Magruder 240911 Urea + Inhibitor 46 – 0 - 0

results due October 15, 2024

Important Note:
Because of the nature of urea, this sample has not been ground in preparation for distribution. Prepare it as you would for any normal sample received in your laboratory.

Guaranteed Analysis

Total Nitrogen (N) ..... 46.0 %
45.5% Urea Nitrogen
0.5% Other Water Soluble Nitrogen

Derived from: Urea and Dicyandiamide
0.85% dicyandiamide
0.06% N-(n-butyl) thiophosphoric triamide.

Also analyze for: Water (Free), typical wt % 0.1 – 0.4
Biuret, typical wt % 0.85 – 1.5

The units above are those required for reporting data from this Magruder sample. They may not be the units required on a commercial fertilizer label.

Note: This Magruder Check Sample material is not to be used in the manufacture of products nor applied to any crops or for other fertilizer uses. It is intended for analytical testing purposes only.

SDS for this product can be found at:
http://www.magrudercheckssample.org/SDS/240911GuarSDS.pdf

SDS For Magruder 240911

1. Identification

Product identifier **SuperU® Stabilized Nitrogen Fertilizer**

Other means of identification

Product code KF_SuperU_US_EN

Recommended use Fertilizer.

Recommended restrictions Use in accordance with supplier's recommendations.

Manufacturer/Importer/Supplier/Distributor information

Company Name Koch Fertilizer, LLC
4111 E 37th Street North
PO Box 2219
Wichita, KS, 67201-2219
kochmsds@kochind.com
1-316-828-7672

Emergency For Chemical Emergency
Call CHEMTREC day or night
1.800.424.9300
Mexico - 1.800.681.9531
Outside USA/Canada
1.703.527.3887
(collect calls accepted)

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

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.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Urea	57-13-6	60 - 100
Non hazardous dye	Proprietary	< 3
Dicyandiamide	461-58-5	0.5 - 1.5
N-(n-butyl)-thiophosphoric triamide	94317-64-3	< 0.1
N-Methyl-2-pyrrolidone	872-50-4	< 0.1

Composition comments	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.
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: May cause 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

Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	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).
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.
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.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear suitable protective clothing. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. 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.
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.

7. Handling and storage

Precautions for safe handling	Avoid inhalation of dust and contact with skin and eyes. Use only with adequate ventilation. Observe good personal hygiene practices.
Conditions for safe storage, including any incompatibilities	Store in a well-ventilated place. Store in a cool, dry place. Keep container tightly closed. Store away from incompatible materials. Long term storage at temperatures above 100°F (36°C) can adversely affect the efficacy of products containing N-(n-butyl)-thiophosphoric triamide.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Dust	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Dust	TWA	3 mg/m3	Respirable particles.
		10 mg/m3	Inhalable particles.

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
N-Methyl-2-pyrrolidone (CAS 872-50-4)	TWA	40 mg/m3	
		10 ppm	
Urea (CAS 57-13-6)	TWA	10 mg/m3	Total particulate.

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
N-Methyl-2-pyrrolidone (CAS 872-50-4)	100 mg/l	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

N-Methyl-2-pyrrolidone (CAS 872-50-4) Can be absorbed through the skin.

US WEEL Guides: Skin designation

N-Methyl-2-pyrrolidone (CAS 872-50-4) Can be absorbed through the skin.

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Observe occupational exposure limits and minimize the risk of inhalation of dust.

Individual protection measures, such as personal protective equipment

Eye/face protection Risk of contact: Wear dust goggles.

Skin protection

Hand protection Risk of contact: Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

Skin protection

Other No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2.

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

Appearance Blue. Granules.

Physical state Solid.

Form Granules.

Color Blue.

Odor Slight sulfurous

Odor threshold Not available.

pH 7.2 (10% in water)

Melting point/freezing point 275 °F (135 °C) Decomposes

Initial boiling point and boiling range Not applicable.

Flash point Not available.

Evaporation rate Not applicable.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not applicable.

Flammability limit - upper (%) Not applicable.

Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	1.32
Solubility(ies)	
Solubility (water)	Soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	47.00 lb/ft³
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Extreme temperatures.
Incompatible materials	Acids. Strong reducing agents. Strong oxidizing agents.
Hazardous decomposition products	During combustion: Carbon oxides. Nitrogen oxides. Sulfur oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	High concentrations of dust may irritate throat and respiratory system and cause coughing.
Skin contact	Dust may irritate skin.
Eye contact	Dust may irritate the eyes.
Ingestion	May cause discomfort if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Eye contact: Symptoms can include irritation, redness, scratching of the cornea, and tearing. Skin contact: May cause mild skin irritation. Dust may irritate throat and respiratory system and cause coughing.

Information on toxicological effects

Acute toxicity May cause discomfort if swallowed.

