HS Code: 31021010

Marycarbamide Facility

MATERIAL DATA SAFETY SHEET

CARBAMIDE

Marycarbamide Facility

Section Title	Contents
1. Identification of chemical production and production data	This Material Safety Data Sheet extends to prilled and crystal carbamide (urea) produced out of ammonia and carbon dioxide and establishes the requirements for carbamide produced for the needs of national economy or for export. The carbamide formula: $H_2N - CO - NH_2$, molecular weight (as per the international nuclear weights of 1985) – 60.05. Ccarbamide is intended for use in agriculture as mineral nitric fertilizer. Carbamide is produced in accordance with these standard requirements as per the production schedules approved in accordance with the established procedure. Depending on the purpose carbamide is produced of two brands: A - for industry; B - for plant growing. 1.3. Carbamide OKP codes are specified in Tab. 1. A source: GOST 2081-2010
	B brand carbamide: 21 8191 0200
	Premium grade 21 8191 0220
	First grade 21 8191 0230
	Second grade 21 8191 0240
	Data on the organization-manufacturer: Mary city, Mary velayat, Turkmenistan. Marycarbamide Facility. Facility Director Charygulyev M.M. Phone: (+ 993522) 1-43-10. Fax.1-43-11.
2.1 Hazard (s) identification	According to a degree of impact on a human body carbamide is referred to moderately hazardous substances, hazardous class 3, in accordance with GOST 12.1.007. The maximum permissible mass concentration of carbamide aerosol in a working area air is 10 mg/m^3 in accordance with GOST 12.1.005. The mass concentration of carbamide in a working area air is determined by photocolorimetric method as per a reaction with sodium nitrite. Carbamide may get into a human body through respiratory apparatus, gastrointestinal tract not causing thus an acute toxic effect. The long inhalation of carbamide dust in concentrations exceeding maximum permissible leads to development of chronic inflammation of mucous coat of trachea and bronchial tubes (tracheobronchitis), changes in liver and kidneys function.
3 Composition (components) information	According to physical and chemical indicators carbamide shall meet the norms specified in Tab. 2.

Indicator Description	Grade Norm				
	A		B		
	Premium grade	1st grade	**Premium grade**	**1st grade**	**2nd grade**

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	1.Mass fraction of Nitrogen in recalculation into dry substance, %, not less than	46,3	46,2	**46,2**	**46,2**	**46,2**
	2.Mass fraction of Biuret, %, not more than	0.6	1.4	**1.4**	**1.4**	**1.4**
	3.Mass fraction of free ammonia, %, not more than for carbamide					
	crystal	0.01	0.01	-	-	-
	prilled	0.02	0.03	-	-	-
	4.Mass fraction of water, %, not more than					
	drying method	0.3	0.3	**0.3**	**0.3**	**0.3**
	Fisher's method	0.6	0.6	**0.5**	**0.5**	**0.6**
	5.Friability, %			**100**	**100**	**100**
	6.Granulometric composition, %, mass fraction of granule of a size of , mm					
	from 1 to 4, not less than	-	-	**94**	**94**	**94**
	from 2 to 4, not less than	-	-	**70**	**50**	-
	less than 1, not more than	-	-	**3**	**5**	**5**
	sieve residual 8 mm, not more than	-	-		**absent**	
	7 Static capacity	-	-	**0.7**	**0.5**	**0.3**
	9.Mass fraction of formaldehyde, %, not less than	-	-	**0.45**	**0.45**	**0.45**
	1. **Note:** The mass fraction of water is determined by one of the methods only. 2. The friability is determined by the consumer. **Carbamide is processed by conditioning additives (carbamideformaldehyde resin) providing safety commodity properties of product upon transportation and storage.**					
4 First aid measures	**After inhalation:** While consciousness loss (an unconscious condition) to put a patient on a side in a stable position for transportation. **After skin contact:** To immediately call for a doctor. To immediately wash by water and soap, to rinse properly. **After eye contact:** To wash an open eye with running water within a few minutes. **After ingestion:** Not to cause vomiting, to immediately apply for a medical aid.					

