



**State Enterprise “Scientific, Research, Design and
Technology Institute of Municipal Economy”**

REPORT

“Analysis of the Secondary Raw Materials Market”

within the framework of project implementation

“Contribution to Sustainable Management of Municipal Waste in Uzhhorod”

(Grant Agreement NAKOPA – E-UKR.1-20 from November 14, 2020)

(DK 021:2015 “DK 021:2015: 90710000-7 - Environmental Management”)

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Technology Institute of Municipal Economy”

APPROVED BY
Acting Director of SE “NDKTI MG”



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(Contract No. '20 from November 29, 2023)

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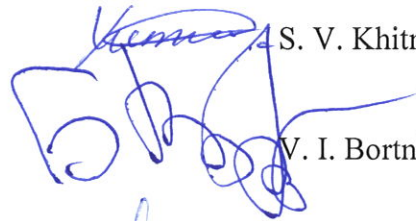
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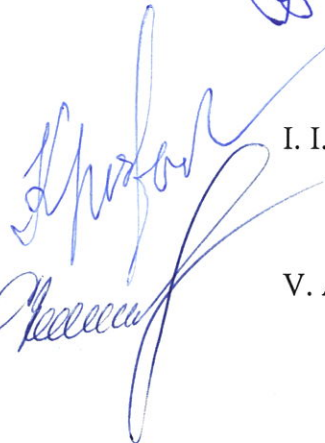


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ABSTRACT

Report: 77 pages, 1 part, 7 tables, 3 figures, 20 annexes, 46 references.

SECONDARY RAW MATERIALS, WASTE MANAGEMENT, SEPARATE COLLECTION, DISPOSAL, RECYCLING, MUNICIPAL WASTE, MARKET OPERATORS, MARKET CONSUMERS, EXTENDED PRODUCER RESPONSIBILITY

Provision of the service “Analysis of the Secondary Raw Materials Market” is provided as part of the implementation of the project “Contribution to the sustainable management of municipal waste in Uzhhorod” (Grant Agreement NAKOPA - E-UKR.1-20 dated 14.11.2020) (hereinafter – Analysis) based on Contract No. 20 from 29.11.2023 (hereinafter referred to as the Contract) between the State Enterprise “Scientific, Research Design and Technology Institute of Municipal Economy (Kyiv) and the Department of International Cooperation and Innovations of the Uzhhorod City Council of the Transcarpathian Oblast. The analysis is implemented with support funds from the budget of the Federal Ministry of Economic Cooperation and Development of Germany, taking into account European approaches to waste management, based on the provisions of the European Directives on waste management, their updates and modifications, as well as on the provisions of domestic legislation.

The purpose of the Analysis of the secondary raw materials market is to determine the market of secondary raw materials (namely paper and cardboard, plastic, glass and metal) considering European experience and domestic legislation.

The implementation of the project corresponds to the “Strategy for the development of Uzhhorod-2030”, approved by the Decision of session No. 1382 from 18.01.2019.

Receiving the Report: according to Contract No. 10 from 31.05.2023, SE “NDKTI MG”, Kyiv, 35 Metropolitan Vasyl Lypkivskyi st.

INTRODUCTION

“Analysis of the Secondary Raw Materials Market” (hereinafter - Analysis) is carried out as part of the implementation of the project “Contribution to the Sustainable Management of Municipal Waste in Uzhhorod”. It is carried out taking into account European approaches to waste management, based on the provisions of European directives on waste management, as well as on provisions of domestic legislation.

The implementation of the project corresponds to the “Strategy for the Development of Uzhhorod-2030”, approved by the Decision of session No. 1382 from January 18, 2019.

The purpose of the Analysis is to determine the market of secondary raw materials (paper and cardboard, plastic, glass and metal) taking into account European experience and domestic legislation.

The main tasks of the Analysis are:

- characteristics of the secondary raw materials market in Ukraine;
- assessment of trends in the development of the secondary raw materials market in Ukraine and factors affecting it;
- establishment of the main market operators: processors and existing consumers of secondary raw materials in Ukraine.

For analyses, materials and data were obtained by analyzing open sources of information (plans, reports, registers, etc.) of relevant ministries based on relevant requests to relevant institutions, research of the European market, and oblast specificities of Ukraine were also taken into account.

GLOSSARY

Waste disposal means any operation, which is not waste recovery even where the operation has as a secondary consequence the reclamation of substances or energy.

Waste recovery means any operation the principal result of which is waste serving a useful purpose by replacing other materials, which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

Secondary raw materials means materials, products or goods, waste or leftovers after production, such as paper, plastic, glass, metal, etc., which have been used but can be recycled or reused to produce other goods.

Waste landfilling means placement of waste on the surface or under the surface (underground) of the earth in a way that does not pose a threat to human health and the surrounding natural environment and does not involve further treatment of waste.

Waste collection means the activity related to the extraction, purchase, accumulation and placement of waste in specially designated places or objects, including sorting of waste for further transportation to a waste treatment facility.

Waste treatment means recovery or disposal operations, including preparation prior to recovery or disposal.

Operator in the secondary raw materials market means a legal entity or an individual entrepreneur who purchases, sells, stores, transports, restores and/or disposes of secondary raw materials, and may also provide other waste management operations.

Waste treatment facility is an installation, engineering structure, or other facility used for waste recovery or disposal operations.

Municipal waste means mixed waste and/or separately collected waste from municipals, including paper and cardboard, glass, metals, plastics, wood, textiles, packaging, bio-waste, waste electrical and electronic equipment, hazardous waste in municipal waste, bulky waste, repair waste, as well as mixed and/or separately collected waste from other sources, if this waste is similar in composition to municipal waste.

Recycling means recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes.

Separate collection of waste means the separate collection of waste depending on its type, characteristics and composition in a way that will facilitate its further treatment.

Waste sorting means an operation related to the mechanical distribution of waste depending on its physical and chemical properties, material components, energy value, and other indicators to prepare it for treatment.

Operator in the field of waste management means a legal entity or an individual entrepreneur who collects, purchases, stores, transports, restores and/or disposes of waste following legislation.

Waste management means a set of measures for the collection, transportation, and treatment (recovery, including sorting, and disposal) of waste, including supervision of such operations and subsequent care of waste disposal facilities.

CHAPTER I. GENERAL CHARACTERISTICS OF THE SECONDARY RAW MATERIALS MARKET IN UKRAINE

1.1 Characteristics of the municipal waste management system in Ukraine

Sustainable development goals in Ukraine until 2030 are guidelines for the development of projects of forecasting and program documents, projects of normative and legal acts to ensure the balance of economic, social and ecological dimensions of sustainable development of Ukraine. One of the goals of the National Waste Management Strategy in Ukraine until 2030 is to determine the priority areas of activity of central and local executive bodies, local self-government bodies, organizations, institutions, enterprises, public organizations and society as a whole regarding the transition of the waste management system to an innovative model, which based on the hierarchy of waste management, including recycling. The high rates of waste generation and the low culture of sorting among the population have led to the fact that a large amount of municipal waste (MW) accumulates in Ukraine every year. A small part of the generated MW is used as secondary material resources, and most of it ends up in waste landfills and dumps. Significant resource potential is waste as secondary raw materials, which are the remains of end-use products - waste paper, polymers (plastic, polyethylene, and film), glass and scrap glass, metal, etc. The market of secondary raw materials is connected with the presence of certain useful elements in the waste, which are resource-valuable.

According to the data of the Ministry of Infrastructure of Ukraine, in 2022, more than 7 million tons (39 million m³) of municipal waste were generated, 95% of which were buried and disposed of in 5.7 thousand dumps and solid waste landfills, the total area of which is 8 thousand hectares. Only 9.3% of settlements have approved improvement programs, in cities – 76.1% (306 cities). Plans for improvement measures, which include requirements for the management of wastewater, were approved in 13.6% of settlements [1]. The average coverage of the population with waste collection services in Ukraine is 80%. The highest percentage is in the Donetsk, Mykolaivska, Chernivetska and Lvivska oblasts (Fig. 1.1.)

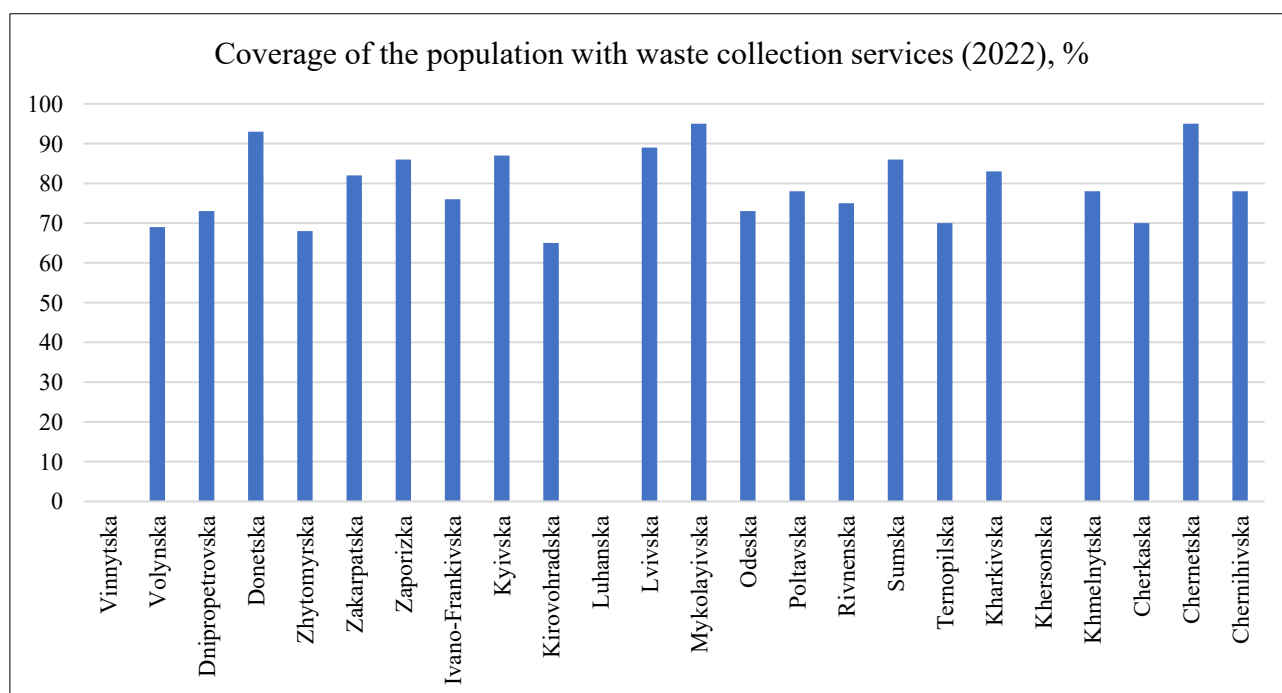


Fig. 1.1 – Coverage of the population of Ukraine with services for the collection of solid waste (2022), %

Ukraine has significant renewable resources of recycled materials, that is, those that have a raw material, material or energy resource. The process of law-making in the field of waste management, especially about secondary raw materials, is at the stage of development, which inhibits the formation of an economically feasible policy that would encourage the separate collection of waste. Most landfills in Ukraine are overloaded and have exhausted their resource potential, therefore the development of the infrastructure for the collection and processing of recyclable materials is one of the most important goals of the waste management system. The infrastructure of the market of secondary raw materials must ensure its effective functioning - from the collection of waste materials to operations for their processing. Currently, there are enterprises for the storage and processing of secondary raw materials operating in the oblasts of Ukraine. For the most part, their activities are regulated by the profit they receive.

