

Section 1. Identification

Product identifier : Urea 46-0-0 Granular Ag Grade

Other means of identification : Product code(s): 509-14027; 1727-14027; 1741-14224; 2308-14027; 2456-14027; 2494-14224; 2495-30581; 2497-14027
Historic MSDS #: 16008

Product type : Solid.

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

Identified uses	
Fertilizer. Manufacture of specialty fertilizers. Fertilizer Blend Component	
Uses advised against	Reason
None known.	Chemical Safety Assessment

Supplier's details : Agrium Canada Partnership (A Subsidiary of Nutrien Ltd.)
13131 Lake Fraser Drive, S.E.
Calgary, Alberta, Canada, T2J 7E8

Agrium U.S. Inc. (A Subsidiary of Nutrien Ltd.)
5296 Harvest Lake Drive
Loveland, CO 80538

Company phone number (North America):
1-800-403-2861 (Customer Service)

Emergency telephone number (with hours of operation) : Nutrien 24 Hr Emergency Telephone Numbers:
English:
Transportation Emergencies: 1-800-792-8311
Medical Emergencies: 1-303-389-1653

French or Spanish:
Transportation or Medical Emergencies: 1-303-389-1654

Section 2. Hazard identification

Classification of the substance or mixture : Not classified. Non-hazardous substance.

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

GHS label elements

Hazard pictograms : **Not Applicable.**
No Aplicable.
Non applicable.

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Not applicable.

Response : Not applicable.

Section 2. Hazard identification

- Storage** : Not applicable.
- Disposal** : Not applicable.
- Supplemental label elements** : None known.
- Other hazards which do not result in classification** : Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

Section 3. Composition/information on ingredients

Substance/mixture : Multi-constituent substance

Ingredient name	% (w/w)	CAS number
Urea	>98	57-13-6
Urea, reaction products with formaldehyde	<1.25	68611-64-3
Imidodicarbonic diamide	<1	108-19-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : May cause irritation due to mechanical action. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. If possible, remove contact lenses being careful not to cause additional eye damage. Get medical attention if irritation occurs.
- Inhalation** : Remove person to fresh air. No known significant effects. Seek medical attention for any signs of wheezing and/or breathing difficulties. For additional advice call the medical emergency number on this SDS or your poison center or medical provider.
- Skin contact** : No known significant effects. Rinse the affected areas with water. Remove contaminated clothing, jewelry, and shoes. Wash/clean items before reuse. Seek medical attention for persistent skin pain or irritation. For additional advice call the medical emergency number on this SDS or your poison center or doctor.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data. May cause irritation due to mechanical action.
- Inhalation** : No specific data. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
- Skin contact** : No specific data. Inorganic salt. Prolonged or repeated exposure may dry the skin, causing irritation.
- Ingestion** : No specific data. May cause irritation of the digestive tract with accompanying nausea, vomiting and diarrhea.

Section 4. First-aid measures

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. 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. For professional, multilingual, medical support, in case of medical emergencies involving Nutrien products, telephone the Nutrien global 24 hour Emergency Number: 1-303-389-1653.
- Specific treatments** : No specific treatment. If necessary, veterinary advice may be obtained by calling the Medical Emergency number in Section 1.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. Mouth-to-mouth resuscitation of oral exposure patients is not recommended. First-aiders with contaminated clothing should be properly decontaminated.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Non-flammable. Material will not burn. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Material will not burn. Undergoes thermal decomposition at elevated temperatures to produce solid cyanuric acid and release toxic and combustible gases (ammonia, carbon dioxide, and oxides of nitrogen).

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

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.

Remark : Incompatible with halogens. If mixed with chlorine or hypochlorites, it may form nitrogen trichloride which may explode spontaneously in air. Contain and collect the water used to fight the fire for later treatment and disposal.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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 adverse impacts (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

- Small spill** : Move containers from spill area. Recover the material and use it for the intended purpose.
or
Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Collect spillage. Recover the material and use it for the intended purpose.
or
Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Advice on general occupational hygiene** : Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. May form steep piles that can collapse without warning when stored in bulk. Avoid forming steep slopes when removing product. Ensure that bulk bags or smaller packaged products stored in tiers are stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, rolling, or collapse. Use caution when opening truck or railcar doors as product may have shifted during transport.

