



# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 1 IDENTIFICATION

- 1.1 **Product Identifier**  
 Product Name : SBC N-Spike  
 Formula:  $\text{CH}_4\text{N}_2\text{O} + \text{H}_2\text{O}$   
 Synonyms: Urea Solution; Urea Cattle Feed
- 1.2 **Intended Use of Product**  
 Fertilizer; Animal Feed; Nitrogen Solution for SCR NOx Control Systems.
- 1.3 **Information of Responsible Party**  
 Manufacturer/Supplier: CF Industries Sales, LLC  
 4 Parkway North, Suite 400  
 Deerfield, Illinois 60015-2590  
 847-405-2400 - www.cfindustries.com
- Emergency Phone Numbers: CHEMTREC 1-800-424-9300 / 24 Hour (414) 277-1311

### 2 HAZARD(S) IDENTIFICATION

- 2.1 **Classification of the Substance/Mixture**  
 GHS-US Classification: Aquatic Acute 3 H402  
 Full text of H-phrases: see section 16
- 2.2 **Label Elements**  
 GHS-US Hazard Statement(s): H402: Harmful to aquatic life.  
 GHS-US Precautionary Statement(s): P273: Avoid release to the environment.  
 P501: Dispose of contents/container in accordance with local, regional, national, and international regulations.
- 2.3 **Other Hazards**  
 Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.
- 2.4 **GHS-US Unknown Acute Toxicity**  
 No Data Available

### 3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 **Substances/Mixtures:**

Name	CAS No.	% by Wt.	GHS-US Classification
Urea	57-13-6	40 - 70	Not classified
Water	7732-18-5	28 - 58.8	Not classified
Imidodicarbonic diamide (Biruet)	108-19-0	≤ 0.7	Skin Irrit. 2, H315
Ammonia	7664-41-7	≤ 0.5	Eye Irrit. 2A, H319 STOT SE 3, H335



# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 3 COMPOSITION/INFORMATION ON INGREDIENTS (CONT.)

Name	CAS No.	% by Wt.	GHS-US Classification
Ammonia	7664-41-7	≤ 0.5	Flam. Gas 2, H221 Liquefied gas, H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 18, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 2, H411

### 4 FIRST AID MEASURES

#### 4.1 Description of First Aid Measures

General:	Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
Eye contact: If in eyes	Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention.
Skin contact: If on skin	Immediately flush skin with plenty of water while removing contaminated clothing and shoes. Do not reuse clothing or shoes until cleaned. If irritation develops or persists, get medical attention.
Inhalation: If inhaled	Remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation occurs.
Ingestion: If swallowed	Wash out mouth with water provided person is conscious. Call a physician immediately.

#### 4.2 Most Important Symptoms and Effects Both Acute and Delayed

General:	None expected under normal conditions of use.
Inhalation:	May cause irritation to the respiratory tract.
Skin contact:	May cause mild skin irritation.
Eye contact:	May cause slight irritation to eyes.
Ingestion:	Ingestion is likely to be harmful or have adverse effects.
Chronic Symptoms:	None expected under normal conditions of use.

#### 4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.



# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 5 FIRE FIGHTING MEASURES

#### 5.1 Extinguishing Media

Suitable Extinguishing Media:

Use water to extinguish a fire, if water is compatible with the burning material.

Unsuitable Extinguishing Media:

Do not use a heavy water stream. Use of heavy stream of water may spread fire.

#### 5.2 Special Hazards Arising From the Substance or Mixture

Fire Hazard:

Product is not flammable.

Explosion Hazard:

Product is not explosive.

Reactivity:

Hazardous reactions are unlikely to occur under normal circumstances.

#### 5.3 Advice for Firefighters

Precautionary Measures Fire:

Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

Firefighting Instructions:

Stop leak if safe to do so. Avoid inhalation of material or combustion by-products.

Protection During Firefighting:

Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products:

Nitrogen oxides. Ammonia. Carbon oxides (CO, CO<sub>2</sub>).