As of 2022, a separate collection of municipal waste implements in 1,440 settlements in Ukraine, not including information on temporarily occupied territories, as well as eastern and southern oblasts of Ukraine, which were unable to provide complete information due to military aggression by the Russian Federation.

31 waste sorting lines operate in 26 settlements, namely: Vinnytsia, Murovani Kurylivtsi village, Illintsi, Kalynivka, Kozyatyn, Ivanivtsi village (Vinnytska Oblast), Lutsk, Kryvyi Rih, Neresnytsia (Transcarpathian oblast), Zaporizhzhia, Ivano-Frankivsk, Bila Tserkva, Obukhiv, Pereyaslav (Kyivska oblast), Kropyvnytskyi, Busk, Sambir, Novoyavorivsk, Stryi (2 lines), Chervonograd and Zolochiv (Lvivska oblast), Sumy, Plebanivka village and Malashivtsi village (Ternopil'ska oblast), Bogoduhiv (Kharkiv'ska oblast), Kyiv (5 lines). Energia waste incineration plant also operates in Kyiv.

In 2022, about 9.9% of municipal waste was processed and disposed of, of which 1.66% was incinerated and 8.24% went to recycling points and waste processing lines [2].

The morphological composition of waste depends on the oblast, waste management infrastructure, season, socio-economic living conditions, etc. Usually, mixed waste contains a variety of materials, both in terms of mechanical and physicochemical properties. Hazardous waste components are mixed at the stage of their formation, and transportation, and at the hazardous waste landfill. According to Regional Plans, Sanitary Cleaning Schemes, Waste Management Programs and Strategies, on average 45-50% is the organic (wet) fraction, i.e. food waste, and 30-35% is secondary raw materials, in particular, 10.2% is paper, 9.4% is plastic, 9.8% is glass, 1.6% is metal, etc. Compared to the volume of waste generation, only a small part of this waste is sorted and sent for processing, because the necessary conditions for the development of the recycling industry in Ukraine have not been created (Fig. 1.2, Fig. 1.3) [3].

The current state of MW management in Ukraine is approaching critical and does not correspond to global trends in this area. A general trend for Ukraine, in contrast to European countries, is a low level of recycling and utilization of MW and a high rate of their disposal in landfills. When waste is buried in landfills and dumps, the process of soil contamination with landfill leachate occurs, which leads to groundwater pollution and harms people's health. In most cases, landfills are not properly equipped and are operated in violation of the requirements of sanitary legislation. The state of the environment is not controlled at landfills.

There are 17 waste paper recycling enterprises, 39 polymer-processing enterprises, 19 PET raw material processing enterprises, and 16 glass scrap processing enterprises operating in Ukraine. Annually, 160,000 tons of polymers and 50,000 tons of PET bottles end up at processing enterprises in Ukraine. However, the capacity of enterprises processing polymers and PET bottles, for example, is only 65% loaded.

Significant amounts of annual waste generation in Ukraine and the lack of effective measures aimed at preventing their generation, waste treatment operations, disposal and environmentally safe disposal deepen the environmental crisis and become an inhibitory factor in the development of the national economy. Significant resource potential is being lost, and at the same time, the ecological situation is deteriorating.

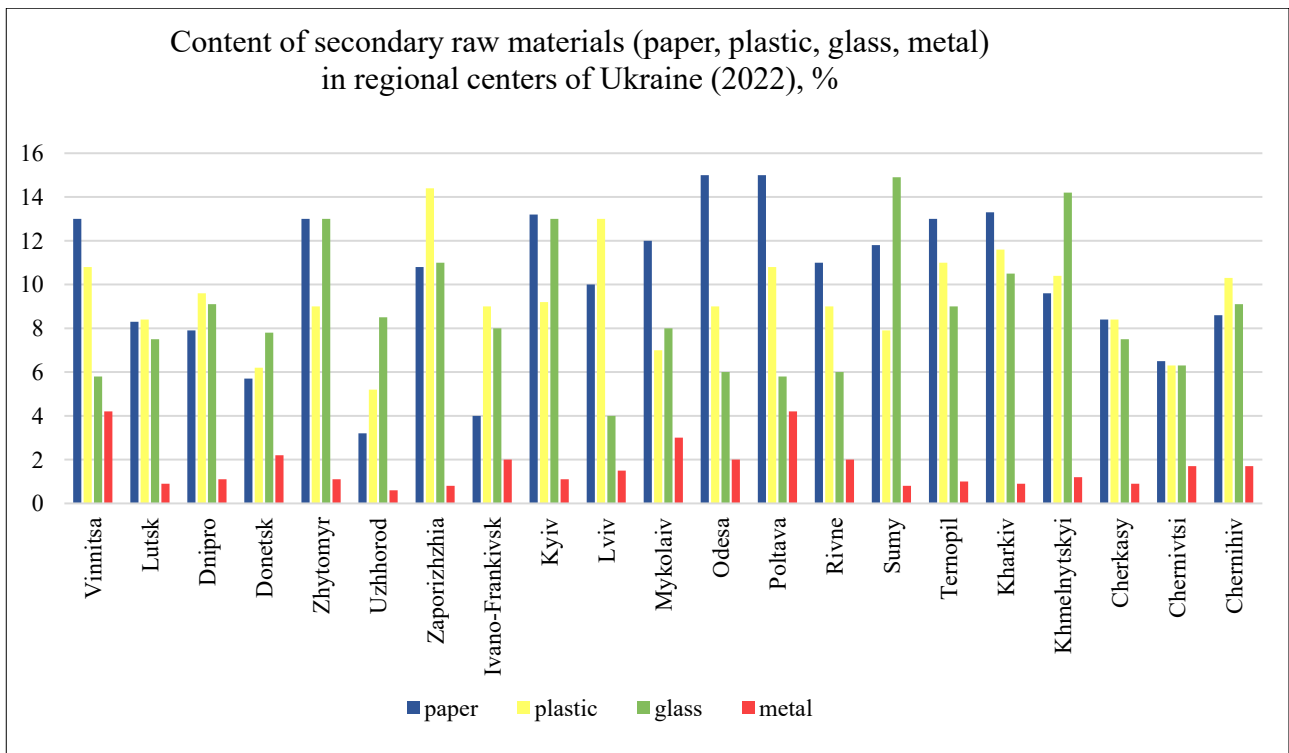


Fig. 1.2 – Content of secondary raw materials in oblast centers of Ukraine, %

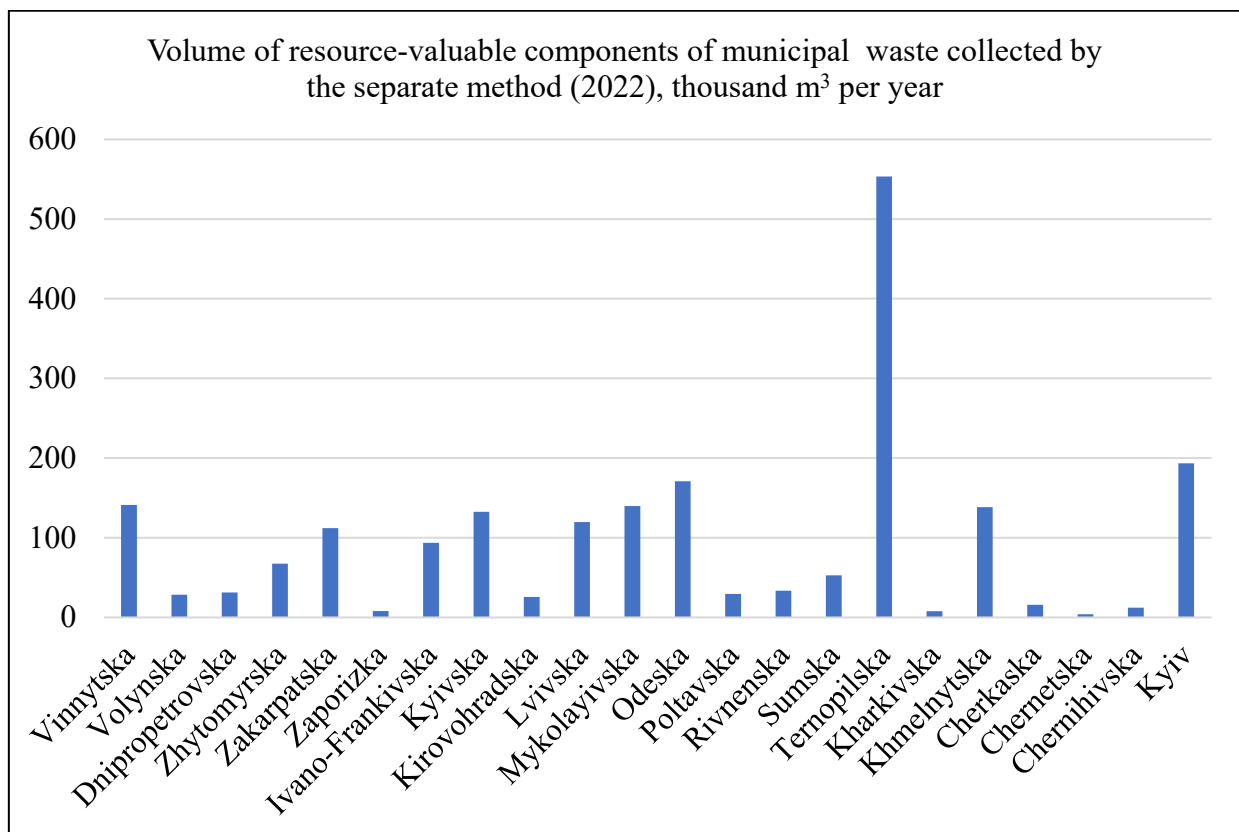


Fig. 1.3 – Volume of resource-valuable components of municipal waste, collected separately (2022), thousand m³

1.2 Oblast characteristics of the municipal waste management system in Ukraine

Before the full-scale invasion of the Russian Federation into Ukraine, the state of waste management in the oblasts of Ukraine was characterized by an annual increase in the volume of waste generation, a significant amount of which was buried in landfills or dumps; low effectiveness of measures to prevent their formation; low level of waste processing (including recovery operations according to the Law “On Waste Management”); insufficient coverage of the population with waste removal services, as well as implementation and maintenance of the separate waste collection system. In Ukraine, for the most part, their removal from the territory of populated areas with subsequent burial in landfills or dumps continues to prevail, which leads to the deterioration of the natural environment.

