TRADEMARK NITROGEN

SAFETY DATA SHEET

50% UREA SOLUTION

Section 1 – Identification

Product	50% UREA SOLUTION
Manufacturer	TradeMark Nitrogen Corp.
Address	1216 Old Hopewell Road, Tampa, FL 33619
Phone	(813) 626-1181 (800) 452-3107
24 Hour Emergency Contact	Chemtrec (800) 424-9300

Recommended Use:

Used in SCR systems for Nox control systems and adhesives.

Section 2 – Hazard Identification

GHS07

Signal Word: **WARNING**

Hazard Statements

H302 Harmful if swallowed
H320 Causes serious eye irritation
H335 May cause respiratory irritation
H402 Harmful to aquatic life

Precautionary Statements:

P101: If medical advice is needed, have product container or label at hand.
P102: Keep out of reach of children.
P103 Read label before use
P210 Keep away from open flames. - No Smoking
P260 Do not breathe fume, mist, spray, vapours
P264 Wash hands thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P271 Use only outdoors or in a well-ventilated area
P280 Wear eye protection, protective clothing, protective gloves
P331 Do NOT induce vomiting
P301+P330 IF SWALLOWED: Call a POISON CENTER or doctor / physician if you feel unwell
P302+P352 IF ON SKIN: Wash with plenty of water
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P332+P313 If skin irritation occurs: Get medical advice / attention
P337+P313 If eye irritation persists: Get medical advice / attention
P362 Take off contaminated clothing
P501 Dispose of contents / container according to local, regional, national, and international regulations

Section 3 – Composition

Ingredients	Component	CAS. No.	Percent by
	Urea ($CO(NH_2)_2$)	57-13-6	50.0%
	Ammonia (NH_3)	7664-41-7	0.03%
	Biuret ($H_2NC(O)NHC(O)NH_2$)	108-19-0	< 0.25%
	Water (H_20)	7732-18-5	Balace

Section 4 – First Aid Measures

Inhalation	If inhaled: Remove person to fresh air and keep comfortable for breathing. Provide artificial respiration if necessary. Seek medical attention if necessary.
Skin Contact	If on skin (or hair): Take off all contaminated clothing. Rinse skin with soap and water for at least 15 minutes. Seek medical attention if irritation persists. Wash contaminated clothing before reuse.
Eye Contact	If in eyes: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Seek medical attention if irritation persists.
Ingestion	If swallowed: Do NOT induce vomiting. If vomiting occurs, attempt to keep head lower than chest so that vomit does not enter into the lungs. Drink large amounts of water. Never give anything by mouth to an unconscious person. Seek medical attention. If affected person requires CPR, avoid mouth to mouth contact. Call for emergency transportation to a hospital if the exposed person feels sick or has breathing difficulties.
Acute Health Hazards	High levels of nitrates may reduce the bloods ability to transport oxygen causing headache, fatigue, dizziness and blue lips and skin (methemoglobinemia). Moderate irritant of eyes, skin, mucous membranes, and contaminated tissue. Ingestion can be harmful or fatal.
Chronic Health Hazards	None expected under normal conditions. However, methemoglobinemia is the primary health effect. Prolonged skin contact may result in dermititus (inflamation and redness of skin). Repeated ingestion of small amounts may cause weakness, headaches, neurological effects and mental impairment. Possible excessive action of the kidneys and perhaps the bowels can occur.

Section 5 – Fire Fighting Measures

Suitable Extinguishing Techniques & Equipment	Not combustible or reactive, use extinguishing media suitable for surrounding material. Wear self-contained breathing apparatus and full protective gear.
Chemical Hazards From Fire	In a fire this material may decompose and produce carbon oxides, oxides of nitrogen and ammonia.
Special Fire Fighting Procedures	Use extinguishing agent most appropriate to surrounding materials.
NFPA Rating	Health - 1 (Slight) Fire - 0 (Least) Reactivity - 0 (Least)
Other	Do not allow run-off from fire fighting to enter drains or water courses.

Section 6 – Accidental Release Measure

Personal Precautions	Avoid splashing. Prevent exposure to spilled material with the use of proper PPE.
Protective Equipment	PPE should include gloves, goggles and protective clothing.
Containment	Avoid release to environment. Control the flow of product using dikes of soil, sand bags or other commercially available inert sorbent socks or booms.
In Case of Spill	Absorb product with inert absorbent. Avoid splashing or spraying. Contain and pick up spill in diked area. Prevent discharge to sewers or water ways. If uncontaminated, recover and re-use.

