer Solution)
Formula	: $\text{CO}(\text{NH}_2)_2 + \text{NH}_4\text{NO}_3$
Product code	: URAN, URAN05, URAN28, URAN30, URAN32
Other means of identification	: Nitrogen Fertilizer Solution, Urea Ammonium Nitrate Solution, UAN

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

Use of the substance/mixture	: Agricultural chemical Fertilizer
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1.3. Details of the supplier of the safety data sheet

PCS Sales (USA), Inc.
1101 Skokie Blvd.
Suite 400
Northbrook, IL 60062
T 800-241-6908 / 847-849-4200

Suite 500
122 1st Avenue South
Saskatoon, Saskatchewan Canada S7K7G3
T 800-667-0403 (Canada) / 800-667-3930 (USA)

SDS@PotashCorp.com - www.PotashCorp.com

1.4. Emergency telephone number

Emergency number	: 800-424-9300 CHEMTREC
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Ox. Liq. 3	H272
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
STOT SE 3	H335
STOT SE 2	H371

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2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Warning

Hazard statements (GHS-US)

: H272 - May intensify fire; oxidizer
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H371 - May cause damage to organs (blood)

Precautionary statements (GHS-US)

: P210 - Keep away from heat, open flames. - No smoking
P220 - Keep/Store away from combustible materials
P221 - Take any precaution to avoid mixing with combustible materials
P260 - Do not breathe fume, mist, spray, vapours
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, protective clothing, protective gloves
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor if you feel unwell
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing
P370+P378 - In case of fire: Use appropriate media for extinction
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container according to local, regional, national, and international regulations

2.3. Other hazards

Other hazards not contributing to the classification

: Hazardous to the aquatic environment - Acute Hazard Category 3. Harmful to aquatic life.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
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Total Nitrogen (Uran®)	(CAS No.) 15978-77-5	27.8 – 32.2	
Urea	(CAS No.) 57-13-6	28.8 - 36.8	Skin Irrit. 2, H315 Eye Irrit. 2A, H319
Ammonium nitrate	(CAS No.) 6484-52-2	37.0 – 47.6	Ox. Sol. 3, H272 Eye Irrit. 2B, H320 STOT SE 3, H335 STOT SE 2, H371
Water		20.1 -30.0	
Alkalinity (as Ammonia)		0.5	

⁽¹⁾Health & Environmental Safety Data Summary Document -Nitrogen Solutions (UAN) [CAS# 15978-77-5] Prepared For: The Fertilizer Institute, October 7, 2002

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : If medical advice is needed, have product container or label at hand.
- First-aid measures after inhalation : If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing.
- First-aid measures after skin contact : Wash skin thoroughly with mild soap and water. Obtain medical attention if irritation develops or persists.
- First-aid measures after eye contact : Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Obtain medical attention if irritation develops or persists.
- First-aid measures after ingestion : Do not induce vomiting. Seek medical attention if a large amount is swallowed. Get medical advice and attention if you feel unwell.

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

- Symptoms/injuries : Irritation to eyes, skin and respiratory tract.
- Symptoms/injuries after inhalation : Overexposure may be irritating to the respiratory system.
- Symptoms/injuries after skin contact : May cause skin irritation.
- Symptoms/injuries after eye contact : May cause eye irritation.
- Symptoms/injuries after ingestion : If a large quantity has been ingested : Abdominal pain. Nausea. Vomiting. Diarrhea. Convulsions. Collapse.
- Chronic symptoms : Overexposure to this material may result in methemoglobinemia. Methemoglobinemia decreases the blood's ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

4.3. Indication of any immediate medical attention and special treatment needed

If medical advice is needed, have product container or label at hand. Symptoms may be delayed.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Not flammable. Use extinguishing media appropriate for surrounding fire. Water spray.

5.2. Special hazards arising from the substance or mixture

Fire hazard : May cause or intensify fire; oxidizer. Under conditions of fire this material may produce: Nitrogen oxides; Ammonia.

Explosion hazard : Cool closed containers exposed to fire with water spray.

Reactivity : Stable at ambient temperature and under normal conditions of use.

5.3. Advice for firefighters

Firefighting instructions : Keep upwind. Under conditions of fire this material may produce: Nitrogen oxides; Ammonia.

Protection during firefighting : Wear full fire-fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

Other information : Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Do not breathe fumes from fires or vapours from decomposition.

6.1.1. For non-emergency personnel

Protective equipment : Wear suitable protective clothing, gloves and eye/face protection.

Emergency procedures : Ventilate area. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves and eye/face protection.

Emergency procedures : If possible, stop flow of product. Ventilate area. Evacuate unnecessary personnel.

6.2. Environmental precautions

If spill could potentially enter any waterway, including intermittent dry creeks, contact the U.S. COAST GUARD NATIONAL RESPONSE CENTER at 800-424-8802. In case of accident or road spill notify CHEMTREC at 800-424-9300 (in USA) or CANUTEC at 613-996-6666 (in Canada). In other countries call CHEMTREC at (International code) +1-703-527-3887.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or inert absorbents to prevent migration and entry into sewers or streams. Do not allow into drains or water courses or dispose of where ground or surface waters may be affected.