Volynska oblast

In the oblast, there is a problem of municipal waste management, which accumulates on the territory of the oblast for \approx 1 million tons per year. The collection of MW is not systematic and organized. All MW are collected in one container and the main method of their disposal is disposal in landfills. There is no effective system for collecting and forming certain types of waste as secondary raw materials, as a result of which a significant amount of valuable materials (paper, plastic, glass, metal) end up in landfills and dumps.

The system of separate waste collection is implemented gradually based on a PET bottle. In 2022, the number of settlements where the separate collection of waste has been introduced increased (cities: Lutsk, Kovel, Volodymyr-Volynskyi, Novovolynsk, Horokhiv, Kiverts; townships: Shatsk, Lokachi, Turiysk, Olyka and individual settlements of the oblast). The first waste management centre for city residents was also set up in Lutsk, where 14 fractions of waste can be sorted (plastic, glass, tetra pack, electrical and electronic equipment, etc.).

There are 254 active waste disposal sites (WDS) in the oblast (11 waste disposal sites and 243 landfills). Of the 11 active landfills, 4 are overloaded (Lutsk, Shatsk, Lyubeshiv, Lokachi), 2 are filled from 80 to 99% (Novovolynsk and Kovel), 5 are available for a certain period (from 2 up to 5 years) to ensure the need of their localities for the placement of residential buildings [4].

In cities of oblast importance and district centres, points for receiving secondary raw materials operate. Lutsk Cardboard and Paper Factory LLC carries out waste paper recycling activity in the oblast, the amount of waste paper recycled at it in 2022 is 59,434 tons [5].

See Annex A for business entities that collect and store waste as secondary raw materials.

Dnipropetrovska oblast

In 2022, the Dnipropetrovska oblast will have 131 WDS category C (dangerous), 15 WDS category B (moderately dangerous) and 5 WDS category A (slightly dangerous) in operation. There are also 30 acceptance/collection points for used tires (29 in the Kryvorizkyi district, and 1 in Kamiansky district).

See Annex B for business entities that collect and store waste as secondary raw materials.

According to the Department of Housing and Communal Economy and Construction of the Oblast Government of Dnipropetrovska Oblast, Kryvyi Rih has 21 collection points for municipal hazardous waste, namely waste power elements (batteries) and mercury lamps. The total amount of hazardous waste collected by reception points is 0.2 tons [6].

Donetska oblast

In 2021, there was a slight decrease in the amount of generated waste, and the corresponding data for 2022 show a sharp decline, which is primarily due to the full-scale invasion of the Russian Federation and active hostilities in the Donetska oblast. In 2021, 702.48 thousand tons of municipal waste were collected. In 2022, 158.269 thousand tons of municipal waste were collected. The data are given without taking into account the territories of the Donetska oblast temporarily occupied by

the Russian Federation and part of the territories where active hostilities are and/or were being conducted.

The main way of MW management remains their disposal at MW landfills and dumps, of which there are 9 in the oblast, with a total area of 138.2 hectares. 236.66 tons (0.15%) of the total amount of collected waste was treated. Waste separation is carried out on two sorting lines in Kramatorsk – 24.67 tons of secondary raw materials.

In total, in 2022, 841.55 m³ of recyclables were collected separately, mainly glass and polymers. Containers for separate collection of solid waste are installed in 24 settlements.

There are 114 WDS in the oblast, of which 89 are C category (dangerous), 16 are B category (moderately dangerous), 7 are D category (extremely dangerous), and 2 are A category (slightly dangerous) [7].

See Annex C for business entities collecting and storing waste as secondary raw materials.

Zhytomyrska oblast

In the oblast, municipal waste is mainly disposed of (buried) in waste landfills or dumps. As of January 1, 2023, there are 830 WDS (6 landfill sites and 824 dumps), with a total area of 705.2 hectares. According to the criterion of environmental safety, the majority of the C category is dangerous.

In the territories of villages councils, there are no specialized enterprises in the field of waste management. The system of sanitary cleaning of settlements is fragmented and heterogeneous, which does not provide sufficient control over the operation of the MW management. The main mass of waste as secondary raw materials consists of containers/packaging from food products and food waste [8].

Separate collection of solid waste has been implemented in 9 cities, 3 townships and 6 villages. Table 1.1 shows the volume of resource-valuable components of MW collected by the separate method.

Table 1.1 – The volume of resource-value components of MW collected by the separate method in the Zhytomyrska oblast

| No. | Settlement | Volume of resource valuable components | List of MW components, which are collected separately |
|------|--|--|---|
| 1 | Baranivka | – | Plastic, glass |
| 2 | Berdychiv | 2.100 | Plastic, glass, paper, tetra pack, batteries |
| 3 | Korostyshiv | 1.021 | Plastic, glass, black metal, textile, paper, tetra pack |
| 4 | Radomyshl | 0.080 | Glass, PET bottle |
| 5 | Natalivka village | – | Plastic |
| 6-12 | Olevsk and 6 settlements of the district | 20.500 | Plastic, glass, paper, black metal |
| 13 | Oleksandrivka village | – | Plastic |
| 14 | Korosten | 1.670 | Plastic, glass, paper, batteries |
| 15 | Zhytomyr | 12.10 | Paper, polymer, glass, batteries |
| 16 | Zviagel | 5.100 | Plastic, glass, batteries |
| 17 | Chernyakhiv township | 0.900 | Plastic |
| 18 | Popilna township | 0.400 | Plastic |
| 19 | Malyn | 6.000 | Plastic, film, glass, paper, metal |
| 20 | Ruzhyn township | 0.344 | Plastic, glass |

4 enterprises in the oblast are engaged in the processing and utilization of waste of the IIIrd class of danger (polyethylene and polypropylene production) with a total capacity of 1.5 thousand tons/year

and waste of the IVth class of danger (paper and cardboard waste) with a capacity of 154.5 thousand tons/year [9].

See Annex D for business entities that collect and store waste as secondary raw materials.

Transcarpathian oblast

According to the data of the Main Department of Statistics, 145,000 tons of waste of I-IV hazard class was generated in Transcarpathian oblast in 2020, of which 133,800 tons of MW was generated.

There are no facilities for MW treatment. Separate collection of solid waste, in particular glass, plastic, waste paper and scrap metal, has been introduced in 193 settlements of the oblast (cities: Uzhhorod, Perechyn, Vynohradiv, Irshava, Rakhiv; V. Bychkiv township, and other territorial communities).

51 business entities in the oblast collect and store waste as secondary raw materials (see Annex E). Production facilities for recycling PET containers and other polymer waste operate at the following enterprises: KP “Vody Khustshchyny”, PP “Brenner” (Khust), KP “Vtorma”, LLC “Karpati LTD” (Mukachevo, PP “Plastor“ (Svoboda village of Beregovo District), TDV ”Vinohradiv Factory of Plastic Sanitary Ware” (Vynohradiv), recycling station “Proektna, 3” (Uzhhorod). Technological equipment for the utilisation of hazardous waste is available at “New Ecosvit” LLC (Uzhhorod, location: Uzhhorodsky district, Kinchesh village, “Bazy” microdistrict).

The construction of a plant for sorting and mechanical processing of municipal waste with a capacity of 20-30 thousand tons/year continues in Yanoshi village, Berehiv district, which will make it possible to process 100% of the total amount of solid waste generated in the district.

According to the data of the WDS register, as of January 1, 2023, there are 62 certified landfills in the Transcarpathian oblast, of which 59 are disposal sites for municipal waste, 2 for wood waste (wood sawdust) and 1 for artificial fur waste.

Due to the mountainous nature, and high population density, the neighbourhood with 4 EU countries, the only water basin of the Tisza River, the protected area, and several settlements in the oblast are deprived of the opportunity to choose land plots for landfills. This applies to the following cities: Rakhiv, Tyachiv, Vynohradiv, Berehovo, Perechyn, Velikiy Bereznyi township, and rural settlements in mountainous oblasts [10; 11].

Zaporizka oblast

Zaporizka oblast belongs to the oblasts where a significant number of heavy industry enterprises are concentrated: metallurgy and metal processing products occupy 45% of the total amount of products produced in the oblast, 20% for production and distribution of electricity, gas, heat, water. The scale of resource use and energy-raw material specialization of the oblast's economy as a whole contribute to the significant formation and accumulation of production and consumption waste.

In 2022, 1,724,500 tons of I-IV hazardous classes of waste were generated, of which 553,728,000 tons were disposed of. There are 95 operating WDS in the oblast: 83 – category C (dangerous), 7 – category B (moderately dangerous), and 5 – category A (low risk).

A significant part of the composition of MW is recycled materials – plastic, paper and cardboard, scrap metal and others. See Annex F for business entities that collect waste as secondary raw materials [12; 13].

Ivano-Frankivska oblast

According to the data of the Main Department of Statistics in the Ivano-Frankivsk oblast, in 2022, 650,021 thousand tons of waste of I-IV hazard classes were generated in the oblast. The largest amount of waste of hazard classes I-IV was generated in the Kalush district – 451,020.0 tons, and the least in the Kosiv district – 152.3 tons. 453,023 thousand tons were disposed of.

There are 44 WDS in the oblast: 22 – category C (dangerous), 14 – category B (moderately dangerous), and 8 – category A (lowly dangerous). The total area under the WDS is 87.38 hectares.

See Annex G for business entities that collect and store waste as secondary raw materials [14].

Kyivska oblast

During 2022, according to statistical data, 750,977 thousand tons of waste of I-IV hazard classes were generated in the Kyivska oblast. The volume of incinerated waste amounted to 8.3 thousand tons, disposed of – 3.4 thousand tons.

The main direction of work in the field of waste management remains the solution of the issue of ensuring the complete collection of hazardous waste to transfer it to specialized enterprises for further disposal and processing. More than 20 enterprises in the oblast carry out relevant operations in the field of hazardous waste management. Among them are MPP “RADA”, “KIVACH” LLC, “YURLYTSO” LLC, “ECO TERRA” LLC and others, which carry out collection, transportation, storage, disposal, utilization of used lamps and devices containing mercury, waste oil, waste alkaline and acid batteries, galvanic and thermal production waste, photochemical waste, etc.

The number of waste disposal sites on the territory of Kyivska oblast, included in the register of waste disposal sites, is 38 units, of which 26 are landfills for municipal waste, occupying an area of about 197,263 hectares. The average occupancy of landfills is 79%.

On the territory of the oblast in 2022, 58 business entities specializing in collecting and storing of the following types of secondary raw materials: broken glass, glass containers, waste paper, plastic, scrap ferrous and non-ferrous metals, and others were operated. In four communities of the oblast Boyarska, Buchanska, Bilotserkivska, and Slavutychska urban communities separate collection of hazardous waste as part of municipal solid waste from the population, namely: fluorescent lamps, batteries and accumulators, has been introduced [15].

