



# SAFETY DATA SHEET

Product	Personal Protection Equipment
<b>ARNOX32</b>	 <b>Gloves</b>  <b>Glasses</b>

SECTION 1. PRODUCT IDENTIFIER							
<b>SGA product identifier</b>							
<b>Other means of identification</b>		None					
<b>Recommended use and restrictions:</b> Reagent for the reduction of nitrogen oxide emissions (NO <sub>x</sub> )		<b>24 HOUR EMERGENCY TELEPHONE NUMBERS In Argentina:</b> (+54) (0291) 154-050421 (0291) 459-8188 - (0291) 459-8008 - Security- (0291) 154-050421 - EH&S					
<b>MANUFACTURER</b> Profertil S.A. Fertilizer Plant, Puerto de Ing. White – Zona Cangrejales, Bahía Blanca, Argentina		<b>DISTRIBUTOR</b> Profertil S.A. Fertilizer Plant, Puerto de Ing. White – Zona Cangrejales, Bahía Blanca, Argentina					
SECTION 2. HAZARD IDENTIFICATION							
Classification of the substance/Mixture	Classification		Labeling				Hazard identification code
	Type of hazard	Category of hazard	Pictogram		Signal word	Hazard statement	
			SGA	Rules United Nations Model			
Not applicable							
<b>Summary</b>	The product is not considered toxic for humans. Not carcinogenic, not mutagenic, not teratogenic according to ACGIH, EPA, IARC, OSHA. Its degradation can affect aquatic life.						
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS							
<b>Composition: Pure</b>		<b>Commercialization: Liquid in containers of 1000 – 1300 l.</b>					
Common chemical name	Synonyms of the substance	CAS Number	Chemical family	Formula	Composition (% by weight)		
Water	-	7732-18-5	Hydrogen hydroxide - Dihydrogen oxide	H <sub>2</sub> O	66.8 – 68.2		
Urea	Carbamide; Carbamic acid; carbonyl diamide	57-13-6	Carbamide - Aliphatic amide	CO(NH <sub>2</sub> ) <sub>2</sub>	31.8 – 33.2		
Ammonia		7664-41-7		NH <sub>3</sub>	<0.2		
SECTION 4. FIRST AID							
<b>Eye contact</b>	Contact may cause eye irritation, so immediately flush eyes with plenty of water for at least 15 minutes, keeping eyelids open. Get medical attention.						
<b>Skin contact</b>	Contact may cause skin irritation, so rinse the contaminated area with soap and water. If irritation persists, seek medical attention. Remove and wash contaminated clothing and shoes.						
<b>Inhalation</b>	Contact may cause irritation to the mucous membranes and upper respiratory tract, so the exposed person should be moved to a place where he or she can breathe uncontaminated air. Get medical attention.						
<b>Ingestion</b>	Wash out mouth with water. Do not induce vomit unless directed to do so by medical personnel.						



