



DAKOTA GASIFICATION COMPANY

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SAFETY DATA SHEET



RESPONSIBLE CARE®
OUR COMMITMENT TO SUSTAINABILITY

Section 1: Identification

Product identifier

Product Name • Urea

Synonyms • Carbamide; Carbonyl diamide; Carbonyldiamine

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

Recommended use • Consult manufacturer for the recommended product use

Details of the supplier of the safety data sheet

Manufacturer • Dakota Gasification
420 Country Road 26
Beulah, ND 58523-9400
United States
www.dakotagas.com

Telephone (General) • 701-873-2100

Emergency telephone number

Manufacturer • (701) 873-6600

Section 2: Hazard Identification

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture

OSHA HCS 2012 • Skin Irritation 2

Label elements

OSHA HCS 2012

WARNING



Hazard statements • Causes skin irritation

Precautionary statements

Prevention • Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Response • If on skin: Wash with plenty of water.
Specific treatment, see supplemental first aid information.
Take off contaminated clothing and wash before reuse.
If skin irritation occurs: Get medical advice/attention.

Other hazards

Canada

According to: WHMIS 2015

Classification of the substance or mixture

WHMIS 2015 • Skin Irritation 2

Label elements

WHMIS 2015

WARNING**Hazard statements** • Causes skin irritation**Precautionary statements**

Prevention • Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Response • IF ON SKIN: Wash with plenty of water.
Specific treatment, see supplemental first aid information.
Take off contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.

Other hazards

WHMIS 2015

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients**Substances**

- Material does not meet the criteria of a substance.

Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Urea	CAS:57-13-6	95% TO 97%	Ingestion/Oral-Rat LD50 • 8471 mg/kg	OSHA HCS 2012: Skin Irrit. 2 WHMIS 2015: Skin Irrit. 2	NDA
Urea, reaction products with formaldehyde	CAS:68611-64-3	1% TO 2%	NDA	OSHA HCS 2012: Not Classified WHMIS 2015: Not Classified	NDA
Biuret	CAS:108-19-0	< 1%	NDA	OSHA HCS 2012: Not Classified WHMIS 2015: Not Classified	NDA

Section 4: First-Aid Measures**Description of first aid measures**

- Inhalation** • Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
- Skin** • In case of contact with substance, immediately flush skin with running water for at least 20 minutes. If irritation develops and persists, get medical attention.
- Eye** • In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.
- Ingestion** • Rinse mouth. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

- Notes to Physician** • All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5: Fire-Fighting Measures

Extinguishing media

- Suitable Extinguishing Media** • LARGE FIRE: Water spray, fog or regular foam.
SMALL FIRES: Dry chemical, CO₂, water spray or regular foam.

- Unsuitable Extinguishing Media** • No data available

Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards** • Some may burn, but none ignite readily.

- Hazardous Combustion Products** • No data available

Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

- Personal Precautions** • Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate protective clothing.

- Emergency Procedures** • As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away.

Environmental precautions

- Avoid run off to waterways and sewers.

Methods and material for containment and cleaning up

- Containment/Clean-up Measures** • Avoid generating dust.
SMALL DRY SPILLS: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
LARGE SPILLS: Cover powder spill with plastic sheet or tarp to minimize spreading.

Section 7 - Handling and Storage

Precautions for safe handling

- Handling** • Use only with adequate ventilation. Wear appropriate personal protective equipment. Avoid breathing dust. Avoid contact with skin, eyes, and clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

Conditions for safe storage, including any incompatibilities

- Storage** • Keep container closed. Store in a well-ventilated place.

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure Limits/Guidelines • No applicable exposure limits available for product or components.

Exposure controls

Engineering Measures/Controls • Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment).

Personal Protective Equipment

Respiratory • For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face • Wear safety goggles.

Skin/Body • Wear appropriate gloves. Wear long sleeves and/or protective coveralls.

Environmental Exposure Controls • Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Section 9 - Physical and Chemical Properties

Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	White, solid granules.
Color	White	Odor	No data available
Odor Threshold	No data available		
General Properties			
Boiling Point	No data available	Melting Point/Freezing Point	270.8 °F(132.6667 °C)
Decomposition Temperature	270.8 °F(132.6667 °C)	pH	7.2
Specific Gravity/Relative Density	No data available	Water Solubility	Soluble
Viscosity	1.78 Centipoise (cPs, cP) or mPas @ 68 °F(20 °C) (46% solution)		
Volatility			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available		
Flammability			
Flash Point	No data available	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	No data available		
Environmental			
Octanol/Water Partition coefficient	No data available		

Section 10: Stability and Reactivity

Reactivity

• No dangerous reaction known under conditions of normal use.

Chemical stability

- Stable under normal temperatures and pressures.

Possibility of hazardous reactions

- Hazardous polymerization will not occur.

Conditions to avoid

- Avoid generating dust.

Incompatible materials

- Strong acids. Strong bases. Strong oxidizers. Halogens. Hypochlorites. Nitric acid. Sodium nitrite, phosphorus pentachloride, and nitrosyl or gallium perchlorate. Urea will form urea nitrate when mixed with nitric acid at low pH.

