

# Material Safety Data Sheet

Urea 50% (solution)



## 1. Product and company identification

<b>Product name</b>	: Urea 50% (solution)
<b>Synonym</b>	: Urea 30 % ; 40 % ; 45 % ; 70 % ; Ureaphil ; Carbamide.
<b>Material uses</b>	: Fertilizer.
<b>Supplier/Manufacturer</b>	: Sylvite Group of Companies 3221 North Service Road, Suite 200 Burlington, Ontario L7N 3G2 Tel: 905-331-8271 Fax: 905-315-2083 Toll Free: 1-800-229-0602 Site web: <a href="http://www.sylvite.ca">http://www.sylvite.ca</a>
<b>MSDS authored by</b>	: Sylvite Group of Companies
<b>In case of emergency</b>	: 1-800-567-7455 (7/24)
<b>Product type</b>	: Liquid.

## 2. Hazards identification

### Emergency overview

<b>Color</b>	: Colorless.
<b>Physical state</b>	: Liquid. [Hazy liquid.]
<b>Odor</b>	: Ammonia
<b>Signal word</b>	: CAUTION!
<b>Hazard statements</b>	: CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
<b>Precautions</b>	: This product must be transported hot (25 to 35°C). The storage and shipment require insulated tanks to prevent crystallization of urea. At high temperatures, the product can decompose to give off toxic gases. The effects (irritation) on skin and eye may be delayed and the damage may occur without the sensation of pain. The urea solution becomes corrosive when dissolved in water. Large concentrations of urea in the blood increases the risk of glaucoma. Can induce osmotic diuresis. The osmotic diuresis is a condition caused by a high concentration of osmotically active substances renal tubules (urea, sodium sulfate) limiting the reabsorption of water.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Potential acute health effects

<b>Inhalation</b>	: A prolonged or repeated overexposure to vapors of the product may cause mild respiratory irritation. The excessive contact with vapors or mists may irritate mucous membranes and cause coughing and breathing difficulties.
<b>Ingestion</b>	: This product causes irritation, a burning sensation in the mouth and throat and abdominal pain.
<b>Skin</b>	: Skin contact may cause irritation, especially under the nails (and other places as small as a ring or a watch strap). There is a risk of destruction of the natural fatty layer of skin, drying and cracking. A prolonged and repeated contact may cause dermatitis. There is a risk of thermal burns if the product is not removed promptly.
<b>Eyes</b>	: Splashes in eyes can cause irritation, redness and pain. There is a risk of thermal burns if the product is not removed promptly.

### Potential chronic health effects

<b>Chronic effects</b>	: Contains material that may cause target organ damage, based on animal data.
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## 2. Hazards identification

- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.
- Target organs** : Contains material which may cause damage to the following organs: skin, eyes.

### Over-exposure signs/symptoms

- Inhalation** : No specific data.
- Ingestion** : No specific data.
- Skin** : No specific data.
- Eyes** : No specific data.

**Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

## 3. Composition/information on ingredients

### United States

Name	CAS number	%
Urea	57-13-6	30 - 60

### Canada

Name	CAS number	%
Urea	57-13-6	30 - 60

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.

## 4. First aid measures

- Eye contact** : Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 20 minutes. Get medical attention.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : 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.

## 5. Fire-fighting measures

**Flammability of the product** : No specific fire or explosion hazard.

**Extinguishing media**

**Suitable** : Use an extinguishing agent suitable for the surrounding fire.

**Not suitable** : None known.

**Hazardous decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

**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.

## 6. Accidental release measures

**Personal precautions** : Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

**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).

**Small spill** : Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** : 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.

## 7. Handling and storage

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

**Storage** : 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.

## 8. Exposure controls/personal protection

**United States**

Ingredient	Exposure limits
Urea	<b>AIHA WEEL (United States, 1/2009).</b> TWA: 10 mg/m <sup>3</sup> 8 hour(s).

**Canada**

## 8. Exposure controls/personal protection

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	Notations
Urea	US AIHA 1/2009	-	10	-	-	-	-	-	-	-	

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits.
- Hygiene measures** : Ensure that eyewash stations and safety showers are close to the workstation location. 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.
- Respiratory** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: Wear an appropriate NIOSH approved respirator if concentration levels exceed the safe exposure limits.
- Hands** : Use gloves appropriate for work or task being performed. Recommended: Natural rubber (latex).
- Eyes** : Safety eyewear should be used when there is a likelihood of exposure. Recommended: Safety glasses with side shields.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Lab coat.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should 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.

## 9. Physical and chemical properties

- Physical state** : Liquid. [Hazy liquid.]
- Color** : Colorless.
- Odor** : Ammonia
- pH** : 9.5
- Melting/freezing point** : 17.8°C (64°F)
- Specific gravity** : 1.1 to 1.2 g/cm<sup>3</sup>
- Vapor pressure** : 1.9 kPa (14 mm Hg)
- Odor threshold** : 17 ppm
- Solubility** : Miscible in water.

