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

1.1. Product identifier

Product form	: Mixture
Product name	: Urea, Dry
Product code	: URGRAN, URGRANFR, URGRANOS, URGRANTF, URTURFOS, URPRILOS, URPRL, URPRLAG, URPLAGF, URPRLC, URPRLCF, URPRLCH, URPRLENV, URPRLMIA,URPRLMIC,URPRLMIF,URPRLMII,URPRLR, URPAS, URPASOS
Product group	: Commercial product
Synonyms	: Urea Granular; Urea Microprills; Urea Pastille; Urea Prills;

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

Use of the substance/preparation : Agricultural, Industrial and Feed Grade Chemical

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

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin Irrit. 2 H315
Eye Irrit. 2A H319
STOT SE 3 H335

ED_001147_00000127-00001

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS07

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

Precautionary statements (GHS-US) : P261 - Avoid breathing dust
P264 - Wash hands thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear eye protection, protective gloves, protective clothing
P302+P352 - IF ON SKIN: Wash with plenty of water
P304+P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position 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/physician 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
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations

2.3. Other hazards

Hazardous to the aquatic environment

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	% by weight	GHS-US classification
Urea [Carbamide, Carbonyldiamide, Carbamidic Acid)	(CAS No.) 57-13-6	97.5 - 99.7	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
Alkalinity, as Ammonia		150 ppm (max)	
Methylenediurea	(CAS No.) 13547-17-6	0 – 2.5	Eye Irrit. 2A, H319
Biuret	(CAS No.) 108-19-0	0 – 1.5	Skin Irrit. 2, H315 Eye Irrit. 2A, H319

ED_001147_00000127-00002

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 from source of exposure to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Obtain medical attention if breathing difficulty persists. Symptoms may be delayed.

First-aid measures after skin contact : Wash skin thoroughly with mild soap and water. For contact with molten product, do not remove clothing. Flush skin immediately with cold water. Obtain medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Immediately rinse with water for a prolonged period (15 minutes) while holding the eyelids wide open to ensure thorough rinsing. Obtain medical attention immediately if irritation develops or persists.

First-aid measures after ingestion : Do not induce vomiting. Keep affected person warm and treat for shock. A single dose of 100 grams has reportedly caused mild symptoms of Central Nervous System depression (drowsiness, etc). 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. Diarrhea. Nausea. Vomiting. May cause drowsiness and loss of coordination.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Not considered flammable but will burn at high temperatures . Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Decomposes above 132.6 °C (270.7 °F). Under conditions of fire this material may produce: Ammonia; Nitrogen oxides; Biuret. Short-term exposures to smoke and gases may lead to irreversible lung injury without early signs and symptoms.

Explosion hazard : Product is not explosive. May form explosive mixtures if mixed with strong acid (Nitric / Perchloric) and strong oxidizers.

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

ED_001147_00000127-00003

5.3. Advice for firefighters

Firefighting instructions : Not flammable. Material burns with difficulty. Urea becomes slippery when wet – guard against slips and falls.

Protection during firefighting : Wear full fire-fighting turn-out gear (full Bunker gear) and NIOSH approved respiratory protection (SCBA) with full face piece and protective clothing. May form explosive mixtures if mixed with strong acid (Nitric / Perchloric).

Other information : Do not allow run-off from fire fighting to enter drains or water courses. Provide local or general ventilation to keep below nuisance dust limit of 15 mg/m^3.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Handle in accordance with good industrial hygiene and safety practice.

6.1.1. For non-emergency personnel

Protective equipment : Wear suitable protective clothing, gloves and eye/face protection including tight fitting goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Normally no respiratory equipment needed. Use NIOSH approved equipment when airborne dust exposure limits are exceeded. NIOSH approved breathing equipment must be available for non-routine and emergency use.

Emergency procedures : Collect as any solid. Ventilate area. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves and eye/face protection including tight fitting goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Normally no respiratory equipment needed. Use NIOSH approved equipment when airborne dust exposure limits are exceeded. NIOSH approved breathing equipment must be available for non-routine and emergency use.