#### Reference to Other Sections

Refer to section 9 for flammability properties.

### 6 ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal Precautions, Protective Equipment, Emergency Procedures

General Measures:

Keep away from open flames, hot surfaces and sources of ignition. No smoking. Avoid all unnecessary exposure. Do not breathe vapor, mist or spray.

##### 6.1.1 For Non-Emergency Personnel

Protective Equipment:  
Emergency Procedures:

Use appropriate personal protection equipment (PPE).  
Evacuate unnecessary personnel. Eliminate ignition sources.

##### 6.1.2 For Emergency Personnel

Protective Equipment:  
Emergency Procedures:

Equip cleanup crew with proper protection.  
Stop leak if safe to do so. Ventilate area.

#### 6.2 Environmental Precautions

Prevent entry to sewers and public waters.

#### 6.3 Methods and Material for Containment and Cleaning Up

For Containment:

Absorb and/or contain spill with inert material, then place in suitable container. Beware of slippery floors during spills.



# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 6 ACCIDENTAL RELEASE MEASURES (CONT.)

- |     |                                    |   |
|-----|------------------------------------|---|
| 6.3 | Methods for Cleaning Up:           | Clean up spills immediately and dispose of waste safely. Notify authorities if liquid enters sewers or public waters. |
| 6.4 | <u>Reference to Other Sections</u> | See heading 8, Exposure Controls and Personal Protection.   |

### 7 HANDLING & STORAGE

- |     |  |  |
|-----|--|--|
| 7.1 | <u>Precautions for Safe Handling</u><br>Additional Hazards When Processed:   | Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained. When heated, urea releases ammonia and when heated to decomposition it emits toxic fumes of nitrogen oxides (NOx), ammonia, and cyanuric acid.                          |
|     | Hygiene Measures:  | Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Wash contaminated clothing before reuse.   |
| 7.2 | <u>Conditions for Safe Storage, Including Any Incompatibilities</u><br>Technical Measures:<br>Storage Conditions:<br><br>Incompatible Materials: | Comply with applicable regulations.<br>Store in a dry, cool and well-ventilated place. Keep/Store away from Extremely high or low temperatures.<br>Strong acids. Strong bases. Strong oxidizers. Sodium nitrite, phosphorus pentachloride, and nitrosyl or gallium perchlorate. Urea will form urea nitrate when mixed with nitric acid at low pH. |
| 7.3 | <u>Specific End Use(s)</u>   | Fertilizer. Animal feed. SCR NOx Control.  |

### 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

- |     |   |   |
|-----|---|---|
| 8.1 | <u>Exposure Controls</u><br>Appropriate Engineering Controls: | Gas detectors should be used when toxic gases may be released. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated above. All electrical equipment should comply with the National Electric Code. Ensure all national/local regulations are observed. |
|     | <u>Personal Protective Equipment</u>                          | In case of splash hamd, safety glasses.   |





# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 8 EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

<b>Materials for Protective Clothing:</b>	Not applicable.
<b>Hand Protection:</b>	Wear chemically resistant protective gloves.
<b>Eye Protection:</b>	In case of splash hazard: chemical goggles or safety glasses.
<b>Skin and Body Protection:</b>	Wear suitable protective clothing.
<b>Thermal Hazard Protection:</b>	This material is shipped as a hot liquid (temperatures up to 160° F or 71°C), it is recommended that personal protective equipment which protects the whole body be used when there is a potential for contact. This could include the above hand and eye protection plus an apron and boots, which are compatible.
<b>General Hygiene Conditions:</b>	Avoid release to the environment.
<b>Environmental Exposure Controls:</b>	When using, do not eat, drink or smoke.