5 Measures and means of fire-explosion safety	Carrbamide under normal conditions is non-combustible, fire-and-explosion safety. The spontaneous ignition temperature is 715°C. The ignition temperature is absent up to 220°C, above which carbamide decomposes with formation of fire resistant substances.
6 Measures for prevention and elimination of emergency and extreme situations and their consequences	**Trade name: Granulated Carbamide GOST 2081-2010** **Methods and materials for localization and cleaning:** To collect by mechanical method. To provide sufficient ventilation. Editing date: 10.12.2014
7 Storage rules of chemical production and handling with it upon material handling operations	Ccarbamide shall be stored in closed warehouse premises protecting the product from penetration of atmospheric precipitation. Upon product storage in bulk any mixture of carbamide with other kinds of fertilizers is not allowed. The containers with carbamide and transport packages fastened with a synthetic film are allowed to be stored on open grounds. **Safety measure for safe handling** Avoid formation of dust and aerosols. Apply appropriate ventilation in places, where you develop a dust. • **Instructions on protection from fires and explosions:** *There is no need in any special measures.* • **Storage:** • **Requirements for warehouses and containers:** To store in a cool place. Keep a container tightly closed in a dry place with exhaust ventilation. • **Instructions on compatibility with other substances upon storage:** Not required.
8 Control devices for hazardous impact and personal protective equipment	All industrial premises shall be equipped with general forced ventilation, places of possible dusting – with local suction, which air before emission in the atmosphere, shall be delivered for cleaning. All works with carbamide shall be performed with observance of personal protection measures. The following shall be applied as personal protective equipment: special suits as per standard-and-technical documentation or as per GOST 27653, or GOST 27651, or GOST 27574, or GOST 27575; boots as per GOST 5394 or jackboots as per GOST 5375; rubber knitted gloves as per existing standard-and-technical documentation; respirator RU-60m-B and RU060m-KD as per GOST 17269; respirator U-2к or F-62Sh or RTA-1 as per existing standard-and-technical documentation; respirator RPG-67 as per GOST 12.4.004; cotton-gauze bandage. All workers engaged in carbamide production, except personal protective equipment specified above, shall be provided with gas masks KD or M brand as per GOST 12.4.121. The maximum permissible daily average concentration of carbamide in the atmospheric air of settlements is 0.20 mg/m^3, hazard class 4.

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9 Physical and chemical properties	• **Appearance:** **Form:** Solid **Colour:** White • **Odour:** Ammonia-like • **Odour threshold:** Not identified. • **pH-value (100 g/l) at 20 °C:** 9.2-9.5 • **Change in state** **Melting point / melting point interval:** 135 °C **Boiling point / boiling point interval:** Not identified. • **Flash point temperature:** Not applicable. • **Flammability (solid, gaseous substance):** The substance is non-flammable. • **Ignition temperature: 715°C** **(The ignition temperature is absent up to 220°C)** **Decomposition temperature:** Not identified. • **Spontaneous combustibility:** Not identified. • **Explosion hazard:** The product is not explosive. • **Explosibility limits:** **Upper:** Not identified. **Lower**: Not identified. • **Vapour pressure at 20 °C:** 2 gaPa • **Grain density at 20 °C:** 1.323 g/cm3 • **Bulk density at 20 °C:** 725-760 kg/m3 • **Relative density** Not identified. • **Vapour density** Not applicable. • **Evaporation rate** Not applicable. • **Solubility in / Miscibility with water at 20 °C:** 1080 g/l • **Organic solvents: Dissolve in alcohols.**
10 Stability and reactivity	**Thermal decomposition / conditions, which shall be avoided:** No thermal decomposition occurs in use in accordance with the instructions. The conditions to be avoided: High temperature. **Incompatible materials:** nitroous acid, nitrites. **Decomposition hazardous products: carbon oxide (carbon monoxide).**
11 Toxicity information	• **Acid toxicity:** • **Initial irritating effect:** • **on skin:** Irritates a skin and mucous tunics. • on eyes: There is no irritating effect. • **Sensitisation:** It is not known of presence of sensitization effect.
12. Environmental impact information	The washing waters after washing of equipment and communications with carbamide concentration not more than 300 mg/dm^3 shall be delivered to bio-treatment facilities. The maximum permissible concentration of carbamide in water of water objects of economic-drinking and cultural-and-community water use shall be within the limits admissible by calculation on content of organic substances in water as per BOD indicators and dissolved oxygen, hazardous class - 4. Carbamide MPC for water of fishery water reservoirs – 80.0 mg/dm^3. Not to allow penetration in a sewer system / surface or subsoil waters. While penetration in water reservoirs or sewer system to inform the respective services of it.

