

## **CLEAN CITY AS THE GUARANTEE OF ENVIRONMENTAL SAFETY**

**OLEH YATSUKH**

*Candidate of Agricultural Sciences, Associate Professor,  
Associate Professor of the Department of Civil Security  
Tavriya State Agrotechnological University  
Melitopol, Ukraine*

**SERHII MAZILIN**

*Candidate of Technical Sciences, Associate Professor,  
Associate Professor of the Department of Civil Security  
Tavriya State Agrotechnological University  
Melitopol, Ukraine*

**HANNA YEVTUSHENKO**

*Assistant of the Department of Civil Security  
Tavriya State Agrotechnological University  
Melitopol, Ukraine*

**KATERYNA PROSINA**

*Teacher of the Department of Foreign Languages  
Tavriya State Agrotechnological University  
Melitopol, Ukraine*

In order to create the environment, favorable for people, maintain roads, streets, sidewalks, grow plants, improve landscape, satisfy the needs of urban population, enterprises and organizations in transportation services for the purpose of disposal of solid household and liquid waste, preserve and protect the environment, ensure the sanitary conditions of the population and provide proper control over the

urban amenities of Melitopol, guided by Art. 34 of the Law of Ukraine "On Urban Redevelopment", for the control over the improvement and sanitary condition of the city of Melitopol, by virtue of Part 1, Art. 59 of the Law of Ukraine "On Local Self-Government in Ukraine" the Melitopol City Council of the Region of Zaporizhzhia established "Chystota" Municipal Enterprise.

The shortened name thereof shall be "Chystota" ME of Melitopol City Council of the Region of Zaporizhzhia. USRNEO Code: 32349545.

The enterprise is located at 115 O. Nevskogo Str., Melitopol, the Region of Zaporizhzhia, 72314, Ukraine. The number of employees is 46.

The subject of the enterprise activity shall be:

- current maintenance of roads, streets of the city in sanitary condition in accordance with the requirements of legislation, winter maintenance of roads;
- maintenance of roads accessories, stops, small architectural forms, elements of road safety, bridges;
- maintenance of the sanitary condition of individual places at the time the city events are held;
- participation in the complex maintenance of areas along roads, streets, squares, areas of the city that are temporarily unused;
- provision of services for the collection and removal of solid waste from private sector buildings, AMRPHF (Administration of manufacturing, repair and operating of the housing facilities), IPRCP (Integrated plant of reinforced concrete production), other enterprises and organizations of the city;
- pumping and removal of liquid sewage from non-canalized toilets;
- organization and operation of the garbage dump, its reclamation;
- periodic cleaning its aggregates of drainage station;
- emptying and cleaning of cesspools and dumps, maintenance of technical and public toilets;
- garbage collection from public garbage cans;
- waste management activities;
- introduction of new technologies and know-how in profile activities;

- arranging, care and redevelopment of landscape, including the laying and maintenance of parks and gardens, cemeteries, etc, green spaces along roads, railways and other means of communication at the industrial and commercial facilities and green facade, green spaces and sports playgrounds;
- planting and care for decorative trees, transplantation of large trees;
- implementation of other activities not prohibited by law.

Blossomed trees, new buildings, clean air, cleaned streets and parks are the minimum needed to take pride in one's city and enjoy life in it. Even the smallest thing, made in this plan by every resident and company leaders, will bring public benefit and make the city better. And vice versa, every cigarette thrown under the feet makes one of the drops, generating the sea of garbage. Melitopolites have always been famous for being good hosts on their land. In due time we all need to remember this as it concerns our hometown. Of course, the relevant services of the city should observe the quality requirements, cleaning the city from garbage, but the citizens of Melitopol should take care to improve the sanitary and ecological condition of the city on their own part by maintaining cleanliness in their yards and adjoining territories.

Improvement of complex works on engineering protection, clearing and greening of the territory, as well as environmental measures to improve the microclimate, sanitation, noise reduction, etc., carried out on the territory of the settlement for its rational use, proper maintenance and protection.

The city administration of Melitopol is responsible for the management of urban amenities. The control over the condition of the amenities, observance and implementation of measures aimed at meeting the requirements of the Rules for cleaning and retaining the territories of settlements of Ukraine (KTM 204 of Ukraine 042-93) [1] is carried out by "Chystota" ME, other enterprises, institutions and organizations that carry responsibility for proper maintenance of the urban amenities.

