

SAFETY DATA SHEET

1. Identification

Product identifier Urea
Other means of identification
MSDS Number KAS_Urea_SI_EN
Synonyms Carbamide, Carbamidic Acid, KBU urea premium

Recommended use of the chemical and restrictions on use

Recommended use Fertilizer
Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Koch Agronomic Services, LLC
 4111 E 37th St N
 Wichita, KS 67220 US
 kochmsds@kochind.com
 1.866.863.5550

Emergency telephone number Call CHEMTREC day or night
 USA/Canada - 1.800.424.9300
 Outside USA/Canada
 -1.703.527.3887
 (collect calls accepted)

2. Hazards identification

GHS classification

Physical hazards Not classified.
Health hazards Not classified.
Environmental hazards Not classified.

GHS label elements, including precautionary statements

Pictograms None.
Signal word None.
Hazard statements The substance does not meet the criteria for classification.

Precautionary statements

Prevention Observe good industrial hygiene practices.
Response Wash hands after handling.
Storage Store away from incompatible materials.
Disposal Dispose of waste and residues in accordance with local authority requirements.

Other hazards which do not result in classification None known.

Supplemental information None.

3. Composition/information on ingredients

Substance or mixture Substance

| Chemical name | Common name and synonyms | CAS Number | Concentration (%) |
|---------------|--|------------|-------------------|
| Urea* | Carbamide, Carbamidic Acid, KBU urée premium | 57-13-6 | 95 - 100 |

Composition comments *Treated with a non-hazardous anti-caking agent, less than 1% by weight.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. This Safety Data Sheet is not a guarantee of product specification or NPK value(s). NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.

4. First-aid measures

Inhalation Move to fresh air. Get medical attention if any discomfort continues.

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| Skin contact | Wash contact areas with soap and water. Get medical attention if irritation develops and persists. |
| Eye contact | Dust in the eyes: Do not rub eyes. Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing. |
| Ingestion | Rinse mouth thoroughly. Get medical attention if any discomfort continues. |
| Most important symptoms/effects, acute and delayed | Eye contact: Symptoms can include irritation, redness, scratching of the cornea, and tearing. Skin contact: Mild skin irritation. Dust may irritate throat and respiratory system and cause coughing. |
| Indication of immediate medical attention and special treatment needed | Treat symptomatically. |
| General information | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

5. Fire-fighting measures

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| Suitable extinguishing media | Use fire-extinguishing media appropriate for surrounding materials. |
| Unsuitable extinguishing media | None known. |
| Specific hazards arising from the chemical | Fire will produce irritating, corrosive and/or toxic gases. |
| Fire fighting equipment/instructions | Move containers from fire area if you can do it without risk. Use water spray to prevent dust formation, absorb heat, keep containers cool and protect fire-exposed material. |
| Special protective equipment and precautions for firefighters | Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| General fire hazards | Urea is non-combustible under most conditions. However, during a fire, irritating/toxic gases may be generated. The dust can be ignited at very high temperatures, but not expected to explode (minimum ignition temperature (cloud) = 900 deg C. |

6. Accidental release measures

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| Personal precautions, protective equipment and emergency procedures | Avoid inhalation of dust and contact with skin and eyes. Ensure adequate ventilation. Wear suitable protective clothing. Use personal protection recommended in Section 8 of the SDS. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers or watercourses. |
| Methods and materials for containment and cleaning up | Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. After removal flush contaminated area thoroughly with water. Never return spills to original containers for re-use. |

7. Handling and storage

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| Precautions for safe handling | Avoid generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Use only with adequate ventilation. Observe good industrial hygiene practices. Use work methods which minimize dust production. Keep the workplace clean. |
| Conditions for safe storage, including any incompatibilities | Keep container tightly closed. Store in a well-ventilated place. Store in a cool, dry place. Store away from incompatible materials. |

8. Exposure controls/personal protection

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| Control parameters/Occupational exposure limits | No exposure limits noted for ingredient(s). |
| Exposure guidelines | No specific recommendation made, but protection against nuisance dust must be used when the general level exceeds 10 mg/m ³ . |
| Appropriate engineering control measures | Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. |
| Individual protection measures, such as personal protective equipment | |
| Eye/face protection | Use tight fitting goggles if dust is generated. |
| Skin protection | |
| Hand protection | Risk of contact: Wear protective gloves. Suitable gloves can be recommended by the glove supplier. |
| Other | Normal work clothing (long sleeved shirts and long pants) is recommended. Risk of contact: Wear appropriate clothing to prevent any possibility of skin contact. |

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| Respiratory protection | Seek advice from local supervisor. Wear air supplied respiratory protection if exposure concentrations are unknown. No specific recommendation made, but protection against nuisance dust must be used when the general level exceeds 10 mg/m ³ . In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. |
| Thermal hazards | Wear appropriate thermal protective clothing, when necessary. |
| General hygiene considerations | Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice. |

