CLASSIFICATION OF BIS-CARBAMATES OF THE MEE SERIES BASED ON THE NOMENCLATURE OF GOODS OF FOREIGN ECONOMIC ACTIVITY OF THE REPUBLIC OF UZBEKISTAN

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Abstract. In this work, the reagents and main products, which are raw materials for the bis-carbamates synthesized by the authors, are classified based on the nomenclature of goods in foreign economic activity (NFEA). By them, plants based on N,N'-hexamethylene bis-[(o,m-cresolyl)]-carbamate and its derivatives are assigned to the code 3838 93 900 1, group 38 of NFEA, class 3808, code 3838 93 900 1 as growth regulators and code 3838, after receiving a certificate of compliance with the MEE series of substances synthesized by us as a commodity, it was named “MaXstim”, and an offer was made to include this drug in the NFEA.

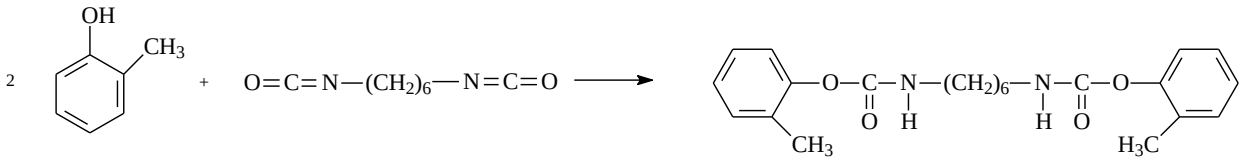
Key words: Bis-carbamate, reagents, classify, nomenclature, goods, growth regulators, drug, products, position, code.

Introduction. At the moment, chemical sciences in the world consist of 20 disciplines, 19 of which were founded by researchers from the American and European continents. The discovery of this science by our scientists was literally a global innovation, its creation was a historical necessity, and it stimulated the rapid development of commodity chemistry [1].

Numerical codes of goods are classified based on the nomenclature of goods in foreign economic activity (NFEA). In this case, it is necessary to study the chemical composition of the goods and to determine and assign the corresponding commodity number code when determining the quality indicators, composition, origin, originality, production, structure, organoleptic and physico-chemical indicators of ecological harmlessness of the goods. 02.00.09- The specialty "Chemistry of goods" researches the problems of assigning code numbers and issuing certificates in the international (NFEA) based on the chemical composition, chemical and physical and other properties of goods, including protecting the interests of consumers and producers. In

this case, by certifying domestically produced goods based on their chemical composition, the protection of the economic interest of the enterprise is also ensured [1].

The Ministry of Investments and Foreign Trade and the State Customs Committee 2022 version of the Nomenclature of Foreign Economic Activities of the Republic of Uzbekistan by the President on December 28, 2022 "On" was signed and put into practice with Resolution PD-460 [2]. The authors with the synthesized, physicochemical parameters were studied and used in agricultural sector using the reaction scheme 1 [3-18]. This goal is to classify the available synthesis available synthesis and the introduction of key products available at NFEA and the introduction of new drug products. Scheme 1:



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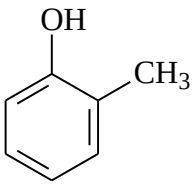
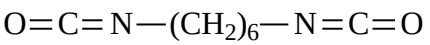
Materials and Methods. Synthesis of N,N' – hexamethylene bis[(ortho-cresolyl)-carbamate] i.e. MEE-1: To 10.8 g (0.1 mol) of ortho-cresol, 10 ml of triethylamine (TEA), 35 ml of dimethylformamide (DMF) are added, while stirring, 8.4 g (0.05 mol) of hexamethylene diisocyanate (HMDI) dissolved in 20 ml of DMF are added dropwise at room temperature. The reaction mixture is stirred for 3.0 hours at a temperature of 35-480 °C; after the time has elapsed, the contents of the flask are transferred to a glass and water is added. The resulting precipitate is washed with thin layer chromatography (TLC). After drying, a snow-white powder is obtained, the yield of product MEE-1 is 18.74 g (97.6% of theoretical); T.me=127-129 °C; Rf =0.77. Calculated for C22H28N2O4/%: C-68.75 H-7.29 N-7.29; Found, % C-68.62 N-7.17 N-7.19.

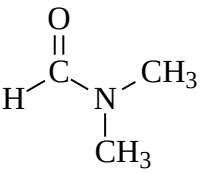
Results and Discussions. Here are the formulas of ortho-cresol and hexamethylene diisocyanate, which are the main raw materials for the synthesis of bis-carbamate, as well as the formula of triethylamine, which is the catalyst and dimethylformamide, the solvent for the reaction of producing bis-carbamates of the MEE series:



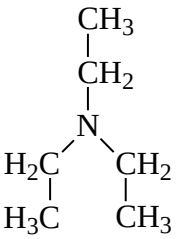
ortho cresol



hexamethylene diisocyanate



triethylamine



dimethylformamide

Reagents for the synthesis of bis-carbamate in this nomenclature of goods in foreign economic activity (NFEA) Table 1.