See Annex H for business entities that collect and store waste as secondary raw materials.

Kirovohradska oblast

The amount of generated waste in the Kirovohradska oblast for 2022 is 461,000 tons. In the total amount of waste, the largest specific weight was municipal waste – 1.124 million m³ (buried – 0.722 million m³). Oleksandrivskyi, Kropyvnytskyi and Golovanivskyi districts generate the most waste. There are 402 landfills with a total area of 518.08 hectares in the territory of the oblast.

The project “Construction of a complex engineering structure with a biogas collection system of a solid municipal waste landfill for the production of electricity” was implemented on the territory of the waste disposal landfill in Kropyvnytskyi. The building is designed to generate 630 kW/h. Currently, the installation works day and night, which protects the landfill from spontaneous combustion and atmospheric pollution. Produced electricity enters the energy system of Ukraine at the “green” tariff. 3.809 million kW of electricity was produced in 2022.

The number of enterprises working in the field of waste management is 49, of which 41 are communal and 8 are private. On the territory of 19 territorial communities, separate collection or collection of useful components of waste (glass, paper, cardboard, plastic, PET containers) that are supplied to processing enterprises has been partially implemented.

At the expense of the investor LLC “EKOSTYLE”, a sorting line for the selection of secondary raw materials was installed on the territory of the landfill site of Kropyvnytskyi. According to the results of 2022, the amount of waste sent to sorting lines is 72,641 tons. The amount of sorted waste is 6,393 tons (or 8.8%), table 1.2 shows the distribution by fractions [16].

See Annex J for the business entities that collect and store waste as secondary raw materials.

Table 1.2 – Morphological composition of waste from the sorting line in Kropyvnytskyi

| | Aluminum cans | Paper | Metal cans | Polymers | Film | Glass breaker | Tetra pack |
|------------------------|----------------------|--------------|-------------------|-----------------|-------------|----------------------|-------------------|
| Amount in tones | 126.20 | 763.60 | 340.90 | 774.60 | 420.30 | 3077.60 | 767.10 |
| Amount in % | 0.17 | 1.05 | 0.47 | 1.07 | 0.29 | 4.24 | 1.06 |

Lvivska oblast

In 2021, enterprises and municipals generated 3,212.2 thousand tons of waste in the territory of Lvivska oblast. The main part of the generated waste (99.96% of the total volume) belongs to waste of the IV hazard class. In 2022, 529,937.21 tons of municipal waste were buried at 21 operating landfills (dumps) of the oblast. The total area of land occupied by landfills exceeds 152 hectares.

In 2022, a modern biogas plant was launched at the closed landfill in Velyki Hrybovychy. A composting station has been put into operation in Lviv today. Sorting into separate fractions and reducing the organic fraction in the composition of solid waste was identified as an important component of solid waste management. As a result of processing, organic fertilizer is produced – compost, which can be used for greening cities or in agriculture [17].

In the territory of the Lvivska oblast, separate collection of waste is partially carried out by installing containers in populated areas for collecting useful fractions of waste (plastic, glass, paper), located at container sites.

There are 10 business entities in the oblast that carry out activities in the field of hazardous waste management: LLC “NVP “Mast”, Joint Ukrainian-Bulgarian enterprise LLC “Ukra-ABV”, PE “Rial”, LLC “Lemberg Battery”, LLC “Zahid-Tekhnomedbud”, SE “Bodnarivka”, LKP “Zelenyi Lviv”, LLC “INSIMED”, LLC “NT-Exploreyshin”, PJSC “Ukrnafta”, LLC “Utilvtor-prom” oblast representative office [18].

Ecobus operates in Lviv, which accepts batteries and mercury-containing waste (lamps and thermometers) from the public.

Mykolaivska oblast

In the absence of statistical data on the main indicators of waste management of I-IV hazard classes in the Mykolaivska oblast for 2022, the following information is given for 2020.

According to the available statistical data in Mykolaiv and Mykolaivska oblast, the amount of waste generated in 2020 amounted to 2,502,059 tons of waste (IV hazard class – 2,313,120 tons (92%). The largest share of waste was generated in the Vitovsk district 82.35% of the total volume (2,060,411 tons) and in Mykolaiv 7.5% (188.565 thousand tons).

The average filling of landfills is 53%, including over 85% in cities of oblast importance. The number of overloaded waste landfills in the oblast is 3 units (1.1%) with a total area of 19.8 hectares: the Voznesensk, Pervomaisk, and Yuzhnoukrainsky urban landfills.

In 2020, there were 5 plants for the utilization (processing) of waste with a total capacity of 884.78 thousand t/year, and 3 for incineration of waste for thermal processing (635 t/year).

As of January 1, 2023, 8 enterprises have licenses from the Ministry of Environment of Ukraine to carry out operations in the field of hazardous waste management in the territory of Mykolaivska oblast: LLC “VIK OIL”; LLC “Yug-Spetservice”; LLC JV “NIBULON”; State enterprise “National Atomic Energy Generating Company Energoatom”; LLC “PROMWNAB-MYKOLAIV”; LLC PRISTA RECYCLING-Ukraine; LLC “POLEKOZAKHIST”, LLC “UKRAINIAN SCIENTIFIC ENVIRONMENTAL COMPANY”.

According to the results of 2022, according to the monitoring reports of local self-government bodies, 930.7 thousand m³ of municipal waste was collected, from which 139.6 thousand m³ of resource-valuable components were removed (waste paper, polymers (PET bottles), tetra pack packaging, plastic, polyethylene, metals, glass (glass, glass containers), rubber).

In the Mykolaivska oblast, a separate collection of solid waste has been implemented in 21 settlements. In the market of handling secondary raw materials, the vast majority of activities are carried out by private economic entities [19].

See Annex K for business entities that collect and store waste as secondary raw materials.

Odeska oblast

According to the Law of Ukraine from 03.03.2022 No. 2115-1X “On the protection of the interests of subjects submitting reports and other documents during the period of martial law or a state of war”, there is no information on the volume of waste generation of I-IV hazard classes for 2022.

In many cases, the lack of separate collection of waste makes MW equivalent to industrial in terms of nature and the consequences of impact on the environment and public health. The morphological composition of MW becomes more complex every year, including an increasing number of environmentally hazardous components and substances.

In 2021, 503.7 thousand tons of waste of the IV hazard class were generated, of which 45.59 thousand tons were disposed of and 45.5 thousand tons were burned.

In 2022, 625,489 thousand tons of mixed solid waste were generated. There are 64 enterprises in the Odesa oblast that carry out the removal of hazardous waste. A separate collection of solid waste has been introduced in 30 settlements in the oblast. The number of landfills is 628, with a total area of 1,046.32 hectares.

In general, in the Odeska oblast, facilities for the utilization and disposal of hazardous production and consumption waste have been created and are being operated. A total of 1 demercurization plant, located on the territory of LLC “Ukrekoprom”, and 5 complexes for the thermal disposal of hazardous waste (incinerators) are operated in the oblast: LLC “Green Port”, Izmail Sea Trade Port, LLC “Naukovo-production company “UKREKOPROM””, PE “Center for Environmental Safety”. LLC “UTILVTORPROM”, PE “CONCORD” and LLC “ECO-SERVICE” are engaged in the processing (utilization) of spent petroleum products (oils) on the territory of the oblast [20; 21].

Poltavska oblast

In Poltavaska Oblast in 2022, 40,535.8 thousand tons of waste was generated from the economic activities of enterprises organizations and municipals in the oblast that submitted reports, of which 40,517.4 thousand tons are of the IV hazard class.

In the oblast, secondary raw materials are used in the amount of regenerated raw materials for such types of waste as sunflower husks, secondary textile materials, spent steel ropes, overburden rocks, associated rocks for the construction of hydraulic structures, graphite-containing waste and others. According to the latest statistical data (as of September 30, 2020), there were 6 waste incineration plants for energy and 34 waste utilization (processing) plants operating in the oblast.

The landfill of municipal waste KATP 1628 of the Poltava City Council, which is located in the area of the villages of Tryby and Makuhivka, is more than 100% full. There are 112 active waste disposal sites, of which 108 are category C. In addition, 20 WDS category C are closed, including preserved WDS [22].

The separate collection of waste in Poltava is at the stage of implementation. Poltava KATP-1628 and at the expense of the city budget converted about 300 containers for separate waste collection and placed them at separate container sites [44].

NGO “Ekoltava” has created an interactive map on which 18 points of reception of raw materials are marked, which accept glass and scrap glass, waste paper, scrap metal, metal cans, polyethylene, PET bottles, and plastic. Ecobus also operates in the city, which accepts hazardous waste from the population, namely batteries, accumulators, thermometers, and fluorescent lamps [46].

See Annex L for business entities that collect and store waste as secondary raw materials

Rivnenska oblast

In 2022, 1,211.7 thousand m³ of municipal waste was generated in the settlements of the Rivnenska oblast, amounting to 201.8 thousand tons, of which 1,177.8 thousand m³ were buried in landfills and dumps (97.2% of the total volume of collected solid waste); sent to recycling points – 33.4 thousand m³ (2.76% of the total volume of collected solid waste), sent to composting sites – 0.5 thousand m³ (0.04% of the total volume of collected solid waste).

As of January 1, 2023, 346 of the 364 landfills and waste disposal sites certified and entered into the WDS register are operating in the oblast (2 landfills and 344 waste disposal sites). Separate collection of solid waste by container method has been introduced in 93 settlements of the oblast. The components of MW that are collected separately are PET bottles and other products made of polyethylene, glass, and paper. The processing of secondary raw materials (paper) and the production

of paper products from them in the oblast is carried out by LLP “Papirinvest” from Mokvin village of Berezniv district. In 2022, the company processed 4,334,634 tons of waste paper [23].

See Annex M for the business entities that collect and storage waste as secondary raw materials.

Sumska oblast

As of 01.01.2023, 424,344.674 tons of waste hazard classes I-IV was generated in the Sumska oblast, of which 59.731 thousand tons were disposed of. A significant contribution to the pollution of the natural environment is made by MW. This is the largest group of consumer waste in terms of accumulation, which differs from all other waste in terms of its origin and composition. To date, there are 165 landfills and dumps operating in the oblast, of which 19 landfills and 61 dumps are certified. There are 263 waste disposal sites in the Sumska oblast, of which: 1 - belongs to Category D, 138 – to Category C, 113 – to Category B; and 11 – to Category A.

In 2022, more than 784.372 thousand m³ of solid waste or 155.82 thousand tons of solid waste was formed in the oblast, buried in 80 landfills and dumps, with a total area of 146.99 hectares.

On the territory of the Sumska oblast, 29.7% of the population is covered by separate collections (the highest figure is in Sumy – 80.4%). The main components of MW, which are collected separately, are glass, PET bottles and paper [24].