Components	Species	Test Results
Dicyandiamide (CAS 461-58-5)		
Acute		
Dermal		
LD50	New Zealand white rabbit	> 2000 mg/kg, 24 hours
Inhalation		
LC50	Wistar rat	> 259 mg/m3, 4 hours
Oral		
LD50	Wistar rat	> 10000 mg/kg
		> 7000 mg/kg
N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Wistar rat	> 2.1 mg/l, 4 hours
Oral		
LD50	Wistar rat	> 2000 mg/kg
N-Methyl-2-pyrrolidone (CAS 872-50-4)		
Acute		
Dermal		
LD50	Rat	> 5000 mg/kg
Inhalation		
Mist		
LC50	Rat	> 5.1 mg/l, 4 hours

Oral

LD50 Rat 3605 mg/kg

Urea (CAS 57-13-6)

Acute

Oral

LD50 Rat 14300 mg/kg

Skin corrosion/irritation May cause irritation through mechanical abrasion.

Irritation Corrosion - Skin

N-Methyl-2-pyrrolidone (CAS 872-50-4) Result: Slightly irritating
Species: Rabbit

Serious eye damage/eye irritation May cause irritation through mechanical abrasion.

Eye

N-Methyl-2-pyrrolidone (CAS 872-50-4) Result: Moderately irritating
Species: Rabbit
Observation Period: 14 days

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.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Reproductive toxicity Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

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.

Further 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.

Components		Species	Test Results
Dicyandiamide (CAS 461-58-5)			
Acute			
	EC50	Selenastrum capricornutum (Pseudokirchnerella subcapitata)	2.04 g/l, 4 days
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	> 3177 mg/l, 48 hours
Fish	LC50	Lepomis macrochirus	> 1000 mg/l, 96 hours
		Oncorhynchus mykiss	7700 ppm, 96 hours
Chronic			
Crustacea	LC50	Daphnia magna	> 100 mg/l, 21 days
Fish	LC50	Oryzias latipes	> 100 mg/l, 14 days

N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)

Aquatic

Algae	EC50	Selenastrum capricornutum	280 mg/l, 96 hours
Crustacea	EC50	Daphnia magna	290 mg/l, 48 hours
	LC50	Daphnia	350 mg/l, 48 hours
Fish	LC50	Lepomis macrochirus	1140 mg/l, 96 hours

N-Methyl-2-pyrrolidone (CAS 872-50-4)

Aquatic

Acute

Algae	EC50	Scenedesmus subspicatus	> 500 mg/l, 72 Hours
Crustacea	EC50	Daphnia magna	> 1000 mg/l, 24 Hours
Fish	LC50	Oncorhynchus mykiss	> 500 mg/l, 96 Hours

Chronic

Crustacea	NOEC	Daphnia magna	12.5 mg/l, 21 days

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 Not available.

Partition coefficient n-octanol / water (log Kow)

N-Methyl-2-pyrrolidone (CAS 872-50-4)	-0.54
Urea (CAS 57-13-6)	-2.11

Mobility in soil This product is water soluble and may disperse in soil.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

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.

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3) 1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
N-Methyl-2-pyrrolidone	872-50-4	< 0.1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

N-Methyl-2-pyrrolidone (CAS 872-50-4)

US. New Jersey Worker and Community Right-to-Know Act

N-Methyl-2-pyrrolidone (CAS 872-50-4)

US. Pennsylvania Worker and Community Right-to-Know Law

N-Methyl-2-pyrrolidone (CAS 872-50-4)

US. Rhode Island RTK

Not regulated.

California Proposition 65

WARNING: This product can expose you to N-Methyl-2-pyrrolidone, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Developmental toxin

N-Methyl-2-pyrrolidone (CAS 872-50-4) Listed: June 15, 2001

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

N-Methyl-2-pyrrolidone (CAS 872-50-4)

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)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
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	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*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, including date of preparation or last revision

Issue date 19-December-2017

Revision date -

Version # 01

HMIS® ratings Health: 1
Flammability: 0
Physical hazard: 0

NFPA ratings

List of abbreviations

LC50: Lethal Concentration, 50%.
LD50: Lethal Dose, 50%.

References IARC: International Agency for Research on Cancer.
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices (2009)
National Toxicology Program (NTP) Report on Carcinogens

Disclaimer

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet (SDS) and was prepared pursuant to Government regulation(s) that identify specific types of information to be provided. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. Additional information may be needed to evaluate other uses of the product, including use of the product in combination with any materials or in any processes other than those specifically referenced. Information provided herein with respect to any hazards that may be associated with the product is not meant to suggest that use of the product in a given application will necessarily result in any exposure or risk to workers or the general public. No responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product. Purchasers and users assume all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Purchasers and users of the product specifically should advise all of their employees, agents, contractors and customers who will use the product of this (M)SDS.