<b>SECTION 5. FIRE FIGHTING MEASURES</b>	
<b>Suitable extinguishing media</b>	The product contains a substantial proportion of water and is not flammable. However, the evaporation of water from it, caused by the heat of a nearby fire, can produce floating layers of flammable substances, which can be extinguished with the application of chemical foam, dry chemical powder and/or carbon dioxide.
<b>Specific hazards</b>	Non flammable. Due to thermal decomposition at temperatures above 75°C it may start releasing toxic vapors containing ammonia (NH <sub>3</sub> ), nitrogen oxides (NO <sub>x</sub> ), carbon oxides (CO, CO <sub>2</sub> ), and water. At 133-160°C urea solution produces biuret, with ammonia release and at 160-190°C it will release cyanuric acid, as well as ammonia (NH <sub>3</sub> ) and carbon dioxide (CO <sub>2</sub> ). It does not produce explosive mixtures with air. Thermal expansion or decomposition can lead to violent rupture of the containers where it is stored/transported.
<b>Special measures for fire fighters</b>	In case of smoke or gas, fire fighters should use self-contained breathing apparatus. Collect the water used to fight the fire for later reuse or treatment.
<b>SECTION 6. ACCIDENTAL RELEASE MEASURES</b>	
<b>Personal precautions, protective equipment and emergency procedure</b>	In case of accidental spills or leaks, use waterproof clothing, rubber boots, polyethylene or PVC gloves and goggles. Typically, no respiratory protection is required, but if the environment is poorly ventilated or closed, use respiratory protection for ammonia vapors.
<b>Environmental precautions</b>	Prevent spilled material from entering drains, surface waterways, groundwater, etc.
<b>Methods and materials for containment and clean-up</b>	Absorb and/or contain the spill with inert material (sand, earth or vermiculite) and place in a suitable container. Spilled material may be slippery. In case of rainfall, prevent carryover of the spilled product into surface/underground water bodies by leading it to some adequate collection system. The product diluted with rainwater and earth can be reused as fertilizer.
<b>SECTION 7. HANDLING AND STORAGE</b>	
<b>Precautions for safe handling</b>	Avoid spillage into water or soil. Use adequate ventilation to keep exposure within allowable limits. Prevent handling of incompatible substances. No eating, drinking, or smoking in work areas. Wash hands after handling products. Remove contaminated clothing and PPE before entering dining areas.
<b>Safe storage conditions</b>	Store and use only in/with containers/equipment designed for this product. Keep away from heat sources and direct sun radiation. Keep containers tightly closed and sealed or sealed until use. Do not use containers that are not properly identified. Store in dry, cool (below 30°C), well-ventilated places away from incompatible substances. In ventilated tanks, protected from dust and direct sunlight the product has a shelf life of 12 months provided the temperature does not exceed 30°C and on average is kept at 20°C. Under the same conditions, but in closed containers, the shelf life is 9 months. At temperatures above 30°C, the shelf life is reduced to 9 months, and above 35°C the properties of the product must be verified before any commercial use.
<b>SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION</b>	
<b>Control parameters</b>	Non-specified for Urea solutions Presence of Ammonia by hydrolysis of Urea: 14 mg/m <sup>3</sup> (average over time for an 8-hour working day) 36 mg/m <sup>3</sup> (short term exposure)
<b>Appropriate technical controls</b>	Provide ventilation, vapor extraction or other engineering controls to maintain air renewal conditions, minimizing the presence of ammonia vapors.
<b>Individual protection measures, personal protection equipment (PPE)</b>	To avoid skin contact, wear long-sleeved clothing, polyethylene gloves, or leather which should be discarded if wet. To avoid splashing on the body, use waterproof rubber or PVC apron. Safety glasses with side shields to protect the eyes.

<b>SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES</b>			
<b>Appearance</b>		<b>Physical state:</b> Liquid <b>Color:</b> colorless, clear-looking	
<b>Odor</b>	Slightly ammoniacal	<b>Vapor Pressure</b>	48 mm Hg at 40 °C
<b>Odor threshold</b>	Not available	<b>Vapor density</b>	Not available
<b>pH of freshly prepared product:</b>	9.0 – 9.5	<b>Solubility in water</b>	Soluble in water in any proportion
<b>pH of stored product:</b>	Up to 10.0		
<b>Crystallization point</b>	Approx. -11°C	<b>Partition coefficient n-octanol/water</b>	< 1
<b>Initial boiling point</b>	Approx. 103°C	<b>Auto-ignition temperature</b>	Not Applicable
<b>Flash point</b>	Not Applicable	<b>Decomposition temperature</b>	From 75°C
<b>Evaporation rate</b>	Not Applicable	<b>Thermal conductivity</b>	Approx. 0.570 W/m·K at 25°C
<b>Flammability</b>	Not Applicable	<b>Density</b>	1.0870 - 1.0920 at 20 °C
<b>Lower / upper explosive or flammable limit</b>	Not Applicable	<b>Viscosity</b>	Approx. 1.4 mPa·s at 25°C
<b>SECTION 10. STABILITY AND REACTIVITY</b>			
<b>Chemical stability</b>	The product is stable under normal conditions, stored and handled under the conditions set forth in this MSDS.		
<b>Possibility of hazardous reactions</b>	It reacts exothermically with strong oxidizing agents, strong alkaline substances or strong acids and can cause the release of thermal decomposition products. By reaction with hypochlorite, it can form nitrogen trichloride which is an explosive substance. Do not mix or deposit tar with ammonium nitrate.		
<b>Conditions to avoid</b>	High temperatures and solar radiation. Avoid contamination with metals, dust and organic materials.		
<b>Incompatible materials</b>	Incompatible with nitrites, nitrates, calcium hypochlorite, sodium hypochlorite. Avoid contact with strong oxidizing agents, strongly acidic or strongly alkaline substances since the mixture is exothermic and can induce the release of thermal decomposition products.		
<b>Hazardous decomposition products</b>	Exposure to high temperatures produces toxic gases by thermal decomposition: ammonia (NH <sub>3</sub> ), nitrogen oxides (NO <sub>x</sub> ), carbon oxides (CO, CO <sub>2</sub> ) and water.		
<b>Special observations</b>	None		
<b>SECTION 11. TOXICOLOGICAL INFORMATION</b>			
<b>Acute toxicity</b>	Oral acute toxicity (in rats): LD50 > 5000 mg/kg Skin acute toxicity (rabbits): LD50 > 5000 mg/kg Toxicity Water by Inhalation: under normal conditions of use it does not present any danger.		
<b>Corrosion / Skin irritations</b>	It does not irritate the skin.		
<b>Severe eye injuries</b>	Contact with product may cause eye irritation.		
<b>Respiratory or skin sensitization</b>	Inhalation of vapors may cause airway irritation. Not known to cause increased skin sensitivity.		
<b>Mutagenicity in germ cells</b>	Not classified as mutagenic.		
<b>Carcinogenicity</b>	Not classified as carcinogenic.		
<b>Reproductive toxicity</b>	Not classified as toxic for reproduction.		



