



Urea Solution 5-45%

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SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Urea Solution 5-45%**

Product Code(s) : Not available.

Recommended use of the chemical and restrictions on use

: Fertilizer, Animal Feed; SCR Nox Control
Use pattern: Professional Use Only
Recommended restrictions: None known.

Chemical family : Mixture

Name, address, and telephone number
of the supplier:

Borden & Remington Corp

63 Water St.
PO Box 2573
Fall River, MA, USA
02722

Supplier's Telephone # : 508-675-0096

24 Hr. Emergency Tel # : Chemtrec: 1-800-424-9300 (Within Continental U.S.); 703-527-3887.

Name, address, and telephone number of
the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Clear liquid. Ammonia odor.

This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Label elements

Signal Word

None required.

Hazard statement(s)

None required.

Precautionary statement(s)

None required.

Other hazards

Other hazards which do not result in classification: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be mildly irritating to skin, eyes and respiratory system. Burning produces obnoxious and toxic fumes.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration</u>
Urea	Carbamide Ammonium Caramate	57-13-6	5.0 - 45.0
Water	H2O	7732-18-5	Balance



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The following ingredient may be released from the product only when heated above 150°C:			
Ammonia	Free Ammonia	7664-41-7	<0.5
Imidodicarbonic diamide	Biuret	108-19-0	<0.7

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Never give anything by mouth to an unconscious person. Call a physician.
- Inhalation* : If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Obtain medical attention if symptoms develop and persist.
- Skin contact* : Wash off immediately with plenty of water. Remove and wash contaminated clothing before re-use. If irritation or symptoms develop, seek medical attention.
- Eye contact* : Immediately flush eyes with running water for at least 5 to 10 minutes. If irritation persists, seek prompt medical attention.

Most important symptoms and effects, both acute and delayed

- : May cause mild eye irritation. Symptoms may include stinging and tearing. May cause mild skin irritation. Symptoms may include mild redness and swelling. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed

- : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

- Suitable extinguishing media* : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.
- Unsuitable extinguishing media* : Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Burning may produce irritating, toxic and obnoxious fumes.

Flammability classification (OSHA 29 CFR 1910.106)

- : Not flammable.

Hazardous combustion products

- : Carbon oxides ;Ammonia ;Nitrogen ; Cyanuric acid.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

- : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Special fire-fighting procedures

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures



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: Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear suitable protective equipment. Refer to protective measures listed in sections 7 and 8. Restrict access to area until completion of clean-up.

Environmental precautions : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

Methods and material for containment and cleaning up

: Ventilate area of release. Stop spill or leak at source if safely possible. Dike for water control. Use only non-sparking tools and equipment in the clean-up process. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13).

Special spill response procedures

: In case of a transportation accident, contact CHEMTREC at 1-800-424-9300 or International at 1-703-527-3887.
 US CERCLA Reportable quantity (RQ): None.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

: Use only in well-ventilated areas. Wear suitable protective equipment during handling. Avoid breathing vapours or mists. Avoid contact with eyes, skin and clothing. Keep away from extreme heat and flame. Keep away from incompatibles. Keep containers tightly closed when not in use. Wash thoroughly after handling.

Conditions for safe storage

: Store in a cool, dry, well-ventilated area. Store away from incompatible materials. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area.

Incompatible materials

: Oxidizing agents; Acids.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Urea	10 mg/m ³ (AIHA WEEL)	N/Av	N/Av	N/Av
Water	N/Av	N/Av	N/Av	N/Av
Ammonia	25 ppm	35 ppm	50 ppm ; 35 mg/m ³	N/Av
Imidodicarbonic diamide	N/Av	N/Av	N/Av	N/Av

Exposure controls

Ventilation and engineering measures

: Use in a well-ventilated area. Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection

: If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Advice should be sought from respiratory protection specialists. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

Skin protection

: Gloves impervious to the material are recommended. Advice should be sought from glove suppliers.

Eye / face protection

: Chemical goggles are recommended when there is a potential for splashing.



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Other protective equipment : Wear sufficient clothing to prevent skin contact. Depending on conditions of use, an impervious apron should be worn. An eyewash station and safety shower should be made available in the immediate working area.