Must be stored in a dry location. Absorbs moisture on long-term storage under high humidity conditions. Store away from incompatible materials (see Section 10). When product is stored in sealable containers, keep container tightly closed and sealed until ready for use. Sealable containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Canadian Regulations: Urea	Alberta TWA: 10 mg/m ³ Inhalable, 3 mg/m ³ Respirable, for Particles Not Otherwise Regulated. AIHA WEEL TWA: 10 mg/m ³ 8 hours.
U.S. Federal Regulations: Urea - Urea, reaction products with formaldehyde	OSHA PEL: Particulates not otherwise regulated (PNOR): Total dust: 15 mg/m ³ , Respirable fraction: 5 mg/m ³ AIHA WEEL TWA: 10 mg/m ³ 8 hours. OSHA PEL: Particulates not otherwise regulated (PNOR): Total dust: 15 mg/m ³ , Respirable fraction: 5 mg/m ³
Biuret	OSHA PEL: Particulates not otherwise regulated (PNOR): Total dust: 15 mg/m ³ , Respirable fraction: 5 mg/m ³

Section 8. Exposure controls/personal protection

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- 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.

Individual protection measures

- Hygiene measures** : 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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: sealed eyewear
- Skin protection**
- Hand protection** : The personal protective equipment required varies, depending upon your risk assessment. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : 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. Cotton or cotton/synthetic overalls or coveralls are normally suitable.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. 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. For U.S. work sites where respiratory protection is required, ensure that a respiratory protection program meeting 29 CFR 1910.134 requirements is in place.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Solid. [Granular solid.]
- Color** : White.
- Odor** : Characteristic.
- Odor threshold** : Not available.
- pH** : 7.2 @ 10% solution.
- Melting point** : 133°C (271.4°F)
- Boiling point** : Not available.
- Flash point** : [Product does not sustain combustion.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Non-flammable substance. Non-combustible.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : 0.08 kPa (0.6 mm Hg) [room temperature]
- Vapor density** : Not available.
- Relative density** : 1.33
- Solubility** : Easily soluble in the following materials: cold water and hot water.
- Solubility in water** : 1080 g/l

Section 9. Physical and chemical properties

Partition coefficient: n-octanol/water	: -1.59
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: 135°C (275°F)
Viscosity	: Not available.

Section 10. Stability and reactivity

Reactivity	: Incompatible with halogens, hydrogen peroxide, chlorinated hydrocarbons, fluorine, nitric acid, oxidizing agents and sulfuric acid.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Absorbs moisture on long-term storage under high humidity conditions. Decomposes on heating to high temperature.
Incompatible materials	: See above May be incompatible with some materials of construction. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Urea	LD50 Oral	Mouse - Male	11 g/kg	-
	LD50 Oral	Rat - Male	8471 mg/kg	-
	LD50 Oral	Rat - Male	14300 mg/kg	-
	TDL _o Oral	Cattle - Male, Female	200 mg (N) /kg	-

Conclusion/Summary : Non-hazardous substance.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Urea	Skin	Rabbit	0	-	72 hours

Conclusion/Summary

Skin	: Non-irritating to the skin.
Eyes	: Non-irritating to the eyes.
Respiratory	: Non-irritating to the respiratory system.

Sensitization

Not available.

Conclusion/Summary

Skin	: Non-sensitizer to skin.
Respiratory	: Non-sensitizer to lungs.

Mutagenicity

Section 11. Toxicological information

Product/ingredient name	Test	Experiment	Result
Urea	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Cell: Somatic Metabolic activation: With and without	Negative

Conclusion/Summary : No mutagenic effect.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Urea	Negative - Oral - TC	Rat - Male, Female	2250 mg/kg Continuous	-

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Not available.

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Inhalation.
Routes of entry not anticipated: Dermal.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data. May cause irritation due to mechanical action.
Inhalation : No specific data. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Skin contact : No specific data. Inorganic salt. Prolonged or repeated exposure may dry the skin, causing irritation.
Ingestion : No specific data. May cause irritation of the digestive tract with accompanying nausea, vomiting and diarrhea.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

Section 11. Toxicological information

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

Conclusion/Summary : No known significant effects or critical hazards.