<b>Specific target organ toxicity - Single exposure</b>	Not classified as toxic.
<b>Specific target organ toxicity - Repeated exposure</b>	Not classified as toxic.
<b>Aspiration hazard</b>	Inhalation of vapors may cause respiratory tract irritation.
<b>SECTION 12. ECOTOXICOLOGICAL INFORMATION</b>	
<b>Toxicity</b>	Low toxicity to aquatic organisms. Acute toxicity on fish: LC50 > 6810 mg/l, 96 hours (Leuciscus Idus or Golden Orphen) Acute Toxicity Algae EC50 > 10000 mg/l, 192 hours (Scenedesmus Quadricauda) Toxicity on Small Molluscs: EC50 > 10000 mg/l (Daphnia Magna)
<b>Persistence and</b>	Rapidly biodegradable. Not persistent. The decomposition of the product in water bodies promotes algae growth, increasing turbidity, decreasing oxygen concentration and preventing photosynthesis.
<b>Biocumulative potential</b>	Low bioaccumulation, Log <sub>Pow</sub> : <1
<b>Mobility in soil</b>	In large volumes it can affect soils and groundwater, increasing the levels of ammoniacal nitrogen, and of nitrites and nitrates according to the nitrogen cycle.
<b>Other adverse</b>	The product is not expected to have an ozone depletion potential or photochemical ozone generation potential.
<b>SECTION 13. PRODUCT DISPOSAL CONSIDERATIONS</b>	
<b>Methods</b>	Recover and reuse material whenever possible.
<b>Handling</b>	Place the material in suitable containers for use or disposal. Appropriate PPE should be used. Discharge into surface water or groundwater should be avoided.
<b>Treatment</b>	Depending on the type of contamination, contact EH&S staff on call. If the material cannot be recovered and/or reused, it must be treated as non-hazardous industrial waste. The product accidentally diluted or contaminated with soil can be used as a foliar application fertilizer.
<b>SECTION 14. TRANSPORT INFORMATION</b>	
<b>International rules</b>	This product is not considered as dangerous according to the CNRT (Argentina), Mercosur Dangerous Goods Transport Agreement.
<b>Special transport provisions</b>	Land and sea transport: General cargo
<b>Environmental risks</b>	IMDG: It is not an marine pollutant IMO: It is not a hazardous substance AND: It is not a hazardous substance RID/ADR: It is not a hazardous substance
<b>UN Number</b>	Not regulated as hazardous material.
<b>UN shipping name designation</b>	Not regulated as hazardous material.
<b>Transport hazard class(es)</b>	Not regulated as hazardous material.
<b>Packing group</b>	Not regulated as hazardous material.