General hygiene considerations : Avoid breathing vapour or mist. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Clear liquid.
Odour : Mild ammonia odour.
Odour threshold : N/Av
pH : 7-10
Melting/Freezing point : 18°C (64°F) (50% solution)
57°C (135°F) (70% solution)

Initial boiling point and boiling range : 106°C (223°F) (50% solution)

Flash point : Not flammable.

Flashpoint (Method) : Not applicable.

Evaporation rate (BuAe = 1) : N/Av

Flammability (solid, gas) : Not applicable.

Lower flammable limit (% by vol.) : Not applicable.

Upper flammable limit (% by vol.) : Not applicable.

Oxidizing properties : None known.

Explosive properties : Not explosive

Vapour pressure : N/Av

Vapour density : N/Av

Relative density / Specific gravity : 1.14 (50% solution)
1.175 (70% solution)

Solubility in water : Soluble (100%)

Other solubility(ies) : Not available.

Partition coefficient: n-octanol/water or Coefficient of water/oil distribution : N/Av

Auto-ignition temperature : Not applicable.

Decomposition temperature : Not available.

Viscosity : Not available.

Volatiles (% by weight) : Not available.

Volatile organic Compounds (VOC's) : N/Av

Absolute pressure of container : N/Av

Flame projection length : N/Av

Other physical/chemical comments : None known or reported by the manufacturer.



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SECTION 10. STABILITY AND REACTIVITY

- Reactivity** : Not normally reactive.
- Chemical stability** : Material is stable under normal conditions.
- Possibility of hazardous reactions** : Hazardous polymerization does not occur.
- Conditions to avoid** : Avoid excessive heat, sparks and open flame. Avoid contact with incompatible materials. Do not use in areas without adequate ventilation.
- Incompatible materials** : Oxidizing agents; Acids.
- Hazardous decomposition products** :
When heated, urea releases ammonia and when heated to decomposition it emits toxic fumes of nitrogen oxides (NO_x), ammonia, and cyanuric acid.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

- Routes of entry inhalation** : YES
- Routes of entry skin & eye** : YES
- Routes of entry Ingestion** : YES
- Routes of exposure skin absorption** : NO

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

- : If product is heated or mists are formed, inhalation may cause irritation to the nose, throat and respiratory tract.

Sign and symptoms ingestion

- : Ingestion may irritate digestive tract and cause nausea, vomiting and diarrhea. Ingestion of larger amounts may cause defects to the central nervous system (e.g. dizziness, headache).

Sign and symptoms skin

- : Direct skin contact may result in little or no irritation.

Sign and symptoms eyes

- : May cause mild transient irritation.

Potential Chronic Health Effects

- : Prolonged or repeated contact may cause drying, cracking and defatting of the skin.

Mutagenicity

- : Not expected to be mutagenic in humans.

Carcinogenicity

- : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

- : Not expected to cause reproductive effects.

Sensitization to material

- : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

- : Target Organs::Eyes, skin, respiratory system, digestive system, central nervous system.

This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Medical conditions aggravated by overexposure

- : None known.

Synergistic materials

- : Not available.



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Toxicological data : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

<u>Chemical name</u>	LC ₅₀ (4hr)		LD ₅₀	
	<u>inh, rat</u>		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Urea	N/Av		14300-15000 mg/kg	>21000 mg/kg
Water	N/Av		>90 mL/kg	N/Av
The following ingredient may be released from the product only when heated above 150°C:				
Ammonia	2000 ppm (rat) 2115 ppm (mouse)		350 mg/kg	N/Av
Imidodicarbonic diamide	N/Av		N/Av	N/Av

Other important toxicological hazards

: None known.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : Not expected to be harmful to aquatic organisms. Do not allow material to contaminate ground water system. See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Urea	57-13-6	>6810 mg/L (Leuciscus idus)	N/Av	N/Av
Water	7732-18-5	No information available.	No information available.	Not applicable.
Ammonia	7664-41-7	0.163 - 1.09 mg/L (Rainbow trout)	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Urea	57-13-6	N/Av	N/Av	N/Av
Water	7732-18-5	No information available.	No information available.	Not applicable.
Ammonia	7664-41-7	101 mg/L Water flea	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Urea	57-13-6	N/Av	N/Av	N/Av
Water	7732-18-5	No information available.	No information available.	Not applicable.
Ammonia	7664-41-7	N/Av	N/Av	None.



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Persistence and degradability

: No data is available on the product itself.