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13 Recommendations for waste (residuals) disposal	The solid wastes of production or carbamide applications (after cleaning of equipment and communications) not suitable for use according to the product purpose shall be delivered for technological processing. The utilization together with household wastes is not allowed. The penetration into water drain shall be prohibited. With regard to repeated processing to apply to the waste processing stations. The utilization shall be carried out in accordance with the instructions of competent services. The packing failing in cleaning shall be utilized by the same way as the product out of them.
14 Transportation information	Carbamide is shipped in a packed form and in bulk undertaking the measures excluding penetration of the product in the environment and spillage of the product. Carbamide is transported by all means of transport in accordance with the cargo transportation rules existing on a particular means of transport. Ccarbamide is transported in bulk in specialized self-unloading cars as well as in closed marine deck vessels and by motor transport equipped with adaptations for covering of the product in a body. It is allowed to transport carbamide in bulk in a rolling stock as agreed upon between the manufacturers, consumers and transport organizations, having provided the measures excluding product spillage. The packed carbamide is transported in covered railway cars on carload shipments, closed deck vessels and motor transport equipped with adaptations for covering of the product in a body. The projected parts of non-removable equipment shall be upholstered or pasted over with paper or upholstery material. It is allowed to transport the packed carbamide on decks of cargo vessels packing in stacks fastened and covered thoroughly. While transportation by small consignments the packed carbamide is shipped in universal containers in accordance with GOST 18477. Upon agreement with the consumer carbamide packed into bags is transported in a packaged form with use of synthetic film as means of cargo fastening (with pallets or without pallets), fabric tapes, nets or other materials providing package integrity while transportation and storage. Upon packing by means of synthetic film. carbamide is transported in single packing. Packing shall be carried out in accordance with GOST 24597, GOST 26663 and standard-and-technical documentation on packages. The specialized soft and metal containers with carbamide as well as transport packages fastened with film are allowed to be transported in semicars and open motor transport. The packed carbamide in container-equipment is transported by motor transport. The specialized metal containers with carbamide are allowed to be transported on railway platforms.
15 National and international legislation information	The national legislation. **THE SANITARY CODE OF TURKMENISTAN.** **Section III. RIGHTS AND OBLIGATIONS OF STATE GOVERNING BODIES, LEGAL ENTITIES AND NATURAL PERSONS ON PROVISION OF SANITARY-AND-EPIDEMIOLOGIC WELL-BEING OF THE POPULATION.**

	Article 35. The obligations of legal entities and natural persons on production, storage, selling, application, utilization, neutralization and burial of chemical substances, biological substances and materials. Article 36. The obligations of legal entities and natural persons on observance of sanitary-and-epidemiologic requirements for working conditions with sources of physical factors of impact on a person.
16 Additional information	The Marycarbamide Facility provides this information for the get-to-know purposes and does not affirm accuracy and sufficiency of everything described. This Material Safety Data Sheet is provided as a general guidance on transportation, storage and application of this substance by specialists with use of all necessary personal protective equipment and devices. The Marycarbamide Facility does not bear responsibility for possible damage caused by unqualified or improper handling of substance considering or non-considering the requirements of this Material Safety Data Sheet
17 List of information sources	1. GOST 30333-95 Interstate Standard Material Safety Data Sheet. 2. GOST 12.1. 007-76. Occupational Safety Standards System. Harmful Substances. Safety Classification and General Requirements. 3. GOST 12.1. 005-88 Occupational Safety Standards System. General Sanitary-and-Hygienic Requirements for Working Area Air. 4. GOST-TDS 2081-2010 Carbamide. Technical Conditions. 5. GOST 14129-97 Cargo Marking. 6. GOST 19433-88 Hazardous Cargo. Classification and Marking. 7. Rules of Transportation of Hazardous Cargo by Motor Transport 8. Approved by the Decree of Goscomtrud of the USSR and the Presidium of TsSPS dated 24.05.1983. 9. Labour Safety in Chemical Industry. N.V.Solovyova, N.A.Strelchuk, P.I.Ermilov. 10. Production Schedules for Production of Carbamide in Marycarbamide Facility, Mary. 11. Chemist's Reference Manual Vol. 2. Publishing House "Khimiya", Moscow, 1965. 12. Inorganic Chemistry Courses. Vol. 1. Publishing house "Mir" 1972.

Marycarbamide Facility:

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