### 9 PHYSICAL & CHEMICAL PROPERTIES

#### 9.1 Precautions for Safe Handling

<b>Physical State:</b>	Liquid	<b>Upper/Lower Flammable Limits:</b>	No data available
<b>Color:</b>	Colorless	<b>Vapor Pressure:</b>	No data available
<b>Odor:</b>	Slight ammonia odor (pungent)	<b>Vapor Density:</b>	No data available
<b>Odor Threshold:</b>	No data available	<b>Specific Gravity/Density:</b>	9.28lb/gal (50% urea solution); 9.80lb/gal (70% urea solution)
<b>pH:</b>	7 - 10 (depending upon free ammonia)	<b>Specific Gravity:</b>	1.11 (40% urea solution); 1.175 (70% urea solution)
<b>Melting Point:</b>	33 - 135 °F (0.56 - 57 °C) (50% urea solution salts out at 62 °F; 70% urea solution salts out 135 °F)	<b>Partition Coefficient:</b>	No data available
<b>Freezing Point:</b>	No data available	<b>Auto-ignition Temperature:</b>	No data available
<b>Boiling Point:</b>	223 °F (106 °C) (50% urea solution boiling point)	<b>Decomposition Temperature:</b>	No data available
<b>Flash Point:</b>	No data available	<b>Viscosity:</b>	No data available
<b>Evaporation Rate:</b>	No data available	<b>Explosion Data-Sensitivity to Mechanical Impact:</b>	Not expected to present an explosion hazard due to mechanical impact.
<b>Flammability (solid/gas):</b>	No data available	<b>Explosion Data - Sensitivity to Static Discharge:</b>	Not expected to present an explosion hazard due to static discharge.
<b>Solubility (in water):</b>	100%		



# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 10 STABILITY & REACTIVITY

- |      |   |   |
|------|---|---|
| 10.1 | <u>Reactivity</u>                         | Hazardous reactions are unlikely to occur under normal circumstances.   |
| 10.2 | <u>Chemical Stability</u>                 | Emits ammonia vapors. Stable under normal conditions.   |
| 10.3 | <u>Possibility of Hazardous Reactions</u> | Hazardous polymerization will not occur.  |
| 10.4 | <u>Conditions to Avoid</u>                | Extremely high or low temperatures. Open flame. Heat. Sparks.   |
| 10.5 | <u>Incompatible Materials</u>             | Strong acids. Strong bases. Strong oxidizers. Sodium nitrite, phosphorus pentachloride, and nitrosyl or gallium perchlorate. Urea will form urea nitrate when mixed with nitric acid at low pH. |
| 10.6 | <u>Hazardous Decomposition Products</u>   | Nitrogen oxides. Ammonia. Carbon oxides (CO, CO <sub>2</sub> ). Cyan uric acid. Biuret.   |

### 11 TOXICOLOGICAL INFORMATION

#### 11.1 Information on Toxicological Effects - Product

Acute Toxicity:	Not classified
LDS0 and LCS0 Data:	Not available
Skin Corrosion/Irritation:	Not classified
pH:	7 - 10 (depending upon free ammonia)
Respiratory or Skin Sensitization:	Not classified
Germ Cell Mutagenicity:	Not classified
Teratogenicity:	Not classified
Specific Target Organ Toxicity (Repeated Exposure):	Not classified
Reproductive Toxicity:	Not classified
Specific Target Organ Toxicity (Single Exposure):	Not classified
Aspiration Hazard:	Not classified
Symptoms/Injuries After Inhalation:	May cause irritation to the respiratory tract.
Symptoms/Injuries After Skin Contact:	May cause mild skin irritation.
Symptoms/Injuries After Eye Contact:	May cause slight irritation to eyes.
Symptoms/Injuries After Ingestion:	Ingestion is likely to be harmful or have adverse effects.
Chronic Symptoms:	None expected under normal conditions of use.

#### 11.2 Information on Toxicological Effects - Ingredient(s)

Component	Oral LD50	Inhalation LC50
Water(7732-18-5) Urea	>90000 mg/kg	No data
(57-13-6)	18471 mg/kg	No data
Ammonia (7664-41-7)	No data	/ 5.1 mg/l (Exposure time: 1 h) 12000 ppm/4h (Exposure time: 4 h)



# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 12 ECOLOGICAL INFORMATION

12.1

#### Toxicity

Ecology - General:

Harmful to aquatic life.