See Annex N for the business entities that collect and harvest waste as secondary raw materials.

Ternopilska oblast

In 2022, 315.6 thousand tons of waste were generated in the Ternopilska oblast, 81.0 thousand tons were disposed of, 270.8 thousand tons were disposed of, and 47.6 thousand tons were removed to specially designated places and facilities, accumulated as of January 1, 2023 – 11.9 thousand tons.

The vast majority of waste management facilities in the oblast have for the most part exhausted their resources, and the landfills themselves have become a factor of anthropogenic load on the environment. There are active landfills in the cities of Buchach, Zalishchyki, Kremenets, Lanivtsi, Monastirska, Pochaiv, Terebovlia, Ternopil, and Khorostkiv, as well as in the village of Bilokrynytsia of the Kremenets district.

The positive experience of sorting and processing MW is implemented in the Terebovlyan district. LLP “EkoBalanceTer” has implemented a system of MW separate collection, sorting and transportation from residential areas to a certified landfill. In the oblast, there is a waste sorting complex in the village of Plebanivka, Terebovlyan district, with a capacity of 50,000 tons/year. For processing at this complex, a private investor collects municipal waste from the territory of several settlements of the Ternopil district.

Services in the field of waste management are provided by 31 enterprises, of which 21 are communally owned, and 10 are privately owned. As of 2019, a system of separate collection of solid waste (PET bottle, glass, waste paper) was implemented in 198 settlements (18.7%) [45].

See Annex P for the business entities that collect and harvest waste as secondary raw materials [25].

Kharkivska oblast

In 2022, 142.057 tons of waste of I-IV hazard classes were generated in the Kharkivska oblast. 23,359,000 tons of waste were disposed of (16.44% of the total amount of generated waste). 13,875,000 tons of waste were burned, including 1.188 tons for the purpose of heat treatment. The amount of waste removed for 2022 in the oblast is 27,868,000 tons. There are 79 waste disposal sites on the territory of the Kharkivska oblast.

In connection with the military operations, the implementation of the construction project of a complex for MW processing with a system for the collection, and disposal of landfill gas and the production of electricity in the city of Dergachi, Kharkivska oblast (with a capacity of 30-40 thousand tons/year) has not yet been completed.

On the territory of the Kharkivska oblast, the following economic entities are registered, which have the right to carry out economic activities in the management of hazardous waste: LLC “HADO-

TECHNOLOGY”, LLC “EKOTEK”, LLC “KHARKIV-ECO”, LLC NVP “KOR-MET”, LLC “JUPITER ECO”, LLC “ECOSPHERA”, LLC “NOVINTEK”, LLC “NVO ECOTECHNOLOGY”.

See Annex R for the business entities that collect and store waste as secondary raw materials [26].

Khmelnyska oblast

In connection with the maintenance of martial law on the territory of Ukraine, there is no information for 2021, therefore, data on waste of IV hazard class is provided as of 01.01.2020 – 9,480,145.181 tons of waste (of which 9,322,980.272 tons are municipal waste).

According to territorial communities, there are 475 landfills and dumps in the oblast (an area of 430.9223 hectares is allocated for them), including 21 city (district) landfills for municipal waste, 454 (including 14 village and 440 rural landfills).

Waste management in Khmelnytska oblast is dominated by disposal, and the share of recycling remains insignificant. The collection of waste is carried out using a container system. The introduction of a separate collection of municipal waste continues.

A separate collection of waste in the oblast has been implemented in 6 cities: Khmelnytskyi, Kamianets-Podilskyi, Slavuta, Starokostyantyniv, Netishyn and Volochysk. In September 2020, the Waste Management Center was opened on the territory of the Khmelnytskyi MW landfill, which accepts construction waste, green waste, furniture, municipal appliances, PET, glass, paper, polyethylene, tetra pack packaging, hazardous waste, mixed waste, metal, clothes. The second Waste Management Center was opened in October 2023 in the Rakove microdistrict (Khmelnyskyi).

The construction of the main hangar and installation of the sorting line itself in Volochysk (design capacity – 50,000 t/year) was completed, and its technological start-up was carried out. It is planned to build a complex for the processing of solid waste on the territory of the Oleshyn Territorial Community (by the method of mechanical sorting and bio-thermal composting) with a capacity of 100,000 tons/year in Khmelnytskyi. The complex includes a waste sorting station with sorting equipment and an area for bio-waste composting [27].

See Annex S for the business entities that collect and store waste as secondary raw materials [28].

Cherkaska oblast

In the Cherkaska oblast in 2022, 1,330.031 thousand tons of waste of I-IV hazard classes were generated in the oblast, of which 1,259.075 thousand tons were from the economic activity of enterprises and organizations and 70.956 thousand tons of waste from municipals. Of the total amount of generated waste, 0.06% is waste of I-III hazard classes, and 99.94% is waste of IV hazard class.

During the year, economic entities of the oblast disposed of 791.071 thousand tons of waste (59%) and 362.968 thousand tons of waste were transferred to other enterprises for utilization or disposal. On the territory of the oblast, there are 477 municipal waste disposal sites (waste landfills and dumps), of which 271 are operating landfills of category C (hazardous).

The use of waste as a secondary raw material is one of the main ways of solving the problem of reducing the ecological load on the oblast's environment. Work continues in the oblast on the formation and maintenance of registers: objects of waste generation, treatment and utilization; waste disposal sites.

PJSC “Cherkasivtorresursy” sorts by color, grinds, washes, dries and packs in soft containers for further transfer to other enterprises for disposal. PJSC “Cherkasivtorresursy” processes high-pressure polyethylene and PET bottles (4,209.96 t in 2022), and LLC “Ergopak” processes polymeric synthetic waste (1,807.0 t in 2022).

In Kaniv there are 34 containers for the collection of PET and cardboard at designated places (sites) for the collection of waste. 130 containers for collecting PET bottles have been installed in Smila. 4 containers for plastic and paper have been installed in Vatutine. In Uman, 114 containers

have been installed for collecting PET bottles, and 1 for glass. 50 containers for collecting glass and PET bottles have been installed in Zolotonosha. Gradual separate collection of secondary waste from the population is implemented in 98 settlements of 40 territorial communities of the Cherkaska oblast.

See Annex T for the business entities that collect and harvest waste as secondary raw materials [29; 30].

Chernivetska oblast

In the Chernivetska oblast, an average of 935.7 thousand m³ of solid waste is generated annually, which is disposed of in authorized landfills and dumps. During 2022, 155.775 thousand tons of waste of I-IV hazard classes were generated in the oblast, of which 130.065 thousand tons are municipal waste. There are 176 passported WDS. The total area of landfill sites is 316.6 hectares.

At the enterprises of the oblast, there are 50 plants for incineration of waste and 3 enterprises: 4 plants for utilization and processing of waste with a total capacity of 28.7 thousand tons/year and 2.3 thousand tons/year, respectively. In 2022, 10,965.3 tons of waste of hazard classes I-IV were disposed of.

There are business entities in the oblast that carry out activities in the field of hazardous waste management in the territory of the oblast: MPPP “Ekolog Bukovyna”, LLC “Vtorprom”, LLC “Ukrresursy-2011”, PE “Yureko” [31].

See Annex U for the business entities that collect and store waste as secondary raw materials.

Chernihivska oblast

Taking into account natural and economic factors, the main component in the total mass of waste generated in the oblast is occupied by municipal waste and industrial waste of the IV hazard class, which are mainly disposed of in landfills, dumps, accumulators, etc. In 2022, 245,800 tons of hazard class I-IV waste was generated in the oblast, of which 47,000 tons were used (utilized).

As of 2023, there are 552 WDS (1,912.8 ha) in the oblast, including 11 landfills and 502 dumps for municipal waste.

Due to the lack of waste processing and sorting complexes on the territory of the oblast, a significant part of the waste, which has resource value and is subject to processing and disposal, ends up in landfills and dumps. The main mass of waste, as secondary raw materials, consists of containers (packaging) from food products and consumer products. In Chernihivska Oblast, a system of separate collection of solid waste for further processing of useful components has been partially implemented in 19 settlements.

See Annex V for the business entities that collect and store waste as secondary raw materials [32; 33].

1.3 Characteristics of the municipal waste management system in Uzhhorod

The municipal waste (MW) management system in Uzhhorod is a set of measures for the collection, transportation and treatment (recovery/removal) of MW, which includes the activities of MW disposal facilities (waste disposal sites) and economic entities that carry out separate waste management operations (enterprises for waste removal and disposal) within the city.

It is characterized by a large generation of waste, its accumulation on the territory of the city, the use of outdated technologies and infrastructure of waste management or its absence.

One of the problems with the construction of new landfill sites and waste treatment facilities in Transcarpathian oblast is the scarcity of land. In a mountainous area, it is almost impossible to find a plot of land that would meet the state construction and sanitary standards of Ukraine. This creates difficulties for the optimal organization of the waste management system in the oblast center.

As of 2023, in Uzhhorod, the system of solid waste management from all generators (municipals and from other sources, if this waste is similar in composition to municipal waste) is as follows:

- collection of municipal waste - a separate collection of individual components of waste is partially carried out, with the aim of their further treatment (reuse/recycling/restoration);
- transportation of municipal waste is carried out - mixed to the waste disposal site (WDS), separately collected waste components - to the relevant business entities;
- municipal waste is treated by removing mixed waste to a waste landfill and sorting separately collected waste components (preparation process for further treatment), recovery of waste does not take place.

On the territory of Uzhhorod, there is no system of communal waste collection points, which are provided for by the National Waste Management Strategy until 2030.

The existing system of MW management in Uzhhorod includes their initial accumulation in waste collection containers for mixed and separate collection of MW (PET bottle, glass, paper), located at container sites, and collection and removal by specially equipped vehicles (garbage trucks) to the city landfill. For waste collection in those areas of the city, where the possibility of passage of garbage transport and its manoeuvring is limited, the containerless method is used by using bags (black or with appropriate marking).

In Uzhhorod, the storage of secondary raw materials is practiced through storage acceptance points and other storage networks that accept: waste paper (cardboard, paper), glass (glass and scrap glass), PTEF bottles, some types of polymer film, metals (ferrous and non-ferrous, aluminium cans) etc. Secondary raw materials are collected and distributed to the population, trade establishments (wholesale bases, markets, department stores, department stores, megamarkets, supermarkets, shops, kiosks, etc.), and other organizations and enterprises. After sorting at collection points, the recyclables are transported by specially equipped transport to a specialized enterprise for sale.

In the Environmental Passport of the Transcarpathian oblast as of January 1, 2021, it is indicated that a separate collection of solid waste (glass, plastic, waste paper and scrap metal) has been introduced in Uzhhorod. The city operates a recycling station "Proektna, 3". Resource-valuable components of MW are transferred to specialized enterprises (there are 51 economic entities in the oblast, 11 in Uzhhorod). The collected waste is mainly sent for disposal outside the oblast.