Hazardous decomposition products

- Nitrogen oxides. Ammonia. Carbon oxides (CO, CO₂). Cyanuric acid.

Section 11 - Toxicological Information

Information on toxicological effects

		Components
Urea (95% TO 97%)	57-13-6	Acute Toxicity: Ingestion/Oral-Rat LD50 • 8471 mg/kg; Irritation: Skin-Human • 20 % 24 Hour(s) • Moderate irritation; Mutagen: DNA damage • Unreported Route-Human • Liver (Somatic cell) • 31.6 µmol/L 48 Hour(s); Reproductive: Intraplacental-Woman TDLo • 1400 mg/kg (16W preg); <i>Reproductive Effects: Effects on Fertility. Abortion;</i> Tumorigen / Carcinogen: Ingestion/Oral-Rat TDLo • 821 g/kg 1 Year(s)-Continuous; <i>Tumorigenic: Neoplastic by RTECS criteria; Blood: Tumors; Blood: Lymphoma, including Hodgkin's disease</i>

GHS Properties	Classification
Acute toxicity	OSHA HCS 2012•No data available WHMIS 2015•No data available
Skin corrosion/Irritation	OSHA HCS 2012•Skin Irritation 2 WHMIS 2015•Skin Irritation 2
Serious eye damage/Irritation	OSHA HCS 2012•No data available WHMIS 2015•No data available
Skin sensitization	OSHA HCS 2012•No data available WHMIS 2015•No data available
Respiratory sensitization	OSHA HCS 2012•No data available WHMIS 2015•No data available
Aspiration Hazard	OSHA HCS 2012•No data available WHMIS 2015•No data available
Carcinogenicity	OSHA HCS 2012•No data available WHMIS 2015•No data available
Germ Cell Mutagenicity	OSHA HCS 2012•No data available WHMIS 2015•No data available
Toxicity for Reproduction	OSHA HCS 2012•No data available WHMIS 2015•No data available
STOT-SE	OSHA HCS 2012•No data available WHMIS 2015•No data available
STOT-RE	OSHA HCS 2012•No data available WHMIS 2015•No data available

Potential Health Effects

Inhalation

Acute (Immediate) • Exposure to dust may cause irritation. Processes such as cutting, grinding, crushing, or impact may result in generation of excessive amounts of airborne dusts in the workplace. Nuisance dust may affect the lungs but reactions are typically reversible.

Chronic (Delayed) • No data available

Skin

Acute (Immediate) • Causes skin irritation.

Chronic (Delayed) • No data available

Eye

Acute (Immediate) • Exposure to dust may cause mechanical irritation. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.

Chronic (Delayed) • No data available

Ingestion

Acute (Immediate) • Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.

Chronic (Delayed) • No data available

Key to abbreviations

LD = Lethal Dose

TD = Toxic Dose

Section 12 - Ecological Information

Toxicity

- Non-mandatory section - information about this substance not compiled for this reason.

Persistence and degradability

- Non-mandatory section - information about this substance not compiled for this reason.

Bioaccumulative potential

- Non-mandatory section - information about this substance not compiled for this reason.

Mobility in Soil

- Non-mandatory section - information about this substance not compiled for this reason.

Other adverse effects

- Non-mandatory section - information about this substance not compiled for this reason.

Section 13 - Disposal Considerations

Waste treatment methods

Product waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	UN number	UN proper shipping name	Transport hazard class(es)	Packing group	Environmental hazards
DOT	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA
TDG	Not Applicable	Not Regulated	Not Applicable	Not Applicable	NDA

Special precautions for user

• None specified.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code • No data available

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

• Acute

Inventory			
Component	CAS	Canada DSL	Canada NDSL
Biuret	108-19-0	Yes	No
Urea	57-13-6	Yes	No
Urea, reaction products with formaldehyde	68611-64-3	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Uncontrolled product according to WHMIS classification criteria

Canada - WHMIS - Ingredient Disclosure List

•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed

Environment

Canada - CEPA - Priority Substances List

•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - CERCLA/SARA - Section 313 - Emission Reporting		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
Inventory - United States - Section 8(b) Inventory (TSCA) - PMN Number to EPA Accession Number Link		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - California - Proposition 65 - Developmental Toxicity		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Female		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Male		
•Biuret	108-19-0	Not Listed
•Urea, reaction products with formaldehyde	68611-64-3	Not Listed
•Urea	57-13-6	Not Listed

Section 16 - Other Information

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Preparation Date • 26/May/2016

**Disclaimer/Statement
of Liability**

- The information contained in this Safety Data Sheet (SDS) is believed to be correct since it was obtained from sources we believe are reliable. However no representation, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications, hazards connected with the use of the material, or the results to be obtained from the use thereof. User assumes all risks and liability of any use, processing or handling of any material, variations in methods, conditions and equipment used to store, handle, or process the material and hazards connected with the use of the material are solely the responsibility of the user and remain at his sole discretion. Compliance with all applicable federal, state, and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe work place to examine all aspects of its operation and to determine if or where precautions, in addition to those described herein, are required.

Key to abbreviations

NDA = No Data Available