SECTION 15. REGULATORY INFORMATION			
<b>Other regulations</b>	<p>Mercosur Agreement on the Transport of Hazardous Goods            National Transit Law No. 24.449            National Law on Hazardous Waste No. 24,051            Resolution 195/97 Technical Standards            Res. SRT N° 351/79            IRAM 41400 (2006). Chemical products. Safety Data Sheet            SGA - Globally Harmonized System of Classification and Labeling of Chemicals. 5<sup>th</sup> Ed. Revised. United Nations, New York and Geneva, 2013.            TOMES Plus®, Vol 28, January 1996 Micomedex Inc.</p>		
SECTION 16. OTHER INFORMATION			
<b>Glossary</b>	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <p>SGA: Globally Harmonized System                ACGIH: American Conference of industrial Hygienists (USA)                AIHA WEEL: Environmental exposure level of American Industrial Hygiene Association (USA)                Carcinogenic: It is said of the physical, chemical or biological agent that induces cancer development. CAS: Chemical summary service                CL50: Median lethal concentration                CNRT: National Committee of Transport Regulation                DL50: Median lethal dose                EPA: Environmental Protection Agency (USA)                IARC: International Agency for Research on Cancer                Mutagenic: Substance or agent that alters permanently the cell ADN.</p> </td> <td style="vertical-align: top; width: 50%;"> <p>OECD: Organization for Cooperation and Development                OSHA: Industrial Occupational Safety and Health Administration (USA)                Teratogenic: That generates malformations P                EL: Permitted exposure limit                TLV: Threshold limit value                TWA: Time weighted average                IATA: International Air Transport Association                IMDG: International Maritime Dangerous Goods                IMO: International Maritime Organization                ADN: European Agreement on International Carriage of Dangerous Goods by Inland Waterways                RID: Rules for International carriage of Hazardous Goods by Railroad                ADR: "European agreement on International Transports of Hazardous Goods by Road"</p> </td> </tr> </table>	<p>SGA: Globally Harmonized System                ACGIH: American Conference of industrial Hygienists (USA)                AIHA WEEL: Environmental exposure level of American Industrial Hygiene Association (USA)                Carcinogenic: It is said of the physical, chemical or biological agent that induces cancer development. CAS: Chemical summary service                CL50: Median lethal concentration                CNRT: National Committee of Transport Regulation                DL50: Median lethal dose                EPA: Environmental Protection Agency (USA)                IARC: International Agency for Research on Cancer                Mutagenic: Substance or agent that alters permanently the cell ADN.</p>	<p>OECD: Organization for Cooperation and Development                OSHA: Industrial Occupational Safety and Health Administration (USA)                Teratogenic: That generates malformations P                EL: Permitted exposure limit                TLV: Threshold limit value                TWA: Time weighted average                IATA: International Air Transport Association                IMDG: International Maritime Dangerous Goods                IMO: International Maritime Organization                ADN: European Agreement on International Carriage of Dangerous Goods by Inland Waterways                RID: Rules for International carriage of Hazardous Goods by Railroad                ADR: "European agreement on International Transports of Hazardous Goods by Road"</p>
<p>SGA: Globally Harmonized System                ACGIH: American Conference of industrial Hygienists (USA)                AIHA WEEL: Environmental exposure level of American Industrial Hygiene Association (USA)                Carcinogenic: It is said of the physical, chemical or biological agent that induces cancer development. CAS: Chemical summary service                CL50: Median lethal concentration                CNRT: National Committee of Transport Regulation                DL50: Median lethal dose                EPA: Environmental Protection Agency (USA)                IARC: International Agency for Research on Cancer                Mutagenic: Substance or agent that alters permanently the cell ADN.</p>	<p>OECD: Organization for Cooperation and Development                OSHA: Industrial Occupational Safety and Health Administration (USA)                Teratogenic: That generates malformations P                EL: Permitted exposure limit                TLV: Threshold limit value                TWA: Time weighted average                IATA: International Air Transport Association                IMDG: International Maritime Dangerous Goods                IMO: International Maritime Organization                ADN: European Agreement on International Carriage of Dangerous Goods by Inland Waterways                RID: Rules for International carriage of Hazardous Goods by Railroad                ADR: "European agreement on International Transports of Hazardous Goods by Road"</p>		
<b>FOR FURTHER INFORMATION</b>	CONTACT PROFERTIL SA		
<b>Date of latest revision</b>	Rev. No. 01 September 1, 2015		
<b>Revision history</b>	Not applicable		
<b>Notice to reader</b>			
<p>The information contained in this sheet has been developed by Profertil S.A. based on Documentation and Studies existing at the date of its elaboration, which according to industry practice, are understood to be efficient and reliable. Profertil S.A. assumes no responsibility or liability for the misuse of the product. The buyer assumes all risk associated with the use of this material and will be solely responsible for ensuring that the product is used in a safe manner in compliance with laws, policies and health, safety and environment guidelines.</p>			