The separate collection of resource-valuable components of solid waste (recyclable raw materials) in Uzhhorod is carried out at the local level and includes:

- 1) container fleet for resource-valuable components of the KMP type of classes 1-4 according to DSTU 8476:2015 (with a capacity of up to 1.3 m³) (for collecting waste paper (cardboard, paper), glass (glassware, broken glass), PTEF bottles);
- 2) a system of collection points for secondary raw materials (for the collection of the main types of secondary raw materials, including those collected from recycling: waste paper (cardboard, paper), glass (glass, broken glass), PETF bottles, some types of polymer film, metals (ferrous and non-ferrous), textiles, etc.) (See Annex E for a list of business entities that collect and process waste as secondary raw materials in the territory of the Transcarpathian oblast).

On the territory of Uzhhorod, secondary raw materials come from various sources, but more than 80% are given to collection points directly by the population. In the absence of collection points in certain areas of the city, secondary raw materials are mainly placed in garbage containers, including those for mixed waste. Practically the entire territory of the residential development of the city is covered by spontaneous groups or individual collectors of secondary raw materials, which take it from the places of initial accumulation (in containers, etc.) and hand it over to collection reception points, which are located unevenly on the territory of the city, which is inconvenient for local residents and spontaneous collectors, as they are forced to transport recycled materials. There are also illegal points and vendors.

Containers for the separate collection of recyclable materials are installed in most of the residential buildings of the city, but the quality of the separate collection is unsatisfactory, especially in the Euro-containers for recyclable materials. In most cases, these containers contain mixed MW, as well as in containers of unseparated residue, which are standing next to each other, which not only leads to malfunctions and breakage of the container but also reduces the quality of the recycled

material. Recyclable materials are better collected in mesh (transparent) containers of various designs, which differ significantly from European standards in appearance.

Part of the secondary raw materials is handed over to the population at storage reception points, and part is selected by spontaneous collectors from containers, in the mixed waste materials from the residential sector (apartment buildings) there are a lot of secondary raw materials (cardboard, paper, polymers, metal, glass, leather, rubber, textiles, wood) and organic components of waste (bio-waste). In containers for mixed waste, the wet recyclables are contaminated and of poor quality, and in containers for separate collection, the recyclables are mostly dry, clean and of good quality. Available volumes of higher quality collected secondary raw materials from the administrative and commercial sector of waste generation, which are more suitable for manual sorting and selection of secondary raw materials and can be taken to sorting lines and processed together with separately collected secondary raw materials.

In general, the waste management system in Ukraine is characterized by the following trends: accumulation of waste in both the industrial and municipal sectors, which negatively affects the state of the environment and people's health; low level of processing and recycling of waste materials; preferential placement of waste in landfills and dumps; improper level of use of waste as secondary raw materials due to the imperfection of the organizational and economic foundations of their involvement in production; ineffectiveness of implemented economic tools in the field of waste management.

CHAPTER II. LEGISLATIVE REQUIREMENTS IN THE SECONDARY RAW MATERIALS MARKET

The analysis of the recycling market is based on the provisions, their updates and modifications of the following European directives:

- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives;
- Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste;
- Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC;
- Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control);
- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment;
- Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment;
- European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste;
- Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE);

and national documents:

- Law of Ukraine “On Waste Management” (from June 20, 2022);
- Law of Ukraine “On Environmental Protection” (from June 25, 1991, with subsequent amendments);
- Law of Ukraine “On Local Self-Government in Ukraine” (from May 21, 1997, with subsequent amendments);
- Law of Ukraine “On Housing and Communal Services” (from November 9, 2017, with subsequent amendments);
- Law of Ukraine “On Improvement of Settlements” (from September 6, 2005, with subsequent amendments);
- Law of Ukraine “On Environmental Impact Assessment” (from May 23, 2017);
- Law of Ukraine “On Strategic Environmental Assessment” (from March 20, 2018);
- National Waste Management Strategy in Ukraine until 2030 (Order of the Cabinet of Ministers of Ukraine from November 8, 2017 No. 820);
- National Waste Management Plan until 2030 (Order of the Cabinet of Ministers of Ukraine from February 20, 2019 No. 117).

Currently, a reform in the field of waste management is underway in Ukraine, the goal of which is to create an environmentally safe waste management system based on the principles of a closed-loop economy and to ensure the transition to modern advanced practices of its implementation.

In particular, the reform envisages bringing Ukrainian legislation into line with the requirements of EU legislation in the field of waste management and creating favorable conditions for attracting investments necessary for the construction of modern infrastructure facilities for waste collection and processing in Ukraine.

National Waste Management Strategy in Ukraine until 2030 aims to implement a systematic approach to waste management at the state and oblast levels, to reduce the volume of waste generation by increasing the volume of its treatment and reuse. The National Strategy is a document that initiated the reform of waste management and includes several measures: starting with the preparation and adoption of relevant legislation, the introduction of extended producer responsibility systems for

certain types of waste, the introduction of technical regulations on waste management, and ending with the development of oblast waste management and construction plans necessary infrastructure [34].

In July 2023, the Law “On Waste Management” from June 20, 2022 No. 2320-IX entered into force, which provides for the introduction of effective mechanisms in the field of waste management. The law is based on the principles and best practices of European legislation. A hierarchy of waste management is being implemented, the priority directions of which are prevention of waste generation, its reuse and recovery (recycling), and only then - removal, including landfilling of waste. It provides for the gradual creation of modern infrastructure and waste collection and treatment facilities. Improvement of waste management processes, including the licensing and permit system, and information support in the field of waste management. It was developed following the requirements of Directive 2008/98/EC on waste and Council Directive 1999/31/EC on the landfill of waste [35].

The project “On Packaging and Packaging Waste” was also developed to determine the legal, economic and organizational principles in the field of packaging and packaging waste management to ensure the reduction of their negative impact on human health and the environment, establishing measures aimed at creating a system of collection and recycling of packaging waste to reduce the final removal of such waste to landfills and promote the transition to a closed cycle economy [36].

In September 2023, the Procedure for determining economic entities responsible for municipal waste was approved, which establishes the procedure and mechanism for determining economic entities that carry out the recovery and/or removal of municipal waste, taking into account the rules of the improvement of the settlement, oblast and local waste management plans on the territory of the territorial community according to the territorial principle and according to the types of municipal waste.

A strategic document in the field of waste management is also the Law “On the Basic Principles (Strategy) of the State Environmental Policy of Ukraine for the Period Until 2030”. The goal of the state environmental policy is to achieve a good state of the environment by introducing an ecosystem approach to all areas of socio-economic development of Ukraine in order to ensure the constitutional right of every citizen of Ukraine to a clean and safe environment, the introduction of balanced nature management and the preservation and restoration of natural ecosystems.

Table 2.1 shows the comparison of European and national legislation in the field of waste management.

Table 2.1 – Comparison of European and national legislation in the field of waste management

| EU Directive | Laws of Ukraine, normative legal acts, the content of which reflects the provisions of the EU Directives |
|--|---|
| Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives | <ul style="list-style-type: none"> - Law of Ukraine “On Waste Management”. No. 2320-IX (effective from 09/09/2023) - Spent petroleum products: - Resolution of the Cabinet of Ministers of Ukraine from December 17, 2012 No. 1221 “Some issues of collection, transportation, storage, treatment (processing), disposal/utilizations and/or disposal of used lubricants (oils)” (title in the version of Resolution of the Cabinet of Ministers of Ukraine No. 1198 from November 25, 2015) |
| Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste | <ul style="list-style-type: none"> - Order of the Minregion from December 1, 2010 No. 435 “On Approval of the Rules for the Operation of Municipal Waste Landfills” - Order of the Minregion from November 30, 2006 |

| EU Directive | Laws of Ukraine, normative legal acts, the content of which reflects the provisions of the EU Directives |
|--|---|
| | <p>No. 396 “On Approval of the Methodology for the Implementation of two-stage Transportation of Solid Municipal Waste”</p> <ul style="list-style-type: none"> - Order of the Minregion from August 1, 2011 No. 133 “On Approval of the Methodology for the Separate Collection of Municipal Waste” |
| Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) | Missing |
| European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste | <p>Missing</p> <ul style="list-style-type: none"> - The Law of Ukraine “On Limiting the Circulation of Plastic Bags in the Territory of Ukraine” (from June 1, 2021) - Draft Law No. 10066-2 “On Packaging and Packaging Waste” |
| Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) | <p>Missing</p> <ul style="list-style-type: none"> - Order of the Minregion from 22.01.2013 No. 15 “On the Approval of Methodological Recommendations for the Collection of Waste Electrical and Electronic Equipment that is part of Municipal Waste” is of a recommendatory nature |
| Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC | <ul style="list-style-type: none"> - Law of Ukraine “On Chemical Current Sources”. This law does not apply to all types of batteries and accumulators. Currently, chemical sources of current are removed from the scope of regulation of the Law of Ukraine “On Waste”. - Order of the Ministry of Industry of Ukraine, the Ministry of Economy of Ukraine, the Ministry of Environmental Protection and Nuclear Safety of Ukraine No. 223/154/165 from 31.12.96 “On Approval of the Regulation on the Procedure for Collecting and Processing used Lead-acid Batteries” |
| Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles | Law of Ukraine “On Disposal of Vehicles” (from July 4, 2013, with subsequent amendments) |
| Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) | Missing |
| Directive 2011/65/EU of the European Parliament and of the Council of 8 June | <ul style="list-style-type: none"> - Resolution of the CMU from March 10, 2017 No. 139 “On Approval of the Technical Regulation on |

| EU Directive | Laws of Ukraine, normative legal acts, the content of which reflects the provisions of the EU Directives |
|--|--|
| 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment | the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment” |
| Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification) | Law of Ukraine “On Environmental Impact Assessment” (from May 23, 2017) |
| Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment | Law of Ukraine “On Strategic Environmental Assessment” (from March 20, 2018) |

Today, the legislative and legal framework of Ukraine regarding waste management is undergoing significant changes and has a sufficiently extensive number of legislative documents of various levels and by-laws, each of which regulates certain issues in the field of waste management. The framework law “On Waste Management” is the foundation on which the reform will be built. It foresees the following changes in waste management:

- new valid permit system;
- decentralization of waste management;
- multi-level planning;
- infrastructure development;
- European principles – hierarchy of waste management, extended producer responsibility, “polluter pays”.

The Framework Law will not be effective without further development of sectoral legislation. It is the sectoral draft laws that are intended to give rise to the system of extended producer responsibility (EPR), which has been working successfully in Europe for a long time. The projects of the Laws “On Packaging and Packaging Waste”, and “On Waste of Electrical and Electronic Equipment” have already been developed. The draft Law “On Packaging and Packaging Waste” is an important component of the large-scale reform of waste management. It will introduce the EPR system in Ukraine when the product manufacturer will be obliged to ensure the collection and disposal of the packaging that he released on the market together with the goods. For effective waste management both at the national and oblast levels, an information system should be developed with convenient access to data on licenses, permits, location of landfills and dumps, and up-to-date information on polluters and processing facilities.