Table 1

Nomenclature of bis-carbamates

NFEA code	Name of the position	An additional unit of measurement
2907 12 000 0	– cresols	-
2929 10 000	– isocyanates	-
2921 19 990 0	– triethylamine	-
Other carbamates		
2924 11 000 0	– – meprobamate (INN)	-
2930 20 000 0	– thiocarbamate and dithiocarbamates	-

The nomenclature of carbamates available in NFEA is mainly given in the class "Other chemical products" of group 38 (Table 2).

Table 2

Nomenclature of carbamates

NFEA code	Name of the position	An additional unit of measurement
3808 – Insecticides, rodenticides, fungicides, herbicides, anti-emergents and plant growth regulators, disinfectants and similar preparations:		
3808 62 000 3	– – – containing bendiocarb (ISO), fenitrothion (ISO), malathion (ISO),	

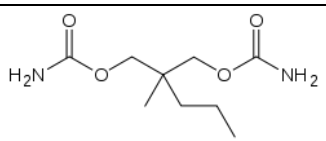
	pirimiphos-methyl (ISO) or propoxur (ISO)	
3808 91 – – insecticides:		
3808 91 350 0	– – – based on carbamates	
3808 92 – – fungicides:		
	– – – – based on dithiocarbamates	
3808 93 – – herbicides, anti-emergents and plant growth regulators:		
3808 93 190 0	– – – – based on carbamates	
3808 93 900 0	– – – plant growth regulators	

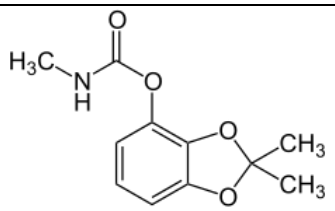
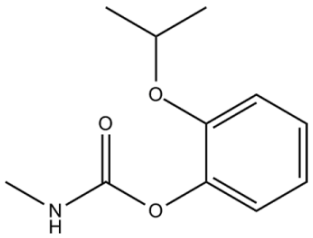
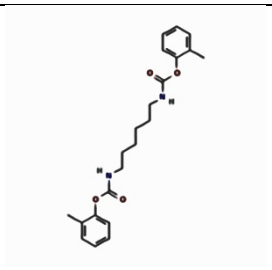
If you pay attention to table 2, as plant growth regulators based on carbamates, there is no separate 10-item classification commodity code in nomenclature of goods in foreign economic activity NFEA. This, in turn, can cause a number of problems when filling out declarations of the customs committee on the classification of agricultural additives.

Taking this into account, we have added the heading name N,N'-hexamethylene bis-[(o,m-cresolyl)]-carbamate i.e. MEE-1, MEE-2 and its derivatives to the code 3838 93 900 1 of the nomenclature of goods in foreign economic activity NFEA group 38 "Other chemical products" class 3808 as plant growth regulators on the basis of 3838 and after receiving the certificate of compliance with the MEE series substances synthesized by us as a commodity, we would like to name it Makstim and make a proposal to include this drug in the nomenclature of goods in foreign economic activity NFEA as well (Table 3).

Table 3

Current carbamate drugs available in nomenclature of goods in foreign economic activity NFEA and the drug Maxtim we offer and its properties

Meprobamate			
Name: [2-(carbamoyloxymethyl)-2-methylpentyl]carbamate			
Brutto formula	$C_9H_{18}N_2O_4$		
Molar mass	218.25 g/mol		
Application: It has a calming effect on the central nervous system, reduces fatigue, relaxes skeletal muscles, has a mild sedative effect, and is an analgesic.			
Bendiocarb			
Name: 2,2-dimethyl-2H - 1,3-			

benzodioxol-4-ylmethylcarbamate			
Brutto formula	$C_{11}H_{13}NO_4$		
Molar mass	223,23 g/mol		
Application: Acutely toxic carbamate insecticide, an effective agent against various pest insects and disease carriers.			
Propoxur			
Name: (2-propan-2-yloxyphenyl) N-methylcarbamate			
Brutto formula	$C_{11}H_{15}NO_3$		
Molar mass	209,3 g/mol		
Application: Propoxur is an active substance of pesticides designed to fight against pests of agricultural crops.			
MaXstim (Makstim)			
Name: N,N'-hexamethylene bis-[(ortho-cresolyl)]-carbamate			
Brutto formula	$C_{22}H_{28}N_2O_4$		
Molar mass	384,47 g/mol		
Application: Active against various crop pests, anthelmintic, antibacterial, biostimulant for plant growth.			

Conclusion. Taking this into account, we have added the heading name N,N'-hexamethylene bis-[(o,m-cresolyl)]-carbamate i.e. MEE-1, MEE-2 and its derivatives to the code 3838 93 900 1 of the NFEA group 38 "Other chemical products" class 3808 as plant growth regulators on the basis of 3838 and after receiving the certificate of compliance with the MEE series substances synthesized by us as a commodity, we would like to name it Makstim and make a proposal to include this drug in the NFEA as well.

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