Component	LCS0 Fish 1	ECS0 Daphnia 1	LC SO Fish 2
Urea (57-13-6)	16200 - 18300 mg/l (Exposure time: 96 h - Species: Poecilia reticulata)	0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio)	no data
Ammonia (7664-41-7)	3910 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])	25.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)	0.26 - 4.6 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus)

12.2

#### Persistence and Degradability

Urea Liquor:

Persistence and Degradability

Not established.

12.3

#### Bioaccumulative Potential

Urea Liquor:

Bioaccumulative Potential

Not established.

	BCF Fish 1	Log Pow
Urea (57-13-6)	I < 10	I -1.59 (at 25 °c)
Ammonia (7664-41-7)	No data.	-1.14 (at 25 °c)

12.4

#### Mobility in Soil

Not available.

12.5

#### Other Adverse Effects

Avoid release to the environment.

### 13 DISPOSAL CONSIDERATIONS

13.1

#### Waste treatment methods

Sewage Disposal Recommendations:

This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Waste Disposal Recommendations:

Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

### 14 TRANSPORT INFORMATION

14.1

#### In Accordance with DOT

Not regulated for transport

14.2

#### In Accordance with IMDG

Not regulated for transport

14.3

#### In Accordance with IATA

Not regulated for transport

14.4

#### In Accordance with TDG

Not regulated for transport



# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 15 REGULATORY INFORMATION

#### 15.1 US Federal Regulations

TSCA Inventory Status:	This product or all components of this product are listed on the TSCA (Toxic Substances Control Act) Inventory of Chemical Substances.
SARA Section 302 Threshold Planning Quantity (TPQ):	Fire hazard Immediate (acute) health hazard Sudden release of pressure hazard
SARA Title III Section 311/312 Category Hazards:	500
SARA Section 313 - Emission Reporting:	1.0 % (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)

Component	CAS Number	TSCA inventory	SARA 302	SARA 311	SARA 312	SARA 313
Water	7732-18-5	Yes	No	No	No	No
Urea	57-13-6	Yes	No	No	No	No
Imidodicarbonic diamide	108-19-0	Yes	No	No	No	No
Ammonia	7664-41-7	Yes	Yes	No	No	Yes

### 16 OTHER INFORMATION

#### GHS Full Text Phrases

Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 2	Flammable gases Category 2
Liquefied gas	Gases under pressure Liquefied gas
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H221	Flammable gas
H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects





# SBC N-SPIKE

## Safety & Data Sheet (SDS)

ISSUE DATE: 11/12/2020

### 16 OTHER INFORMATION (CONT.)

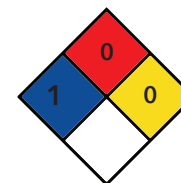
#### HMIS III Rating

Health: 0 Minimal Hazard - No significant risk to health  
 Flammability: 0 Minimal Hazard  
 Physical: 0 Minimal Hazard

\* = Chronic Health Hazard

#### NFPA Rating System

Health: 1 Exposure could cause irritation but only minor residual injury even if no treatment is given.  
 Fire Hazard: 0 Materials that will not burn.  
 Reactivity: 0 Normally stable, even under fire exposure conditions, and are not reactive with water.  
 Special Hazard: None



SDS Prepared by: CF Industries, Corporate EHS Department, 847-405-2400  
 Reason for Revision: New Product  
 Revised: 11-12-2020

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

*CF believes the information contained herein is accurate; however, CF makes no guarantees or warranties with respect to such accuracy and assumes no liability in connection with the use of the information contained herein by any party. The provision of the information contained herein by CF is not intended to be and should not be construed as legal advice or as ensuring compliance by other parties. Judgments as to the suitability of the information contained herein for the party's own use or purposes are solely the responsibility of that party. Any party handling, transferring, transporting, storing, applying or otherwise using this product should review thoroughly all applicable laws, rules, regulations, standards and good engineering practices. Such thorough review should occur before the party handles, transfers, transports, stores, applies or otherwise uses this product.*