CHAPTER III. DEVELOPMENT TRENDS OF THE SECONDARY RAW MATERIALS MARKET

Today, a large part of secondary raw materials ends up in dumps or municipal waste landfills. The use of the most resource-valuable waste from the remains of consumer products is insignificant and is restrained due to the irregularity of their collection and storage. Enterprises that operated on the waste treatment market in the oblasts of Ukraine in 2014-2022 were of private, communal and mixed ownership. In particular, in 2021, 1,196 enterprises operated in the field of municipal waste management in Ukraine, among which 79.3% were municipal enterprises, 19.3% were private enterprises, and 0.8% were enterprises of mixed ownership [2]. There is a trend of decreasing private and/or mixed-ownership enterprises. This is due to imperfect legislation in the field of waste management, the lack of proper infrastructure in the field of waste management, and different approaches to waste management by oblast.

According to the National Waste Management Strategy in Ukraine by 2030, more than 70% of waste should be recycled or reused. In 2022, about 9.9% of MW was processed and disposed of, of which: 1.66% was incinerated, and 8.24% of MW went to recycling points and waste-processing lines. During 2014-2022, the average annual rate of decrease in waste disposal volumes was 4.5%.

In 2020, 4.6% of the total volume of collected waste was sent for recycling, which is more than 90% more than the corresponding indicator of 2014, but several times lower than similar indicators of some EU countries. Therefore, the trends in the development of waste management in Ukraine indicate a decrease in the share of waste processing and the prevalence of the practice of removing (burying) them in unauthorized spontaneous dumps or landfills [37].

Important elements of the market of secondary raw materials in Ukraine are waste processing enterprises, storage points of secondary raw materials, waste incineration plants and composting stations. In 2021, 34 were operating in 16 oblasts of Ukraine sorting lines and one waste processing plant in the Rivnenska oblast. Thermal utilization of waste was carried out at the only operating waste incineration plant "Energia" (Kyiv), as well as at three waste incineration plants in Kharkiv and Kharkivska oblast (SE "Southern Railway"). At the beginning of 2022, the construction of 16 infrastructure facilities for the field of waste management was declared in 14 oblasts of Ukraine: two waste processing plants (Zhytomyr and Lviv), one waste incineration plant (Vinnytska oblast) and 11 waste sorting lines [38].

The current state of the waste management industry is unfavourable for the development of the market of secondary raw materials with a shortage of resources. In 2021, enterprises that processed secondary raw materials imported about 30% of cardboard and paper raw materials from the total volume of processing, 22% - of scrap glass, and 10% - of polyethylene. The practice of importing secondary raw materials is also characteristic of some EU countries, which operate powerful processing and waste incineration enterprises. Tariffs for the disposal of MW, which are regulated by the state and local self-government bodies, are lower than the cost of waste sorting, so it is economically unprofitable for recycling enterprises and companies that collect and remove MW to sort and send MW for processing. The average tariff for waste management in Ukraine is almost 130 UAH/m³, including 42 UAH/m³ for disposal. The average tariff for waste management for the population is 111.7 UAH/m³, including for disposal - almost 37.8 UAH/m³ [39].

The waste management system of Ukraine is at a transition stage from the traditional linear model of resource use to the model of the closed cycle economy. The closed cycle economy is a model of economic development based on the recovery and rational consumption of resources, to minimize the negative impact on the environment and waste-free production. For the successful implementation of the closed-loop economy, it is important to build circular supply chains covering all stages of production, use and processing (including recovery operations) of products. This involves cooperation between producers, suppliers, consumers and waste handlers to ensure efficient use of resources.

The development of the circular economy leads to an increase in the demand for secondary raw materials. The market for secondary materials and products is growing, which contributes to the creation of new opportunities for enterprises engaged in the processing and recovery of resources. It is important to create an effective legislative framework that will contribute to the development of the circular economy [34].

CHAPTER IV. FORMATION OF THE MARKET OF SECONDARY RAW MATERIALS

4.1 Factors of formation of the market of secondary raw materials

The use of secondary resources is important for the preservation of primary resources, including land resources, as well as for reducing the impact on the environment. The market is poorly studied and should be self-regulated with the support of state and local authorities.

One of the main factors influencing the development of the secondary raw materials market is state regulation. It is necessary to implement the European legislation to the national legislation of Ukraine in the field of waste management, in particular regarding secondary raw materials – paper, glass, plastic (including polyethylene) and scrap metal. The imperfection of the legal framework, the low organizational level of separate collection of municipal waste (MW), and the lack of economic conditions for organizing the collection and processing of secondary raw materials lead to a low level of their use. The low provision of information regarding the results of indicators and goals of state regulation and business entities that collect and process waste as secondary raw materials also affects it.

The quality of raw materials is one of the factors in the formation of the processing market. Until 2022, Ukraine imported glass and scrap glass, waste paper and polymer materials every year. Effective processing of waste depends on qualitatively sorted secondary raw materials and their volumes. Low level of environmental awareness of the population, insufficient primary sorting of waste in municipalities and lack of capacities in the waste processing industry are obstacles in the market of secondary raw materials. Wastepaper mainly includes paper and cardboard, newspapers, books, magazines, colored cardboard, and notebooks; for plastic - packaging with labelling No. 1-PET (transparent white and transparent colored bottles from drinks, milk and oil), No. 2-HDPE (bottles from drinks and municipal chemicals), No. 4-LDPE (packages from for milk and postal items, polyethylene bags, film), No. 5-PP (containers for dairy products, buckets, toys, etc.); to metal – mainly aluminium beverage cans, cans and small light metal); to glass – everything except heat-resistant and impact-resistant glass, ceramics and crystal. In particular, the Law “On Waste Management” provides for extended producer responsibility (ERP) – a set of economic, financial, administrative and organizational measures to ensure the responsibility of producers of certain types of products for the management of the waste stage in the product life cycle. ERP also applies to the packaging of goods. All links of packaging production and sales (manufacturers, importers) take responsibility for the impact of packaging on the environment.

Conducting information and educational campaigns among the population regarding the separate sorting of waste contributes to a more efficient process of waste management and the generation of higher-quality secondary raw materials. Television (national and local TV channels), social networks, commercials, radio broadcasts, print media, and newspapers can be effective tools for informing the public on the issues of MW. Serious attention should also be paid to the preparation of educational products for different categories of the population. Thus, thematic lessons can be introduced in schools and preschools, “open lectures”, conferences, etc. in universities. For example, in Khmelnytskyi, there is the only Waste Management Training Center “Gufi-center” in Ukraine, which explains what waste is, the impact of waste on the environment and human health, the rules for sorting it, etc. [40].

The remoteness of the objects of collection and processing of secondary raw materials and the inadequate infrastructure for separate collection of waste is a factor influencing the market. Problems in logistics are associated with improper storage and transportation of MW. It is important to involve several communities to form effective waste management. Increasing the role of oblasts and civil society in reforming the sphere of waste management is possible at the expense of oblast and local waste management plans. The quality of waste collection, transportation and processing services increases in parallel with the development of the business of processing secondary raw materials, which are further used for the production of various goods. Rational waste management and the use

of secondary raw materials are the keys to reducing costs for their processing and are a potential source of income.

Glass factories, manufacturers of PET materials or paper and other enterprises that have technologies and conditions for waste processing are the main consumers and influence the formation of the secondary raw materials market. Regulation of the state policy on waste management ensures an increase in the demand for secondary raw materials among processors. After all, a well-established separate collection infrastructure improves the quality of raw materials. For example, manufacturers of plastic products use secondary raw materials for the production of pipes, hoses, cables, etc., which ensures a lower price of products on the market. Currently, in Ukraine, there is a low level of competition in the market of secondary raw materials among operators and non-transparent pricing.

4.2 Pricing on the market of secondary raw materials

Pricing is based on supply and demand, the higher the demand for a certain secondary raw material, the higher its price. The advantage of using secondary raw materials instead of primary ones is that less energy is spent to obtain them.

The profit from the waste treatment process is provided mainly by the income from the sale of secondary raw materials and is insured by the income from the tariff for receiving waste. The profit of processing, like any commercial process, is provided by the difference between the income from the sale of the products produced and all costs, including the costs of purchasing secondary raw materials. Table 4.1 shows the average cost of secondary raw materials in the EU [41] and table 4.2 and 4.3 shows the prices for secondary raw materials and their sale in Ukraine.

During the 2021 energy crisis in EU countries, the total volume of trade in secondary waste glass increased, while the prices remained stable. Overall trade volumes of paper and plastic remained stable, while prices increased. Compared to 2020, prices in 2021 increased by 32% for plastic, 3% for glass and 77% for paper and cardboard.

The market for secondary raw materials that were originally used for consumer packaging, such as glass, paper and cardboard, plastic, is observed less, unlike the scrap metal market. The indicators are relevant for stakeholders interested in the long-term efficiency of markets for secondary materials, as well as for public authorities developing recycling strategies in a closed-loop economy. Processing is the only commercial link where the reception tariff is not included in the sources of income, but on the contrary, raw materials are purchased on market terms and, in the majority of cases, the supplier of raw materials is not a producer of MW [41].

Table 4.1 – Average prices for secondary raw materials in Europe

| Secondary raw materials | Price, EUR/t | | |
|-------------------------|--------------|------|------|
| | 2016 | 2020 | 2021 |
| Plastic | 298 | 247 | 325 |
| Glass | 67 | 63 | 65 |
| Paper and cardboard | 143 | 104 | 184 |

Table 4.2 – Prices for secondary raw materials in Ukraine

| Secondary raw materials | Price, UAH/kg |
|---------------------------|---------------------|
| Plastic (PET, HDPE, film) | 4.5-8.0 |
| Glazier and glass breaker | 0.5-2.0 (per piece) |
| Paper and cardboard | 1.5-3.5 |
| Aluminum container | 12.0-20.0 |

Table 4.3 – Average sales prices of secondary raw materials (as of August 2023)

| Product type | Price, UAH, per ton |
|------------------------|---------------------|
| Transparent PET bottle | 19,580 |
| Blue PET bottle | 13,700 |
| Green PET bottle | 12,000 |
| Brown PET bottle | 10,540 |
| PETF oil | 7,670 |
| PET bottle mixed | 16,290 |
| Transparent glass | 3,000 |
| Green glass | 1,800 |
| Low-pressure film | 7,000 |
| Aluminum scrap | 37,000 |
| MS-7B | 3,000 |
| MS-5B | 3,000 |
| Colored HDPE | 18,000 |
| LDPE 2 grade + stretch | 19,000 |

The price for secondary paper and cardboard is formed based on demand for this raw material, type and quality, availability and location of reception points, percentage of moisture and contamination of raw materials, etc. Reusing paper and cardboard reduces energy costs compared to primary production, which involves cutting down trees, transportation, etc. Processing of secondary raw materials of paper involves several stages from shredding and cleaning to the addition of chemical elements. According to the Zmiyiv Paper Factory, processing 1 ton of paper and cardboard saves 26,000 litres of water, 225 kWh of electricity, and one felled tree per 50 kg of secondary paper.

