

1. PRODUCT AND COMPANY IDENTIFICATION

Based on: GHS (rev 5)(2013) Hazardous Products Regulations (HPR) - Canada

Product identifier Urea

Other Names Carbamide, carbonyldiamide

Uses

Material uses For use in animal feed applications.

Uses not recommended Not for human consumption.

Details of the supplier of the safety data sheet

Supplier Pestell Nutrition

Address 141 Hamilton Rd
New Hamburg, Ontario
Canada, N3A 2H1

Phone 519-662-2877

Email qa@pestell.com

Emergency telephone number (24 hr) Canada: CANUTEC 1 613-996-6666
US: CHEMTREC 1 703-527-3887

2. HAZARDS IDENTIFICATION

Classification and labelling have been performed following the guidelines and recommendation of GHS and the intended use.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Potential Health Effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture : Substance

CAS number/other identifiers

Molecular formula : CH₄N₂O

Molecular mass : 60.06 g/mol

Ingredient name	CAS number	% (w/w)
Urea	57-13-6	98.68

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.

4. FIRST AID MEASURES

Description of necessary first aid measures

- Eye contact** : Rinse with plenty of running water. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : If inhaled, remove to fresh air. 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.
- Skin contact** : Wash with soap and water. Get medical attention if irritation develops.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if adverse health effects persist or are severe.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- 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.
No specific data.
- Inhalation** : No specific data.
No specific data.
- Skin contact** : No specific data.
No specific data.
- Ingestion** : No specific data.
No specific data.

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.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (section 11)

5. FIREFIGHTING MEASURES

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None identified.
- Specific hazards arising from the chemical** : No specific fire or explosion hazard.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
ammonia
Avoid breathing dusts, vapors or fumes from burning materials.
In case of inhalation of decomposition products in a fire, symptoms may be delayed.
- 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** : None.

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. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. 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 environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

- Small spill** : Move containers from spill area. 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. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : 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. 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. 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

Control parameters

- Occupational exposure limits** : None.
- 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. A washing facility or water for eye and skin cleaning purposes should be present.
- 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.
- Skin protection**
- Hand protection** : 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. For general applications, we recommend gloves with a thickness typically greater than 0.35 mm. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material.

Body protection	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved.
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	: In case of inadequate ventilation wear respiratory protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	: Solid
Color	: White.
Odor	: Odorless.
Odor threshold	: Not determined.
pH	: 7.2 [Conc.: 100 g/l]
Melting/freezing point	: 134 °C
Boiling/condensation point	: Not determined.
Sublimation temperature	: Not determined.
Flash point	: Not applicable
Evaporation rate	: Not determined.
Flammability (solid, gas)	: Non-flammable.
Lower and upper explosive (flammable) limits	: Lower: Not determined. Upper: Not determined.
Vapor pressure	: 0.000016 hPa @ 20 °C (20 °C)
Density	: 1.33 g/cm ³ @ 20 °C (20 °C)
Relative density	: Not determined.
Solubility	: Easily soluble in the following materials: cold water
Solubility in water	: > 100 g/l
Partition coefficient: n-octanol/water	: Not determined.
Auto-ignition temperature	: Not determined.
Decomposition temperature	:
Viscosity	: Dynamic: Not determined. : Kinematic: Not determined.
Explosive properties	: Non-explosive in the presence None.
Oxidizing properties	: None.

10. STABILITY AND REACTIVITY

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable under the recommended storage conditions.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.

- Conditions to avoid** : Avoid contamination by any source including metals, dust and organic materials.
- Incompatible materials** : Urea reacts with calcium hypochlorite or sodium hypochlorite to form the explosive nitrogen trichloride.
- Remark** : acids
alkalis
Nitrites and nitrates
- Hazardous decomposition products** : Under fire conditions: Carbon oxides, nitrogen oxides (NOx), ammonia.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

Product / ingredient name	Result	Species	Dose	Exposure	References
Urea	LD50 Oral	Rat	8471 mg/kg	Not applicable.	

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

Irritation/Corrosion

Conclusion/Summary

Skin : Non-irritating.

Eyes : Non-irritating.

Respiratory : Non-irritating.

Sensitization

Conclusion/Summary

Skin : Not sensitizing

Respiratory : Not sensitizing

Mutagenicity

Conclusion/Summary : No mutagenic effect.

Carcinogenicity

Product / ingredient name	Result	Species	Dose	Exposure	References
Urea	Negative - Oral - NOAEL	Rat	2,250 mg/kg	Not applicable.	IUCLID 5

Conclusion/Summary : No carcinogenic effect.