Section 7 – Safe Handling & Storage

Precautions for Safe Handling & Storage	Store in a well ventilated cool dry place. Containers should be kept closed and properly labeled. Keep away from open flames, hot surfaces and sources of ignition. No smoking, eating or drinking while using this product. Avoid all unnecessary exposure. Do not breathe mist, vapor or spray.
Incompatibility	Avoid contact with flammable and comustible materials, strong reducing agents, strong acids, stong bases and oxidizing materials. Avoid contact with Sodium nitrate, phosphorus pentachloride, and nitrosyl or gallium perchlorate. Urea will form Urea Nitrate when mixed with nitric acid at a low pH.
Additional Hazards when Processed	If this product is intended to be used in an elevated temperature or high temperature process, a thorough hazard assesment review should be performed to assure that safe operating conditions are established, met and maintained. When heated, urea releases ammonia and when heated to decomposition it emits toxic fumes of nitrogen oxides (NOx), ammonia, and cyanuric acid.

Section 8 – Exposure Controls / Personal Protection

Exposure Limits

Component	Permissible Exposure Limit	Threshold Limit Value	Short Term Exposure Limit	Immediately Dangerous to Life or Health
Urea ($CO(NH_2)_2$)	Not Established	Not Established	Not Established	Not Established
Ammonia (NH_3)	50 pmm TWA	25 ppm	35 ppm	500 ppm
Biuret ($H_2NC(O)NHC(O)NH_2$)	Not Established	Not Established	Not Established	Not Established
Water (H_20)	Not Established	Not Established	Not Established	Not Established

Engineering Controls: Local or general exhaust. Eyewash and emergency shower facilities should be available.

Personal Protective Equipment

Eyes	Chemical safety goggles or safety glasses.
Hands	Impervious chemical protective gloves.
Respiratory	None required under normal conditions. NIOSH approved respirator if there is a mist of the product.
Protective Clothing	


Gloves


Protective Clothing


Goggles


Respiratory Protection

Section 9 – Physical & Chemical Properties

Appearance and Odor	Colorless liquid may have a slight ammonia odor.	Relative Density	1.140 @ 68°F (20°C)
Boiling Point	220°F at 1 atmosphere (104.4°C)	Molecular Weight	No Data Available
Freezing Point	No Data Available	Solubility in Water	Miscible in water
Vapor Pressure	< 1 @ 100°F	Flash Point	Not flammable
Weight per Gallon	9.51 lbs/gal @ 60°F	pH	6.5 - 8.5
Gallons per Ton	210.3 gal / ton	Salt-Out Temp	62°F (18°C)
Flammability Limits	No Data Available	Auto Ignition Temp	Not Flammable
UEL	No Data Available	LEL	No Data Available

Section 10 – Stability & Reactivity

Reactivity	Product is not reactive under normal conditions. Avoid interaction with heat (flames), oxidizers, acids or alkalis.
Stability	Product is stable under normal conditions. May emit ammonia vapors.
Hazardous Reactions	None known. Hazardous polymerization will not occur.
Conditions to Avoid	Do not allow product to evaporate to dryness. Keep away from direct heat sources. Avoid heating within a confined space. Avoid incompatibilities and contamination. Elevated temperatures may cause container to rupture. Avoid extreme high temperatures and extreme low temperatures.

Incompatible Materials	Avoid contact with flammable and comustible materials, strong reducing agents, strong acids, stong bases and oxidizing materials. Avoid contact with Sodium nitrate, phosphorus pentachloride, and nitrosyl or gallium perchlorate. Urea will form Urea Nitrate when mixed with nitric acid at a low pH.
Hazardous Decomposition Products	Extreme heat may cause decomposing to carbon oxides, ammonia and nitrogen oxides, and cyanuric acid.

Section 11 – Toxicology Information

Routes of Exposure	Inhalation, ingestion or skin/eye absorption	
Symptoms and Signs of Exposure	Eyes	Mild eye irritation.
	Skin	Mild irritant.
	Inhalation	May irritate respiratory tract and mucous membranes.
	Ingestion	Can cause abdominal pain, vomiting, diarrhea and methemoglobinemia.
Long Term Effects	Methemoglobinemia is the primary long-term health effect of over-exposure.	
Toxicity	No limits have been set for this material.	

