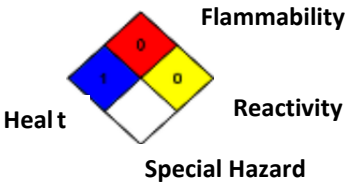
	MATERIAL SAFETY DATA SHEET (MSDS)

MSDS- UREA

Product Name	UREA
Manufacturer	Dangote Petrochemical Complex
Address	Lagos - Nigeria
Emergency Phone	
Email id	
Recommended use	Fertilizer

NFPA Classification



Key: 0 = Least, 1 = Slight, 2 = Moderate, 3 = High, 4=Extreme

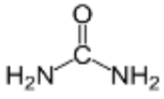
Section 1. Identification

Product Name : UREA

Other Name(s): Carbamide, Carbonyl diamide, Carbonyldiamine

Molecular Formula: CH_4N_2O

Chemical formula:



Proper Shipping Name: None allocated

UN Number: None allocated

Recommended Use: As fertilizer

Section 2. Hazards identification

Product Definition: Granular Urea, white, dust free, free flowing, free from harmful substances, anti-caking treated (Formaldehyde)

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Not classified. Non-hazardous substance

Classification according to Directive 67/548/EEC [DSD]

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 MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Hazard statements: No known significant effects or critical hazards.

Label Elements

Hazard pictograms: Not applicable

Signal word: Not applicable

Hazard statements: No known significant effects or critical hazards

Precautionary Statements

Prevention: Not applicable

Response: Not applicable

Storage: Not applicable

Disposal: Not applicable

Supplemental label Elements: Not applicable

Other hazards which do not result in classification:

Section 3. Composition/information on ingredients

Component	CAS No	Weight %
Urea	57-13-6	99-100
Total Nitrogen	7727-37-9	Min. 46.0
Biuret (H2NCONHCONH2)	108-19-00	Max. 1.0
Moisture	7732-18-5	Max. 0.5
Particle Size Distribution	-	
Granules 2-4 mm	-	Min 90%

Section 4. First aid measures

Description of First Aid Measures

Eye contact: Flush/irrigateeyes with large amount of water for at least 10 minutes until irritation Subsides. If eye irritation persists, seek medical attention.

Inhalation: Remove fromsource of exposure to dust. Not expected to be toxic by inhalation. Keep warm and at rest. Obtain medical advice if symptoms persist.

Skin contact: Not expected to be toxic by dermal exposure. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes.

Ingestion: Wash out mouth with water. Remove victim to fresh air and keep at rest in a Position comfortable for breathing. 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 symptoms occur.

Notes to Medical Doctor: No specific antidote. Treatment is symptomatic

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable

training.

Call doctor/physician for any medication. Never give fluids to an unconscious person.

Section 5. Fire-fi ghting measures

Non-flammable (see NFPA Rating on Page 1)

Extinguishing media: CO_2, foam, dry powder, water

Combustion products : Ammonia, carbon oxides, nitrogen oxides Not applicable

Flash point: Not applicable

Flammability limits: Not applicable

Auto-ignition temperature: Not applicable

HAZCHEM Code: None allocated

Section 6. Accidental release measures

Protect yourself and others from injury. Wear appropriate protective equipment (see section 8). Collect and place in clean sealable containers. Avoid generating dusts.

Section 7. Handling and storage

Precautionary Statements

- Keep out of reach of children.
- Do not breathe dust.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Avoid unintended release to the environment.

Safe Handling

•Avoid generating dusts. Use only outdoors or in a well-ventilated area.

Storage

- Store in sealed containers in cool, dry, well-ventilated area. Keep away from incompatible materials such as reducing agents. Do not blend or store in contact with ammonium nitrate. Dry urea and dry ammonium nitrate will react together to produce a slurry.
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Section 8. Exposure controls/personal protection

Exposure Standards

Respirable dust : 3mg/m3

Tolerable Exposure Limit (TEL): Not assigned

AIHA Workplace Environmental Exposure Limits: 10 mg/m3 TWA for Urea as inhalable dust.

OSHA PEL: 15 mg/m3 for Particulates Not Otherwise Regulated.

Federal, State or Provincial exposure limits may vary by jurisdiction. Consult local authorities for acceptable exposure limits in your area.