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Methods for cleaning up : Clean up any spills as soon as possible, using an inert absorbent material to collect it. Collect absorbed material and place into a sealed, labelled container to be disposed at an appropriate disposal facility according to current applicable laws and regulations and product characteristics at time of disposal.

Practice good housekeeping - spillage can be slippery on smooth surface either wet or dry.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : When heated, material emits irritating fumes.

Precautions for safe handling : Avoid all eyes and skin contact and do not breathe vapour and mist. Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Welding or hot work on equipment or plant which may have contained fertilizer should not be done without first washing thoroughly to remove all fertilizer. Do not evaporate in closed spaces. Avoid containers, piping, or fittings made of brass, bronze, or copper containing alloys or galvanized metals. Do not run pumps with the discharge or suction valves closed; pump must be on circulation. If material is evaporated to dryness, special hazards are involved and special fire fighting precautions and methods are recommended.

Hygiene measures : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Do not store on wooden floor.

Incompatible materials : Reducing agents. Combustible materials. Strong oxidizers. Halogens (F, Cl, Br, I). Hypochlorites.

Special rules on packaging : Keep container closed when not in use.

7.3. Specific end use(s)

Agricultural chemical. Fertilizer.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No exposure limits were found.

8.2. Exposure controls

Appropriate engineering controls : Ensure adequate ventilation, especially in confined areas.

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Personal protective equipment : Gloves. Safety glasses. Protective clothing.



Hand protection : Rubber gloves.

Eye protection : Chemical safety goggles. Do not wear contact lenses.

Skin and body protection : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Wear suitable protective clothing. Wash contaminated clothing before reuse. Handle in accordance with good industrial hygiene and safety practice. Wash clothing frequently.

Respiratory protection : Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Environmental exposure controls : Ensure adequate ventilation, especially in confined areas.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear
Colour	: Colorless or golden
Odour	: Slight ammonia
Odour threshold	: No data available
pH	: 6.3 – 7.2
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: URAN®32 -2 °C (29 °F) URAN®30 -9 °C (15 °F) URAN®28 -17 °C (1 °F)
Freezing point	: No data available
Boiling point	: 110 - 125 °C (230 - 257 °F) 117°C (242.5 °F) FOR 60% SOLUTION
Flash point	: No data available
Self ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1.28 - 1.33 at 60°F
Density	: 10.7 - 11.1 lb/gal at 60°F
Solubility	: Miscible
Log Pow	: No data available

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Molecular Weight	: Ammonium Nitrate 80.05 Urea 60.07
Log Kow	: No data available
Viscosity	: URAN® 32 5.5 cP URAN® 28 3.4 cP
Explosive properties	: None known
Oxidising properties	: This material contains an oxidizer. It will contribute to the intensity of a fire by supplying oxygen and it will promote combustion of surrounding materials.
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable at ambient temperature and under normal conditions of use.

10.2. Chemical stability

Stable at standard temperature and pressure.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Keep away from heat. Avoid welding on pipes or tanks which have contained Uran® solution until they have been thoroughly washed out with water. Avoid containers, piping, or fittings made of brass, bronze, or other copper containing alloys or galvanized metals.

10.5. Incompatible materials

Reducing agents. Combustible materials. Strong acids. Halogens (F, Cl, Br, I). Hypochlorites.

10.6. Hazardous decomposition products

Under conditions of fire this material may produce: Nitrogen oxides. Ammonia.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Ammonium nitrate (6484-52-2)	
LD50 oral rat	2217 mg/kg
LC50 inhalation rat (mg/l)	> 88.8 mg/l (Exposure time: 4 h)

Urea (57-13-6)	
LD50 oral rat	8471 mg/kg

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.