Acute Toxicity

Product	Criteria	Species	Dose
Urea	LD50 Oral	Rat - Male, Female	2,950 mg / kg
Water	LD50 Oral	Rat	>90 g / kg
Conclusion:	Very low toxicity to humans		

Specific Target Organ Toxicity (Single Exposure)	No Data Available
Specific Target Organ Toxicity (Repeated Exposure)	No Data Available

Exposure Symptoms

Eye contact:	Irritation, watering
Inhalation:	May cause respiratory irriation
Skin Contact:	May cause mild skin irritation
Ingestion:	Over exposure by ingestion is unlikely under normal working conditions. Adverse symptoms may include nausea or vomiting, stomach pains, diarrhea, Mthemoglobinemia.

Potential Chronic Health Effects

General	No known significant effects or critical hazards
Carcinogenicity	Not classified
Mutagenicity	Not classified
Teratogenicity	Not classified
Developmental Effects	Not classified
Fertility Effects	Not classified

Carcinogen	The International Agency for Research on Cancer has not classified Urea Ammonium Nitrate for its carcinogenic potential (IARC 1987).
California Prop 65	Components of this product are not listed on the active California Prop 65 database.

Section 12 – Ecological Information

Water

High concentrations may be harmful to fish and other aquatic organisms.

Ecotoxicity

Product	Criteria	Result	Species	Exposure
Urea	Acute EC50	3910000 µg/l fresh water	Daphnia - Daphnia Magna - Neonate	48 hours
	Acute LC50	1,000 mg/l Marine Water	Crustaceans - Chaetogammarus marinus - young	48 hours
	Acute LC50	5,000 µg/l fresh water	Fish - Colisa Fasciata - Fingerling	96 Hours
	Chronic NOEC	2 g/L Fresh water	Fish - Heteropneustes fossils	30 days
Ammonia	LC50	0.44 mg/l	Cyprinus Carpio	96 hours
	EC50	25.4 mg/l	Daphnia Magna	48 Hours
	LC50	.026 - 4.6 mg/l	Lepmis Macrochirus	96 hours

Persistence and Degradability

No Data Available

Bioaccumulative potential

No Data Available

Mobility in soil

No Data Available

Other adverse effects

Harmful to the environment if released in large quantities. Excessive nutrient runoff to a body of water may result in eutrophication.

Section 13 – Disposal Considerations

Waste

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

Disposal must be done in accordance with local, state and federal environmental regulations. Place waste in an appropriate container with correct labeling.

Additional Information

Dispose of used containers at an approved waste handling facility. Empty containers may contain residue of the product, follow label warnings even after container is emptied.

Section 14 – Transport Information

DOT

Not regulated as dangerous goods

IMDG

Not regulated as dangerous goods

IATA

Not regulated as dangerous goods

TDG

Not regulated as dangerous goods

Mexico Classification

Not regulated as dangerous goods

Section 15 – Regulatory Information

United States - SARA Hazard Category

This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (SARA) and is considered, under applicable definitions, to meet the following categories:

Fire - No	Pressure - No	Reactive - No	Acute - No	Chronic - No

SARA Title III Information

This product contains the following substances subject to the reporting requirements of Title III (EPCRA) of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Chemical	CAS No.	CERCLA RQ (lbs.)	SARA Reporting		
			302	304	313

Urea	57-13-6	N/A	N/A	N/A	N/A

CERCLA / Superfund, 40 CFR Part 117, 302	If this product contains components subject to substances designated as CERCLA reportable Quantity (RQ) Substances, it will be designated in the above table with the RQ value in pounds. If there is a release of RQ Substance to the environment, notification to the National Response Center, Washington DC (800-424-8802) is required.
TSCA	Urea solution is a hydrated form of urea which is listed on the Active TSCA inventory.

Section 16 – Other Information

Issue Date	8/6/2020
Date of Revision	August 2020 SDS section 12 updated. June 2018 SDS format updated. August 2014 TSCA statement revised. February 2013 revision prepared in accordance with 29 CFR 1910.1200 Appendix D to meet Global Harmonization Standards.
Disclaimer	The information contained in this SDS refers only to the specific material designated and does not relate to any process or use with any other materials. This information is furnished free of charge and is based on data believed to be accurate and reliable as of the date hereof. It is intended for use by persons possessing technical knowledge at their own discretion and risk. Since actual use is beyond our control, no warranty, expressed or implied, and no liability is assumed by TradeMark Nitrogen Corp. in conjunction with the use of this information. Nothing herein is to be construed as a recommendation to infringe any patents. TradeMark Nitrogen Corp. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.