Reproductive toxicity

Product / ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure	References
Urea	Not applicable.	Not applicable.	Negative	Rat	Oral: 500 mg/kg	7 days per week	IUCLID 5

Conclusion/Summary : Not considered to be toxic to the reproductive system.

Teratogenicity

Conclusion/Summary : No teratogenic effect.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

No known significant effects or critical hazards.

Aspiration hazard

No known significant effects or critical hazards.

Information on likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- 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.
No specific data.
- Inhalation** : No specific data.
No specific data.
- Skin contact** : No specific data.
No specific data.
- Ingestion** : No specific data.
No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

- Potential immediate effects** : Adverse health effects are considered unlikely, when the product is used according to directions.
- Potential delayed effects** : None identified.

Long term exposure

Potential immediate effects : Adverse health effects are considered unlikely, when the product is used according to directions.

Potential delayed effects : None identified.

Potential chronic health effects

Product / ingredient name	Result	Species	Dose	Exposure	References
Urea	NOAEL Oral	Rat	2,250 mg/kg	12months 7 days per week	IUCLID 5

Conclusion/Summary : Not toxic.

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.

Over-exposure signs/symptoms

Eye contact : No specific data.
No specific data.

Inhalation : No specific data.
No specific data.

Skin contact : No specific data.
No specific data.

Ingestion : No specific data.
No specific data.

Other Information

RTECS: YR6250000

12. ECOLOGICAL INFORMATION

Toxicity

Product / ingredient name	Result	Species	Exposure	References
Urea				
	Acute LC50 6,810 mg/l Fresh water	Fish	96 h	IUCLID 5
	Acute EC50 10,000 mg/l Fresh water	Daphnia magna	24 h	IUCLID 5
	Chronic No-observable-effect-concentration 47 mg/l Fresh water	Algae	192 h	IUCLID 5

Conclusion/Summary No known significant effects or critical hazards.

Persistence and degradability

Product / ingredient name	Test	Result	Dose	Inoculum	References
Urea	302B Inherent Biodegradability: Zahn-Wellens/EMP A Test	96 % - Inherently biodegradable - 16 d	Not applicable	Activated sludge	IUCLID

Conclusion/Summary : Readily biodegradable in plants and soils. The product does not show any bioaccumulation phenomena.

Bioaccumulative potential

Product / ingredient name	LogPow	BCF	Potential
Urea	1.73	Not applicable.	low

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

Mobility in soil

Soil/water partition coefficient (KOC)

: Not available.

Mobility

: This product may move with surface or groundwater flows because its water solubility is: high

Other adverse effects

: No known significant effects or critical hazards.

13. DISPOSAL CONSIDERATIONS

Product

Methods of disposal

: 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. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. TRANSPORT INFORMATION

Regulation: UN Class	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information <u>Environmental hazards</u>	: No.

Regulation: IMDG	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
<u>Marine pollutant</u>	: Not available.

Regulation: IATA	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
<u>Marine pollutant</u>	: No.

Regulation: DOT Classification	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
<u>Marine pollutant</u>	: Not available.

Regulation: TDG Class	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class(es)	Not applicable.
14.4 Packing group	Not applicable.
14.5 Environmental hazards	No.
Additional information	
Not applicable.	
<u>Environmental hazards</u>	: No.

14.6 Special precautions for user : Transport within user's premises: Ensure that persons transporting the product know what to do in the event of an accident or spillage.

IMSBC
Bulk cargo shipping name : UREA
Class : Not applicable.
Group : C

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

15. REGULATORY INFORMATION

Canadian lists

- Canadian NPRI** : None of the components are listed.
CEPA Toxic substances : None of the components are listed.

Inventory list

- Philippines inventory (PICCS)**: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Japan inventory: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Australia inventory (AICS): All components are listed or exempted.
Canada inventory (DSL and NDSL): All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI): All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI): All components are listed or exempted.
United States inventory (TSCA 8b): All components are listed or exempted.
EC INVENTORY (EINECS/ELINCS): All components are listed or exempted.
Canada: All components are listed or exempted.

16. OTHER INFORMATION

- Key to abbreviations** :
- ADN/ADNR = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
 - ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
 - ATE = Acute Toxicity Estimate
 - BCF = Bioconcentration Factor
 - bw = Body weight
 - 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)
 - NOHSC - National Occupational Health and Safety Commission
 - RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
 - SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons
 - UN = United Nations

Procedure used to derive the classification

Classification	Justification
Not classified.	Calculation method

Disclaimer

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Pestell Nutrition and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

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