Bioaccumulation potential

: No data is available on the product itself.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Urea (CAS 57-13-6)	<-1.73	N/Av
Water (CAS 7732-18-5)	N/Av	N/Av
Ammonia (CAS 7664-41-7)	-1.14 at 25 °C	N/Av
Imidodicarbonic diamide (CAS 108-19-0)	N/Av	N/Av

Mobility in soil : No data is available on the product itself.

Other Adverse Environmental effects

: No data is available on the product itself.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal

: Handle waste according to recommendations in Section 7.

Methods of Disposal

: Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA

: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	None.	Not regulated.	Not regulated	none	
49CFR/DOT Additional information	None.				
TDG	None.	Not regulated.	Not regulated	none	
TDG Additional information	None.				

Special precautions for user : None known or reported by the manufacturer.

Environmental hazards : See ECOLOGICAL INFORMATION, Section 12.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not available.



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SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity (RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Urea	57-13-6	Yes	N/Ap	N/Ap	No	N/Ap
Water	7732-18-5	Yes	N/Ap	N/Av	No	N/Ap
Ammonia	7664-41-7	Yes	100 lb/ 45.4 kg	500 lb TPQ	Yes	1%
Imidodicarbonic diamide	108-19-0	Yes	N/Ap	N/Av	No	N/Ap

SARA TITLE III: Sec. 311 and 312 SDS Requirements, 40 CFR 370 Hazard Classes: Not a hazard under normal conditions of use. Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

<u>Ingredients</u>	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Urea	57-13-6	No	N/Ap	No	No	Yes	No	No	No
Water	7732-18-5	No	N/Ap	No	No	No	No	No	No
Ammonia	7664-41-7	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Imidodicarbonic diamide	108-19-0	No	N/Ap	No	No	No	No	No	No

Canadian Information:

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

International Information:

Components listed below are present on the following International Inventory list:

<u>Ingredients</u>	CAS #	European EINECS	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Urea	57-13-6	200-315-5	Present	Present	(2)-1732	KE-35144	Present	HSR002808
Water	7732-18-5	231-791-2	Present	Listed	Listed	KE-35400	Present	Listed
Ammonia	7664-41-7	231-635-3	Present	Present	(1)-391; (1)-314	KE-01625	Present	HSR001035
Imidodicarbonic diamide	108-19-0	203-559-0	Present	No data available.	No data available.	KE-20952	Present	HSR007414



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SECTION 16. OTHER INFORMATION

Legend :

- ACGIH: American Conference of Governmental Industrial Hygienists
- CAS: Chemical Abstract Services
- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
- CFR: Code of Federal Regulations
- CSA: Canadian Standards Association
- DOT: Department of Transportation
- EPA: Environmental Protection Agency
- HMIS: Hazardous Materials Identification System
- HSDB: Hazardous Substances Data Bank
- IARC: International Agency for Research on Cancer
- Inh: Inhalation
- LC: Lethal Concentration
- LD: Lethal Dose
- MN: Minnesota
- N/Ap: Not Applicable
- N/Av: Not Available
- NFPA: National Fire Protection Association
- NIOSH: National Institute of Occupational Safety and Health
- NJ: New Jersey
- NTP: National Toxicology Program
- OECD: Organisation for Economic Co-operation and Development
- OSHA: Occupational Safety and Health Administration
- PA: Pennsylvania
- PEL: Permissible exposure limit
- RCRA: Resource Conservation and Recovery Act
- RI: Rhode Island
- RTECS: Registry of Toxic Effects of Chemical Substances
- SARA: Superfund Amendments and Reauthorization Act
- STEL: Short Term Exposure Limit
- TLV: Threshold Limit Values
- TWA: Time Weighted Average
- WHMIS: Workplace Hazardous Materials Identification System

References :

- Material Safety Data Sheet from manufacturer
- OECD- The Global Portal to Information on Chemical Substances - eChemPortal, 2015
- Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
- European Chemicals Agency, Classification Legislation, 2015

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Other special considerations for handling

: Provide adequate information, instruction and training for operators.

HMIS Rating

: * - Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe
Health: 0 *Flammability:* 1 *Reactivity:* 0

NFPA Rating

0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe
 : *Health:* 0 *Flammability:* 1 *Instability:* 0 *Special Hazards:* None.




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