Only the skilled professionals whose experience includes dozens of accomplished projects possess enough competence to provide proper urban amenities under. The maintenance of roads, streets of the city in sanitary condition in

accordance with the requirements of legislation, planting of greenery and improvement is not only a complicated and multi-faceted process – it is the art of reaaarngement of any territory into a place of fairy-tale beauty that transforms imperfections into undeniable virtues.

All of these qualities are pertinent to the employees of “Chystota” ME of the Melitopol City Council of the Region of Zaporizhzhia. The enterprise provides the collection, removal and dumping of solid waste in compliance with the requirements of the SCMU dated 10.12.2008 № 1070 [2], conducts work on the prevention of the occurrence of spontaneous landfills, keeps in good condition access roads to the landfill.

“Chystota” ME of the Melitopol City Council of the Region of Zaporizhzhia has the appropriate modern communal equipment for the city's improvement (see Table 1).

Table 1 – List of Main Vehicles of “Chystota” ME of the Melitopol City Council of the Region of Zaporizhzhia as of 01.08.2018.

Ser. No.	Name	Inventory Number	Registration Number	Vehicle Manufacture Year
1	PUM-93-1sweeping and cleaning vehicle	1050214	AP 6862 AO	2006
2	Globe-5337, MAZ sweeping and cleaning vehicle	1050217	AP 1833 CH	2011
3	DZ-133 (MTZ-82) tractor	1050241	00432 AP	2006
4	Bilorus-920 tractor, equipped with a milling tool	1050245	02819 AP	2007
5	“Vlyv Micro B” GAZ 3309 garbage truck	1050250	AP 4913 CX	2015
6	MDKZ-10 combined road vehicle, on MAZ-5337 chassis	1050521	AP 8273 AO	2016
7	GAZ-53cesspool emptier	1050224	AP 2236 CO	1991

8	KDM 130 B cargo gritter	1050236	AP 2148 CO	1991
9	KO 309 sweeping and cleaning vehicle	1050211	11011 HP	1992

**Globe-5337, MAZ sweeping and cleaning vehicle (Fig. 1a).**

The peculiarity of this vehicle is that it has two sets of special equipment on a single chassis, which allows you to use the car all year round (a removable body with sweep brushes, a body-brush and a frontal snow-removing shovel). The car can also react promptly to the road environment, especially on condition of sudden snow or ice.



a)



b)



c)



d)



e)



f)



g)

Fig. 1 – Main Vehicles of “Chystota” ME of the Melitopol City Council of the Region of Zaporizhzhia

**KO-413 garbage vehicle** (Fig. 1b) with side loading on the chassis of GAZ-3309 is intended for mechanized loading of solid waste into a body from standard containers (0.75 cubic meters), compaction of waste, transportation and its mechanized unloading.

**MDKZ-11 combined road vehicle (winter + summer)** (Fig. 1c) on MAZ chassis is intended for year-round use on maintenance of roads with a hard covering.

In the summer, the car is used for washing and watering road covering, as well as for irrigation of greenery in parks, washing of sidewalks.

In the winter, a machine with plow and brush equipment is used to clean the roadblock from fresh snow, with spreading equipment – for spreading inert materials of the surface of the roadway. The machine is equipped with plumbing, sandstone and plow-brush equipment.

**DZ-133 loader (Fig. 1d)** is equipped with variable bulldozer equipment on the basis of Belarus-82P tractor. The bulldozer is equipped with a bucket and a dump, as well as a brush utility (road) sweeper for clearing roads, streets, sidewalks and areas from sand, garbage and snow.

**KDM 130 B cargo gritter** (Fig. 1e) on ZIL 130 chassis. Technically and morally outdated model. Requires upgrading.

**“Vlyv Micro B” GAZ 3309 garbage truck** (Fig. 1f) for collecting solid household wastes with the strengthened manipulator for maintenance of containers K-075, installation of capture for the service of "euro containers" (MGB1100) is possible.

**KO-522 vacuum vehicle** (Fig. 1g) is intended for vacuum fence, transportation and drainage of liquid wastes that do not contain explosive and combustible substances.

Rearrangement of the urban amenities means sanitary cleaning of the amenities, namely: coverage of the street-road network, green plantations, small architectural forms, etc., located on the territory, collection and transportation to the established places of waste, street scum, leaves, branches, snow, ice and so on.



During the repair and maintenance of city streets and roads, “Chystota” ME of the Melitopol City Council of the Region of Zaporizhzhia fulfills the requirements of the environmental protection, which are defined by the Law of Ukraine "On Environmental Protection".

