

SAFETY DATA SHEET

1. Identification

Product identifier SuperU® Stabilized Nitrogen Fertilizer

Other means of identification
Product code KAS_SuperU_US_EN

Recommended use Fertilizer.

Recommended restrictions Use in accordance with supplier's recommendations.

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 For Chemical Emergency
 Call CHEMTREC day or night
 USA/Canada - 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
Non hazardous component	Proprietary	< 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 Avoid inhalation of dust and contact with skin and eyes. Ensure adequate ventilation. 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-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Dust (CAS -)	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.

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

Components	Type	Value	Form
Dust (CAS -)	TWA	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Dust (CAS -)	TWA	3 mg/m ³	Respirable particles.
		10 mg/m ³	Inhalable particles.

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
N-Methyl-2-pyrrolidone (CAS 872-50-4)	TWA	40 mg/m ³	
Urea (CAS 57-13-6)	TWA	10 ppm	
		10 mg/m ³	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. 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/ft ³
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity Chemical stability	The product is stable and non-reactive under normal conditions of use, storage and transport.
Possibility of hazardous reactions	Stable under normal temperature conditions. 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.
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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 Symptoms can include irritation, redness, scratching of the cornea, and tearing.

Information on toxicological effects

Acute toxicity May cause discomfort if swallowed.

Components	Species	Test Results
Dicyandiamide (CAS 461-58-5)		
Acute		
<i>Dermal</i>		
LD50	New Zealand white rabbit	> 2000 mg/kg, 24 hours
<i>Inhalation</i>		
LC50	Wistar rat	> 259 mg/m ³ , 4 hours
<i>Oral</i>		
LD50	Wistar rat	> 10000 mg/kg > 7000 mg/kg
N-(n-butyl)-thiophosphoric triamide (CAS 94317-64-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Inhalation</i>		
LC50	Wistar rat	> 2.1 mg/l, 4 hours
<i>Oral</i>		
LD50	Wistar rat	> 2000 mg/kg
N-Methyl-2-pyrrolidone (CAS 872-50-4)		
Acute		
<i>Dermal</i>		
LD50	Rat	> 5000 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 5.1 mg/l
<i>Oral</i>		
LD50	Rat	3605 mg/kg
Urea (CAS 57-13-6)		
Acute		
<i>Oral</i>		
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 1910.1001-1050)

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)			
Aquatic			
<i>Acute</i>			
Algae	EC50	Selenastrum capricornutum (Pseudokirchnerella subcapitata)	2.04 g/l, 4 days
Crustacea	EC50	Daphnia magna	> 3177 mg/l, 48 hours
Fish	LC50	Lepomis macrochirus	> 1000 mg/l, 96 hours
		Oncorhynchus mykiss	7700 ppm, 96 hours
<i>Chronic</i>			
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			
Crustacea	NOEC	Daphnia magna	12.5 mg/l, 21 days
<i>Acute</i>			
Algae	EC50	Scenedesmus subspicatus	> 500 mg/l, 72 Hours
Crustacea	EC50	Daphnia magna	> 1000 mg/l, 24 Hours
	LC50	Palaemonetes vulgaris	1107 mg/l, 96 Hours
Fish	LC50	Oncorhynchus mykiss	> 500 mg/l, 96 Hours
<i>Chronic</i>			
Crustacea	LC50	Daphnia magna	25 mg/l, 21 days
Urea (CAS 57-13-6)			
Aquatic			
Fish	LC50	Leuciscus idus	> 6810 mg/l, 96 hours

Persistence and degradability No data available.

Bioaccumulative potential No data 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 data available.

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 This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

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

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

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

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

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

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

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	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	02-May-2016
Revision date	02-May-2016
Version #	02
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.