Emergency procedures : If possible, stop flow of product. Contain and collect as any solid. 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 other countries call CHEMTREC at (International code) +1-703-527-3887.

6.3. Methods and material for containment and cleaning up

For containment : If contaminated with other materials, contain and collect as any solid in suitable containers. Do not allow into drains or water courses or dispose of where ground or surface waters may be affected. Prevent large quantities from contacting vegetation.

ED_001147_00000127-00004

Methods for cleaning up : Recover the product by vacuuming, shoveling or sweeping and place in appropriate container to be disposed at an appropriate disposal facility according to current applicable laws and regulations and product characteristics at the time of disposal. Provide adequate ventilation. Avoid generation of dust during clean-up of spills. If uncontaminated, recover and reuse product.

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

Precautions for safe handling : Handle in accordance with good industrial hygiene and safety procedures. Wear recommended personal protective equipment. Avoid creating or spreading dust.

Hygiene measures : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Avoid contamination with other “look alike” materials that may produce a fire or explosion.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store tightly closed in a dry, cool and well-ventilated place away from heat, sources of ignition, and incompatibilities. Protect from moisture. Avoid contamination with other “look alike” materials that may produce a fire or explosion.

Incompatible materials : Avoid containers, piping or fittings made of brass, bronze or other copper bearing alloys or galvanized metals.

7.3. Specific end use(s)

Agricultural chemical.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Urea (57-13-6)		
USA ACGIH (nuisance dust)	ACGIH TWA (mg/m^3)	10 mg/m^3 – inhalation particulate
USA OSHA (nuisance dust)	OSHA PEL (TWA) (mg/m^3)	5 mg/m^3 – Respirable (particulate) Fraction: urea

8.2. Exposure controls

Appropriate engineering controls : Ensure adequate ventilation, especially in confined areas to keep below nuisance dust limit of 15 mg/m^3.

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

ED_001147_00000127-00005

Hand protection	: Impermeable protective gloves.
Eye protection	: Protective goggles.
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.
Respiratory protection	: Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of dust are expected to exceed exposure limits. NIOSH approved breathing equipment must be available for non-routine and emergency use.
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	: Solid
Appearance	: Granules
Colour	: White
Odour	: Slight ammonia
Odour threshold	: No data available
pH	: 7.2 at 100 g/L
Molecular weight	: 60.07
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Decomposes above 132.6 °C (270.7 °F)
Freezing point	÷ No data available
Boiling point	: No data available
Flammability (solid, gas)	: Non-flammable
Flash point	: No data available
Self ignition temperature	: No data available
Decomposition temperature	÷ No data available
Vapour pressure	: 80 Pa at 20°C
Relative vapour density at 20 °C	÷ No data available

ED_001147_00000127-00006

Specific Gravity (Water = 1)	: No data available
Density	: 2.31 g/cm³
Bulk Density	: 44 - 49 lb/ft³ 750 kg/m³
Solubility	: 1,193 g/l at 25°C
Log Pow	: -1.59 @ 20°C
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available.
Oxidizing properties	: No data available
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

Protect from moisture. May slowly hydrolyze to ammonium carbamate and eventually decompose to ammonia and carbon dioxide.

10.5. Incompatible materials

May form explosive mixture if in contact with strong acid such as nitric or perchloric acids. Avoid contact with: strong oxidizers ; strong acids or bases ; nitrates ; hypochlorites. Reacts with sodium or calcium hypochlorite to form explosive nitrogen trichloride.

10.6. Hazardous decomposition products

Under conditions of fire this material may produce: Nitrogen oxides; Ammonia; Biuret; Carbon oxides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

ED_001147_00000127-00007

Urea (57-13-6)	
LD50 oral rat	8471 mg/kg
LD50 oral rat	14,300 mg/kg-male; 15,000 mg/kg-female
LD50 oral mouse	11,500 mg/kg-male; 13,000 mg/kg-female

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes eye irritation.