The sanitary condition of city streets and roads is estimated by the regularity and quality of cleaning of the travel section and sidewalks in accordance with the requirements of the Technical Rules for the repair and maintenance of city streets and roads of KTM 204 of Ukraine 010-94 [3].

In order to organize the proper cleaning of the territory of all the facilities of Melitopol, “Chystota” ME of the Melitopol City Council of the Region of Zaporizhzhia adheres to the Methodological recommendations on the cleaning of the territory of the objects of improvement of human settlements, with the aim of increasing the productivity of cleaning equipment and taking into account the technical and economic indicators of its work, all kinds of technological operations, taking into account the accepted modes and the sequence of cleaning.

For clear and efficient execution of technological operations, one or several machines (link, column structures) are fixed for each route.

The criterion for optimizing the route is the minimum idling of the machine during the moving from one area to another, which is achieved by ringing the working route and the optimal location of points of refueling with water.

In order to keep traffic safety and pedestrians safe during cleaning, it is preferable for such routes, where the left-turning movement of cars is minimized, and there are no turnovers on street races when moving from one area to another.

In order to increase the cost efficiency of the cleaning operations, the cleaning routes are coordinated with the points of refueling with water, storage of technological materials, platforms for unloading the street scene. To monitor volumes, terms of execution and quality of cleaning, a route map and a schedule of work on the route are compiled for each route. The route card, for example, consists of a flow chart and a table, which contains the technical and technological parameters of the work on the route.

The Vehicle Scheme means a plan, which shows directions and sequence of cleaning the sections of the route, areas for loading street garbage, the direction of movement of the vehicle during the transportation of street garbage and technological materials, as well as the zones of manual cleaning.

Thus, for 9 months of 2018, the total amount of the zones of manual cleaning by “Chystota” ME was 36,000 m<sup>2</sup>; “Globe” sweeping and cleaning machine cleared 6 080 thousand square meters of roads; watering machine covered 27 590 thousand square meters. After winter maintenance, about 950 km of roads were cleaned and 3 400 m<sup>3</sup> of soil and technological materials were taken out. 2 200 m<sup>3</sup> of garbage, 1 050 m<sup>3</sup> of leaves were collected and exported, 298 m<sup>3</sup> of unauthorized dumps were liquidated. Also, since the beginning of the year, 585 m<sup>3</sup> of branches have been crushed and harvested, 222 stumps crushed, 680 thousand m<sup>2</sup> of quarantine and harmful plants have been mowed.

Cleaning the territories of parks is carried out in accordance with the requirements of sanitary norms and rules. Gathering leaves on the territory of parks, forest parks, zones of green spaces, squares is carried out only on main alleys, paths, playgrounds, flower gardens. Autumn harvesting of leaves from groups of trees and shrubs is prohibited, as it results in the introduction of organic fertilizers. The waste from the green economy is collected in places of education and is taken out by the transport of “Chystota” ME to the landfill site.

**Conclusions.** The analysis of the general state of the environment in the city of Melitopol shows that on the one hand, the ecological situation is generally satisfactory, the environmental indicators of the city's life are better than in most other cities of the country and are much better than the average in Ukraine. This gives grounds to define Melitopol as a rather favorable place to live and work. On the other hand, it can be noted that in the city of Melitopol there are a number of environmental risks and problems that need to be addressed. The level of environmental pollution in the city is not objectively determined, and the existing environmental risks and problems can be significantly reduced, on condition of effective and targeted work in this direction.

In order to keep cleanliness and order in the city, it is necessary to adhere to the basic rules of waste management, which is a sign of upbringing, decency and conscience:

- to prevent the creation of spontaneous landfills;
- to show, by one's own example, that cleanliness and order should be not only on the eve of major holidays but also in everyday life;
- to take out construction materials and remnants of building debris from the streets;
- only household waste is to be disposed of in containers and garbage cans.

Let us remember that our behavior is an example to follow by our children and grandchildren. Let's lay the foundations of their inner culture and preserve our little homeland – a hometown for them and for ourselves. After all, no one except ourselves will be able to create a cosiness and order and, thus, a good mood for those who love and respect their hometown.

#### **REFERENCES:**

1. Rules of cleaning and maintenance of territories of settlements of Ukraine (KTM 204 of Ukraine 042-93);
2. The rules for the provision of services for the disposal of household wastes, approved by the State Customs Committee of Ukraine dated December 10, 2008 No. 1070;
3. Technical rules for the repair and maintenance of city streets and roads (KTM 204 Ukraine 010-94).