Engineering Controls

Ventilation: Use in well-ventilated area. If dusts are generated use local extraction to control

PPE

Respiratory: If dusts present wear dust mask.

Eyes/Face: Safety glasses. If dusts present wear goggles.

Skin: Overalls, gloves.

- Eye wash facilities should be available.
- Wash hands after working with substance

Section 9. Physical and Chemical properties

Appearance:	White granules
Odour:	Slight Ammonia smell
pH:	~9 (100 gms/L in water, 20^{O}C)
Vapour pressure:	< 0.1 Pa
Vapour density:	Not available
Boiling point:	Decomposes at 135°C
Melting point:	132.7°C (270.9°F)
Solubility:	Easily soluble in hot water. Soluble in cold water. Partially soluble in methanol, diethyl ether. Insoluble in n-octanol.
Specific gravity:	1.34g/cc
Bulk density:	750 kg/m^3
Flash point:	Not applicable
Auto-ignition Temperature:	Not applicable

Section 10. Stability and reactivity

Stability:	Stable under normal conditions.
Conditions to avoid:	Strong heat.
Incompatibility with Various substances:	Reactive with halogens. Slightly reactive with oxidizing agents, reducing agents, acids, alkalis, moisture. Non-reactive with combustible materials, organic materials, most metals.
Hazardous decomposition products:	Ammonia, carbon oxides, nitrogen oxides & produces biuret on heating.
Hazardous Polymerization:	Will not occur

Section 11. Toxicological information

Health Effects / Symptoms of Exposure

No adverse health effects expected under normal conditions.

Inhalation : Slight irritant. Elevated exposure may result in mucous membrane irritation (nose & throat).

Skin: Irritant. Prolonged contact may result in irritation, itching and possible skin rash.

Eyes: Irritant. May cause lachrymation, irritation, pain & redness

Ingestion: Has diuretic effect. Ingestion of large quantities may lead to nausea and vomiting.

Toxicological Data

LD50 (oral, rat): 8471 mg/kg

LD50 (dermal, rat): 8200 mg/kg

Toxicity to Animals: Under controlled feeding conditions, urea is used as a nutritional supplement in cattle and other animals. The toxic dose in cattle given urea for the first time is considered to be 0.45 g/kg or a total of 100-200g. Mature bulls can digest as much as 400 g a day without ill effect.

Animal Antidote and Emergency Treatment: In animals, the cold water - acetic acid treatment may work. The adult cow is given 19-38 liters cold water and 3.8 liters of 5% acetic acid (vinegar) orally. This treatment limits absorption of ammonia from the rumen by diluting the rumen contents and slowing the rate of hydrolysis of urea by decreasing rumen pH and temperature. The treatment also promotes urine flow that, if maintained by fluid therapy, may assure recovery from urea toxicity. Gaseous or fluid bloat should be relieved before pumping water into the rumen. Consult your veterinarian immediately.

Section 12. Ecological information

Environmental Exposure Limit (EEL): Not assigned; avoid washing excessive amounts into streams and waterways

Special remarks on the products of Urea will promote algae growth which may degrade water Quality and taste. Notify downstream water users. Will dissolve and disperse

Degradation : in water. Reclaiming material may not be viable.

Section 13. Disposal considerations

Observe any local authority restrictions that may apply. Collection into sealable containers and dispose of in an approved land fill. If practicable apply excess fertilizer at recommended rates to appropriate land.

Containers: Rinse containers thoroughly prior to re-use. Otherwise render unusable, and dispose of as waste.

Section 14. Transport information

DOT / TDG Classification

Proper Shipping Name: None

Non-Hazardous for Transport: This substance is considered to be non-Hazardous for transport

IATA Classification: Non-Hazardous for Air Transport

Proper Shipping Name: None allocated

UN Number: None allocated

Section 15. Regulatory information

Exposure limits: See sections 8, 12

Location Certification : Not required

Tracking: Not required

Approved Handlers: Not required

Section 16. Other information

This MSDS is provided by IEFCL. While the information contained herein is based on data believed to be accurate, no warranty or representations expressed or implied for which IEFCL Products assumes a legal responsibility.

MSDS may be revised from time to time, please ensure you have a current copy