## 10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : No specific data.

## 10. Stability and reactivity

- Materials to avoid** : Oxidizers. Reducing agents. halogens. Acids. Alkalis. Acrylonitrile butadiene styrene. Polyethylene. Iron and alloys. Copper and alloys. Aluminum and aluminum alloys. Zinc and alloys. Mild steel.  
Sodium nitrite. Potassium nitrite. Chloride chromyl. Nitrosyl perchlorate. Gallium perchlorate. Titanium tetrachloride. Sodium hypochlorite, calcium hypochlorite or phosphorous pentachloride react with urea to form nitrogen trichloride which explodes spontaneously in air.
- Hazardous decomposition products** : The products released during thermal decomposition of this material is toxic and may include ammonia, cyanuric acid, biuret, cyanuric acid, oxides of carbon, nitrogen and irritating gases.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Urea	LD50 Oral	Rat	8471 mg/kg	-

- Chronic toxicity** : No specific data.

## 12. Ecological information

- Environmental effects** : Will slowly release ammonia and degrade to nitrate. Ammonia is a toxic hazard to fish. However, ammonia release is slow making urea much less toxic than ammonium salts. Urea will promote algae growth which may degrade water quality and taste.

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Urea	Acute EC50 3910000 ug/L Fresh water	Daphnia - Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 >1000 mg/L Marine water	Crustaceans - Chaetogammarus marinus - Young - 5 mm	48 hours
	Acute LC50 5000 ug/L Fresh water	Fish - Colisa fasciata - Fingerling	96 hours

- Other adverse effects** : No known significant effects or critical hazards.

## 13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Empty containers or liners may retain some product residues. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14 . Transport information

**DOT/TDG/IMDG/IATA** : Not regulated.

## 15 . Regulatory information

### United States

**HCS Classification** : Target organ effects

**U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.

**SARA 302/304/311/312 extremely hazardous substances**: No products were found.

**SARA 302/304 emergency planning and notification**: No products were found.

**SARA 302/304/311/312 hazardous chemicals**: Urea

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification**: Urea: Immediate (acute) health hazard, Delayed (chronic) health hazard

**Clean Water Act (CWA) 307**: No products were found.

**Clean Water Act (CWA) 311**: No products were found.

**Clean Air Act (CAA) 112 accidental release prevention**: No products were found.

**Clean Air Act (CAA) 112 regulated flammable substances**: No products were found.

**Clean Air Act (CAA) 112 regulated toxic substances**: No products were found.

**Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

**State regulations** :

- Connecticut Carcinogen Reporting**: None of the components are listed.
- Connecticut Hazardous Material Survey**: None of the components are listed.
- Florida substances**: None of the components are listed.
- Illinois Chemical Safety Act**: None of the components are listed.
- Illinois Toxic Substances Disclosure to Employee Act**: None of the components are listed.
- Louisiana Reporting**: None of the components are listed.
- Louisiana Spill**: None of the components are listed.
- Massachusetts Spill**: None of the components are listed.
- Massachusetts Substances**: None of the components are listed.
- Michigan Critical Material**: None of the components are listed.
- Minnesota Hazardous Substances**: None of the components are listed.
- New Jersey Hazardous Substances**: None of the components are listed.
- New Jersey Spill**: None of the components are listed.
- New Jersey Toxic Catastrophe Prevention Act**: None of the components are listed.
- New York Acutely Hazardous Substances**: None of the components are listed.
- New York Toxic Chemical Release Reporting**: None of the components are listed.
- Pennsylvania RTK Hazardous Substances**: None of the components are listed.
- Rhode Island Hazardous Substances**: None of the components are listed.

### California Prop. 65

No products were found.

### Canada

**WHMIS (Canada)** : Not controlled under WHMIS (Canada).

## 15 . Regulatory information

**Canadian lists** : **CEPA Toxic substances:** None of the components are listed.  
**Canadian ARET:** None of the components are listed.  
**Canadian NPRI:** None of the components are listed.  
**Alberta Designated Substances:** None of the components are listed.  
**Ontario Designated Substances:** None of the components are listed.  
**Quebec Designated Substances:** None of the components are listed.

**Canada inventory** : All components are listed or exempted.

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

### International regulations

**International lists** : **Australia inventory (AICS):** All components are listed or exempted.  
**China inventory (IECSC):** All components are listed or exempted.  
**Japan inventory:** All components are listed or exempted.  
**Korea inventory:** All components are listed or exempted.  
**New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.  
**Philippines inventory (PICCS):** All components are listed or exempted.

## 16 . Other information

### United States

**Label requirements** : CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

**Hazardous Material Information System (U.S.A.)** : **Health :** 1 \* **Flammability :** 0 **Physical hazards :** 0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)** : **Health :** 1 **Flammability :** 0 **Instability :** 0

**References** : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005.

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### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.