General : No known significant effects or critical hazards.

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.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Urea	Acute EC50 6573.1 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute EC50 3910000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 >1000 mg/l Marine water	Crustaceans - Chaetogammarus marinus - Young	48 hours
	Acute LC50 5000 µg/l Fresh water	Fish - Colisa fasciata - Fingerling	96 hours
	Acute LC50 22500 mg/l Fresh water	Fish - Oreochromis mossambicus - Young	96 hours
	Chronic NOEC 2 g/L Fresh water	Fish - Heteropneustes fossilis	30 days

Conclusion/Summary : No known significant effects or critical hazards.

Persistence and degradability

Conclusion/Summary : Readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Urea	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Urea	-1.59	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : 0.037

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Section 14. Transport information

	TDG Classification	DOT Classification	Mexico Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	Classification per the current revision, Transportation of Dangerous Goods Regulation, Part 2, Sec 2.3.	-	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : This material is listed or exempted.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Section 15. Regulatory information

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: This material is listed or exempted.
China	: This material is listed or exempted.
Europe	: This material is listed or exempted.
Japan	: This material is listed or exempted.
Malaysia	: Not determined.
New Zealand	: This material is listed or exempted.
Philippines	: This material is listed or exempted.
Republic of Korea	: This material is listed or exempted.
Taiwan	: This material is listed or exempted.
Turkey	: Not determined.

U.S. Federal Regulations: : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
TSCA 8(b) inventory:: This material is listed or exempted.

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

SARA 302/304 Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

State regulations

Massachusetts : This material is not listed.

New York : This material is not listed.

New Jersey : This material is not listed.

Pennsylvania : This material is not listed.

California Prop. 65 : Not listed.

Section 16. Other information

History

Date of issue/Date of revision : 6/13/2018

Date of previous issue : 1/1/2018

Version : 2.5

📌 Indicates information that has changed from previously issued version.

Section 16. Other information

Key to abbreviations

- : ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- UN = United Nations
- HPR = Hazardous Products Regulations

Procedure used to derive the classification

Classification	Justification
Not classified.	Weight of evidence

References

- : Transportation of Dangerous Goods Act and Clear Language Regulations, current edition at time of SDS preparation, Transport Canada;
- Hazardous Products Act and Regulations, current revision at time of SDS preparation, Health Canada;
- Domestic Substances List, current revision at time of SDS preparation, Environment Canada;
- 29 CFR Part 1910, current revision at time of SDS preparation, U.S. Occupational Safety and Health Administration;
- 40 CFR Parts 1-799, current revision at time of SDS preparation, U.S. Environmental Protection Agency;
- 49 CFR Parts 1-199, current revision at time of SDS preparation, U.S. Department of Transport;
- Mexican Official Standard NOM-018-STPS-2015, Harmonised System for the Identification and Communication of Hazards and Risks by Hazardous Chemicals in the Workplace;
- Mexican Official Standard NOM-002-SCT / 2011, List of the most commonly transported hazardous substances and materials;
- Threshold Limit Values for Chemical Substances, current edition at time of SDS preparation, American Conference of Governmental Industrial Hygienists;
- NFPA 400, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;
- NFPA 704, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;
- Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers;
- ERG 2016, Emergency Response Guidebook, U.S. Department of Transport, Transport Canada, and the Secretariat of Transportation and Communications of Mexico
- Hazardous Substances Data Bank, current revision at time of SDS preparation, National Library of Medicine, Bethesda, Maryland
- Integrated Risk Information System, current revision at time of SDS preparation, U.S. Environmental Protection Agency, Washington, D.C.
- Pocket Guide to Chemical Hazards, current revision at time of SDS preparation, National Institute for Occupational Safety and Health, Cincinnati, Ohio ;
- Agency for Toxic Substances and Disease Registry Databank, current revision at time of SDS preparation, U.S. Department of Health and Human Services, Atlanta, Georgia
- National Toxicology Program, Report on Carcinogens, Division of the National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina.
- Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio
- The Fertilizer Institute, Product Toxicology Testing Program Results, TFI, Washington , D.C., 2003

Notice to reader

Section 16. Other information

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