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Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: May cause respiratory irritation. May cause damage to organs (blood).
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity	EPA Ecological Toxicity rating :	Aquatic toxicity considerations indicate Uran® solution is of a low order of toxicity to the species tested. Since Uran® solution is a fertilizer; it may promote eutrophication in waterways. Non-toxic to aquatic organisms as defined by USEPA.
	Acute Toxicity to Fish:	Ammonium Nitrate: (<i>Cyprinus carpio</i> L): 48-h: LC ₅₀ = 1.15 – 1.72 mg NH ₃ /L; (Chinook Salmon, rainbow trout, bluegill) 96-h: LC ₅₀ = 420 – 1360 mg NO ₃ /L Urea: 96 -h LC ₅₀ > 9,100 mg/L. UAN : (<i>Oncorhynchus mykiss</i>): 96 hr: LC ₅₀ >103mg/L (<i>Pimephalas promelas</i>): 96 hr: LC ₅₀ between 100 and 500 mg/L
	Chronic Toxicity to Fish:	No data available.
	Acute Toxicity to Aquatic Invertebrates:	Ammonium Nitrate: (<i>Daphnia magna</i>) EC ₅₀ = 555 mg/L. Urea: (<i>Daphnia magna</i>) 24 - h EC ₅₀ : > 10,000
	Chronic Toxicity to Aquatic Invertebrates:	Ammonium Nitrate: (<i>Bullia digitalis</i>) Up to 7 days: NOEC = 300 mg/L.
	Acute Toxicity to Aquatic Plants:	Urea: (<i>Scenedesmus quadricauda</i>) 192 hr cell multiplication inhibition test – TT> 10,000 mg/L.
	Toxicity to Soil Dwelling Organisms:	Toxicity to Other Non-Mammalian Terrestrial Species: (Pigeon) – Subcutaneous – LD _{LO} = 16,000 mg/kg.
	Toxicity to Terrestrial Plants:	No data available.
Environmental Fate:	Stability in Water:	Ammonium Nitrate: Stability in water: Stable to hydrolytic degradation. Urea: Stability in water: T _{1/2} > 1 year.
	Stability in Soil:	Ammonium Nitrate: Stability in Soil: Ammonium ions bind to clay particles and leach slowly or not at all to ground water, whereas the nitrate can leach significantly. Monitoring Data: NH ₄ background: 0.01
	Transport and Distribution:	Ammonium Nitrate: Transport: Worldwide loss after application 0.004 - 1.2 Tg/yr. Distribution: 0.251% to air; 45.4% to water; 54.2% to soil; 0.0757% to sediment Urea: Stability in water: T _{1/2} > 1 year. Transport: 0.16% in air; 99.84% in water
Toxicity:	No known toxicity.	
Degradation Products:	Biodegradation:	No degradation products known.
	Photodegradation:	No data available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Sewage disposal recommendations : Do not flush into surface water or sewer system.
- Waste disposal recommendations : Place in an appropriate container and dispose of the contaminated material at a licensed site.
- Additional information : Dispose of waste material in accordance with all local, regional, national, and international regulations.
- Ecology - waste materials : This material is highly water soluble. Landfills receiving this material should be equipped to contain leachate.

SECTION 14: Transport information

In accordance with DOT / TDG / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Additional information

Other information : No supplementary information available.

Overland transport

No additional information available

Transport by sea

URAN® (nitrogen fertilizer solution) is [designated as a hazardous material under 46 cfr 153.40 \(e\) and](#) classified by the [USCG USCG](#) as a nls under 33 cfr 154, [and- 33 CFR 156 when transferred in bulk to or from a marine vessel with a total storage capacity of 250 or more barrels](#) per reference 46 CFR 153 (and marpol)

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Uran® (Nitrogen Fertilizer Solution)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Reactive hazard
SARA Section 313 - Emission Reporting	Ammonium nitrate is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 as water dissociable nitrate compounds and ammonia in aqueous solutions.

Ammonium nitrate (6484-52-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on SARA Section 313 (water dissociable aqueous ammonia and nitrate compounds)

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Urea (57-13-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State regulations

The following states have an OSH program approved by OSHA. If you are located in any of these states you may be under state jurisdiction rather than federal jurisdiction and your state may have more stringent requirements than OSHA. You should consult your state regulations to ensure compliance.

Alaska	Indiana	Minnesota	North Carolina	Utah
Arizona	Iowa	Nevada	Oregon	Vermont
California	Kentucky	New Mexico	Puerto Rico	*Virgin Islands
*Connecticut	Maryland	*New Jersey	South Carolina	Virginia
Hawaii	Michigan	*New York	Tennessee	Washington
*Illinois				Wyoming

*The state plans in these states apply only to public sector employers. In these states private sector employers are subject to USOL – OSHA jurisdiction. All other state plans apply to both public and private sector employers.

Ammonium nitrate (6484-52-2)

U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Urea (57-13-6)

U.S. - Minnesota - Hazardous Substance List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

15.3. Canadian regulations

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WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class C - Oxidizing Material
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Ammonium nitrate (6484-52-2)

Listed on the Canadian DSL (Domestic Substances List) inventory.

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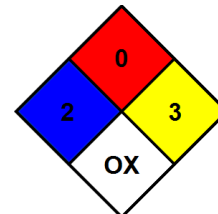
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WHMIS Classification	Class C - Oxidizing Material
Urea (57-13-6)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

SECTION 16: Other information

- NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
- NFPA fire hazard : 0 - Materials that will not burn.
- NFPA reactivity : 3 - Capable of detonation or explosive reaction, but requires a strong initiating source or must be heated under confinement before initiation, or reacts explosively with water.
- NFPA specific hazard : OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



Full text of H-phrases:

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Eye Irrit. 2B	Serious eye damage/eye irritation Category 2B
Ox. Liq. 3	Oxidising liquids Category 3
Ox. Sol. 3	Oxidising solids Category 3
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 2	Specific target organ toxicity (single exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H272	May intensify fire; oxidizer
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H371	May cause damage to organs

Previous PotashCorp MSDS Number : MSDS 35- URAN

SDS US (GHS HazCom 2012)

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