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Bacterial Genetic Toxicity Invitro:
Gene Mutation:
Salmonella typhimurium - Bacterial reverse mutation assay: Negative
Chinese Hamster – Chromosomal aberration test: Positive (very high dose);
Mouse: Positive (very high dose).
Non-Bacterial Genetic Toxicity In-Vitro: Chromosomal Aberration:
Mouse – Bone Marrow Cytogenetic test: Positive (extremely high dose)

Carcinogenicity : Not listed in IARC Monographs, by NTP, or OSHA

Reproductive toxicity : Toxicity to Reproduction:
No toxic effects on mouse gonads up to 6,750 mg/kg/day.
No toxic effects on rat gonads up to 2,250 mg/kg/day.
Developmental Toxicity / Teratogenicity:
Not teratogenic.

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity:	**EPA Ecological Toxicity rating :**	
	Acute Toxicity to Fish:	96 -h:(*Barillius barna*)LC_{50} = > 9,100 mg/L.
	Chronic Toxicity to Fish:	No data available
	Acute Toxicity to Aquatic Invertebrates:	(*Daphnia magna*): 24 - h EC_{50}: > 10,000 mg/L .
	Toxicity to Aquatic Plants:	(*Scenadesmus quadricauda*) 192-hr cell multiplication inhibition test-TT>10,000 mg/L.
	Toxicity to Bacteria: (activated sludge):	No data available
	Toxicity to Soil Dwelling Organisms:	Applications of nitrogenous fertilizers to grassland for long period may have deleterious effects on earthworms in the absence of liming.
	Toxicity to Other Non-Mammalian Terrestrial Species:	(Pigeon)- Subcutaneous-LDLO=16,000 mg/kg. Since Urea is a fertilizer, it may promote eutrophication in waterways. Non-toxic to aquatic organisms as defined by USEPA.
	Toxicity to Terrestrial Plants:	7 days exposure to 0 mg urea / leaf - leaf-tip necrosis
	Stability in Water:	$T_{1/2}$ > 1 year.

ED_001147_00000127-00008

Environmental Fate:	**Stability in Soil:**	No data available
	Transport and Distribution:	0.16% in air; 99.84% in water (calculated (Fugacity Level I))
Toxicity:	Non-toxic to aquatic organisms as defined by USEPA. No known toxicity	
Degradation Products:	**Biodegradation:**	Ultimately biodegradable (OECDTG 302B) 93-98% (SCAS 24 hr)
	Photodegradation:	No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

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.

SECTION 14: Transport information

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

14.1. UN number

No dangerous good in sense of transport regulations.

14.2. UN proper shipping name

Not applicable

14.2 Additional information

Other information : No supplementary information available.

Overland transport

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Urea, Dry	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

Urea (57-13-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Biuret (108-19-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

ED_001147_00000127-00009

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.

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

Urea, Dry	
WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects

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

Imidodicarbonic diamide (108-19-0)
Listed on the Canadian DSL (Domestic Sustances List) inventory.

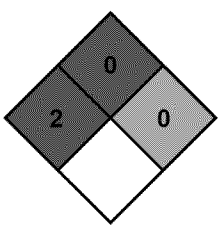
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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 : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



Full text of H- phrases:

Eye Irrit. 2	Serious eye damage/eye irritation Category 2

ED_001147_00000127-00010

Skin Irrit. 2	skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

SDS US (GHS HazCom 2012)

Previous PotashCorp MSDS Number : MSDS 13 – Urea, Dry

Although the information contained is offered in good faith, SUCH INFORMATION IS EXPRESSLY GIVEN WITHOUT ANY WARRANTY (EXPRES S OR IMPLIED) OR ANY GUARANTEE OF ITS ACCURACY OR SUFFICIENCY and is taken at the user's sole risk. User is solely responsible for determining the suitability of use in eac h particular situation. PCS Sales specifically DISCLAIMS ANY LIABILITY WHATSOEVER FOR THE USE OF SUCH INFORMATION, including withou t limitation any recommendation which user may construe and attempt to apply which may infringe or violate valid patents, licenses, and/or copyright.

ED_001147_00000127-00011