9. Physical and chemical properties

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| Appearance | White granules with faint ammonia odor. |
| Physical state | Solid. |
| Form | Granular. Pellets. Prilled. |
| Color | White. |
| Odor | Ammonia-like. Faint, characteristic. |
| Odor threshold | Not available. |
| pH | 8 - 8.5 10% solution |
| Melting point/freezing point | 270.86 °F (132.7 °C) |
| Initial boiling point and boiling range | Not available. |
| Flash point | Not applicable. |
| Evaporation rate | Not applicable. |
| Flammability (solid, gas) | Not available. |
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Vapor pressure | Not applicable. |
| Vapor density | Not applicable. |
| Relative density | 1.335 (water=1) |
| Solubility(ies) | |
| Solubility (water) | Soluble. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Viscosity | Not applicable. |
| Other data | |
| Bulk density | 48 - 52 lb/ft ³ (Packed) |
| Explosive properties | Not explosive. |
| Molecular weight | 60.06 g/mol |
| Oxidizing properties | Not oxidizing. |

10. Stability and reactivity

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| Reactivity | Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard. |
| Chemical stability | Normally stable. May gradually give off ammonia. The product is hygroscopic and will absorb water by contact with the moisture in the air. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Conditions to avoid | Moisture. High temperatures. Contact with incompatible materials. |
| Incompatible materials | Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard. Strong oxidizing agents. Nitric acid. Nitrites. |
| Hazardous decomposition products | Carbon oxides. Nitrogen oxides (NO _x). Ammonia. Biuret. |

11. Toxicological information

Information on likely routes of exposure

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|---------------------|---|
| Inhalation | Inhalation of dusts may cause respiratory irritation. |
| Skin contact | Dust may irritate skin. |
| Eye contact | Dust may irritate the eyes. |

Ingestion May cause discomfort if swallowed.

Acute toxicity Dust in the eyes will cause irritation. Dust may irritate skin. High concentrations of dust may irritate throat and respiratory system and cause coughing. May cause discomfort if swallowed.

| Product | Species | Test Results |
|---|--|--------------|
| Urea* (CAS 57-13-6) | | |
| Acute | | |
| <i>Oral</i> | | |
| LD50 | Rat | 14300 mg/kg |
| Symptoms | Eye contact: Symptoms can include irritation, redness, scratching of the cornea, and tearing. Skin contact: Mild skin irritation. Dust may irritate throat and respiratory system and cause coughing. | |
| Skin corrosion/irritation | May cause skin irritation. | |
| Serious eye damage/eye irritation | May cause irritation through mechanical abrasion. | |
| Respiratory or skin sensitization | | |
| Respiratory sensitization | Based on available data, the classification criteria are not met. | |
| Skin sensitization | Not a skin sensitizer. | |
| Germ cell mutagenicity | Based on available data, the classification criteria are not met. | |
| Carcinogenicity | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. Not classifiable as to carcinogenicity to humans. | |
| Reproductive toxicity | Based on available data, the classification criteria are not met. | |
| Specific target organ toxicity - single exposure | Not classified. | |
| Specific target organ toxicity - repeated exposure | Based on available data, the classification criteria are not met. | |
| Aspiration hazard | Not an aspiration hazard. | |
| Chronic effects | Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases. | |
| Other information | No other specific acute or chronic health impact noted. | |

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

| Product | Species | Test Results | |
|--------------------------------------|---|----------------------------|------------------------|
| Urea* (CAS 57-13-6) | | | |
| Aquatic | | | |
| Algae | EC10 | Algae | 47 mg/l, 192 hours |
| Crustacea | LC50 | Water flea (Daphnia magna) | > 10000 mg/l, 24 hours |
| Fish | LC50 | Leuciscus idus | > 6810 mg/l, 96 hours |
| Persistence and degradability | No data available. | | |
| Bioaccumulative potential | No data available. | | |
| Mobility in soil | This product is water soluble and may disperse in soil. | | |
| Other adverse effects | No data available. | | |

13. Disposal considerations

Disposal methods/information Do not allow this material to drain into sewers/water supplies.

Special precautions Dispose in accordance with all applicable regulations.

14. Transport information

ADR
Not regulated as dangerous goods.

RID
Not regulated as dangerous goods.

ADN
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. However, the product is covered under Appendix I of the IMSBC Code.

15. Regulatory information

Safety, health and environmental regulations specific for the product in question

Controlled Narcotic Drugs (Misuse of Drugs Act, First Schedule, Part I, II & III)

Not regulated.

Controlled Specified Drugs (Misuse of Drugs Act, Fourth Schedule)

Not regulated.

Prior Informed Consent (PIC) Substances (Environment Protection and Management Act, 2nd Schedule, Part 1, Jul. 1, 2013)

Not regulated.

Chemical Weapons Prohibition (Act)

Not applicable.

Environmental Protection and Management (Hazardous Substances) Regulations

Not applicable.

Environmental Public Health Act

Not applicable.

International regulations

Montreal Protocol

Not applicable.

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | Yes |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

References

EPA: AQUIRE database
HSDB® - Hazardous Substances Data Bank
RTECS
ECHA CHEM

Issued by

Not available.

Prepared by

Not available.

Disclaimer

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Issue date

31-March-2016

Revision date

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Key/legend

Not applicable.