The formation of the price for secondary raw materials of polymers depends on the type of raw materials (PET bottle, film, etc.), the infrastructure for the collection of secondary raw materials (if available), the maintenance of recycling points, energy and general production costs, technical and economic indicators of technologies and equipment. Mostly, recycling film and PET bottles is expensive, but it saves resources and materials for the production of primary granules.

Reusing glass helps conserve natural resources, such as sand mining, which degrades terrain and soils. Lower temperatures are required for the heat treatment of glass and scrap glass than for the production of new glass. The advantage of recycling glass is that it can be recycled a large number of times without losing its properties.

The average price for scrap metal is formed based on its type (black or non-ferrous), chemical parameters (in particular, the percentage of carbon content) and physical properties (size/dimensions). Mostly pre-sorted and cleaned scrap metal is sent for remelting at special metallurgical enterprises that have the necessary equipment. For example, the price of aluminum, as a secondary raw material, is formed by the method of collection (mixed/non-mixed collection) and the method of processing (incineration, remelting, mechanical grinding). The average price for metal in Ukraine ranges from 2 to 6 UAH/kg.

In general, pricing on the market of secondary raw materials depends on such factors as the regulatory framework in the field of the processing; tariff policy in the field of MW; level of competition; the ratio of demand and supply of preparation for reuse (centers and points of collection of raw materials); available waste processing facilities; physical and chemical composition of raw materials.

CHAPTER V. MARKET OPERATORS AND LARGEST PROCESSORS OF SECONDARY RAW MATERIALS IN UKRAINE

In 2022, almost 39 million m³ of municipal waste (MW) were formed, or more than 7 million tons, which are buried in 5.7 thousand landfills and dumps with a total area of almost 8 thousand hectares. In addition, a small amount of waste is burned in Ukraine - an average of 1-1.1 million tons per year. In addition, waste treatment operations are an activity that requires a certain level of qualification of employees and sufficient provision of material and technical means for carrying out such activities [42].

The operators of the market of secondary raw materials can be divided according to their profile activity: storage enterprises, processing enterprises or enterprises that combine the activities of storage and processing of secondary raw materials.

At storage enterprises, which carry out operations for the collection and storage of certain types of waste as secondary raw materials, raw materials and the final product of processing have the same classification.

Processing enterprises can be independent and be part of an industry complex. Independent enterprises process a certain type of waste, which is mostly bought from storage enterprises. As a result of processing, they can be converted into another type of recycled material or finished products. Complex enterprises that use secondary raw materials mainly include pulp and paper, glass, metallurgical enterprises, etc.

The most common methods of waste processing are:

- 1) chemical processing, i.e. recovery of resources using chemical reactions and processes (recycling of plastic packaging and plastic products);
- 2) thermal processing - incineration of waste with the production of energy;
- 3) organic processing - composting of bio-waste.

Today, there are manufacturing enterprises in Ukraine that are used to process secondary raw materials, but many of them are only 50% loaded. A large part of raw materials is imported because Ukraine has a low level of sorting and low quality of sorted raw materials. Paper and cardboard recycling technology depends on the group and type of waste paper and further use.

According to accessibility to paper and cardboard recycling facilities for the Transcarpathian oblast, three groups of oblasts can be distinguished:

Group I (available) - Lvivska, Ivano-Frankivska, Chernivetska, Ternopil'ska, Volyn'ska, Khmelnytska, Rivnenska, Vinnitska and Zhytomyrska;

Group II (medium accessible) - Kyiv'ska, Cherkaska, Kirovohradska, Mykolaiv'ska, Odeska, Chernihiv'ska;

Group III (hardly accessible) – Sumska, Poltav'ska, Kharkiv'ska, Dnipropetrov'ska, Kherson'ska, Zaporizka.

From the point of view of logistics, it is worth highlighting the most accessible enterprises and organizations for the Transcarpathian oblast, which are engaged in the collection, storage and processing of secondary raw materials (Annex W). See Annex E for the detailed list of the main operators of the secondary raw materials market in Transcarpathian oblast.

Wastepaper

“Zmiyiv'ska Paper Factory” (Kharkiv) processes more than 500 tons per month of secondary raw materials, including tetra pack. Because of the armed aggression of the Russian Federation, the factory was relocated to Kalush (Ivano-Frankiv'ska oblast). Table 5.1 shows the secondary raw materials purchased by the factory.

Table 5.1 – Secondary raw materials of the Zmiyivska Paper Factory

| Wastepaper type | Description of the type of wastepaper |
|-----------------|---|
| MC-1A | white paper production waste – for printing, painting, drawing, etc |
| MC-2A | waste paper of all types of white paper |
| MC-3A | paper production waste from sulfated “non-white” cellulose |
| MC-5B | waste paper consumption of corrugated cardboard |
| MC-7B | printing waste – books, magazines, notebooks, brochures |
| MC-8B | waste paper from the consumption and production of newspapers |
| MC-9B | paper sleeves and bushings |
| MC-12Г | cardboard production and consumption waste, including tetra pack |

“Korostyshiv Paper Factory” (Korostyshiv, Zhytomyrska oblast) produces up to 1,500 tons of packaging and wrapping paper every month from recycled fibrous raw materials – waste paper. Constantly purchases waste paper brands: MC-1A-1, MC-1A-2, MC-2A-1, MC-2A-2, MC-3 (4) A, MC-5B, MC-6B-1, MC-7B-1, MC-8B-1, MC-11B.

“Lutsk Cardboard and Paper Factory” manufactures all its products from recycled materials that are subject to recycling. Raw materials for the production of cardboard and paper products are obtained by collecting wastepaper from commercial and municipal waste.

JSC “Kokhavynka Paper Factory” (Gnizdychiv township, Lvivska oblast) produces high-quality products for sanitary and hygienic purposes. The main raw material for production is wastepaper. Wastepaper is accepted by the requirements of DSTU:3500:2019. The production process begins with the control of raw materials (wastepaper). Physico-chemical research assistants carry out appropriate analyses in the wet part of production and including finished products.

LLC “Poninkivska Cardboard and Paper Factory-Ukraine” (Khmelnyska oblast) is a branched structure with independent production, which begins with the supply and processing of wastepaper raw materials and ends with the production of paper, cardboard and corrugated products. In August 2020, 8,000 tons of paper and cardboard and 9,000,000 m² of corrugated products were produced.

PJSC “Kyiv Cardboard and Paper Mill” is a group of companies. One of the largest representative offices of the pulp and paper business in Europe, which carries out the following types of activities: the key enterprise of the group of companies is the Kyiv Cardboard and Paper Mill, which also includes LLC “Vtorresursy Zahid” (Lviv). Acceptance volumes of sorted, baled waste paper from 18 tons. The production has a closed cycle of cardboard production from the collection of wastepaper to the final product.

PJSC “Zhydachiv Pulp and Paper Mill” (Lvivska oblast) - the production operates due to the processing of wastepaper raw materials. The plant's annual need for raw materials is more than 50,000 tons. PJSC “Zhydachiv Pulp and Paper Mill” uses wastepaper of the following brands: MC-5B-1, MC-5B-2, MC-5B-3, MC-6B-1, MC-6B-2, MC-6B-3. The production facilities are designed for the full cycle of production, starting from the reception and processing of technological raw materials to the release of finished products.

Glass and glass cullet

PJSC “VERALLIA Ukraine” (“Consumers-sklo-zorya”, Zorya, Rivnenska oblast) is a manufacturer of glass packaging for drinks and food products. Glass cullet is used to produce new glass containers, saving raw materials and reducing energy consumption. This broken glass, which comes from industrial waste, is mixed with other additional raw materials: 71% sand, 14% soda ash, 11% limestone and 4% various glass coloring ingredients.

LLC “Utilita” collects, processes and sells glass cullet to glass factories. The process of glass processing at the plant is a completely closed cycle and begins with the loading of raw materials into the receiving hopper by a bucket loader, ending with the production of clean cullet of a given color and fraction. The company buys glass containers (including bottles of perfume and cosmetic

products), sheet glass, mixed glass, etc. Reception points are located in the following cities: Rivne, Ivano-Frankivsk, Lutsk, Lviv, Ternopil, Khmelnytskyi, Kyiv, Odesa, Kherson, Mykolaiv, etc.

Scrap metal

SE “Argentum” (Lviv) is engaged in the processing of waste energy elements (batteries) and secondary raw materials containing precious metals or their alloys, mainly “electronic scrap” (transistors, microcircuits, etc.), metal scrap with gilding, spent solutions and slurries, polishing sands and dust containing gold. In the process of complex processing, non-ferrous metals are simultaneously obtained - copper, nickel, chrome, etc.

LLC “Ukrmet-Invest” accepts ferrous and non-ferrous metal scrap permanently - copper, brass, aluminium (including aluminium cans), magnesium, and lead. In addition, it purchases various types of secondary raw materials – glass and scrap glass, PET bottle, plastic (canisters), corrugated paper and cardboard. Raw material reception points are located in different oblasts of Ukraine, in particular Volodymyr (Volynska Oblast), Sarny and Kostopil (Rivnenska Oblast), Polonne and Slavuta (Khmelnyska Oblast).

Various secondary raw materials

“Obolon Oil” is a registered enterprise in Transcarpathian, that processes polyethylene waste into fuel. The enterprise “Green Company” processes PET bottles in Novovolynsk (Volynska oblast) at a rate of 200 t/month.

The environmental company “VIZA-VTORMA” (Ivano-Frankivsk) is an official representative and member of the board of the Industrial and Environmental Association “UKRVTORMA” (Kyiv). The company accepts waste paper (cardboard, documents, books, newspapers), polyethylene, broken glass (clear, brown), and plastic (buckets, boxes, canisters, bottles, etc.). There is also a recycling point in Kolomyia, where it can hand in waste paper, scrap glass and glass containers, film, PET.

The enterprise “Projektna, 3”, which is the largest in the Transcarpathian oblast, operates in the Uzhhorod. Accepts waste paper (office paper, cardboard, newspapers and magazines, folders, etc.), glass (glass containers), plastic (PET, film, lids), aluminium cans from drinks, prepares them and sends them to factories for processing in Kyiv, Kharkiv, Poltava, Kremenchuk, Khmelnytskyi. About 120 tons of waste paper are transferred every month. In 2019, it shipped about 500 tons of transparent and coloured glass, 200 tons of plastic, and 1,260 tons of waste paper. The city also operates a polymer processing line with a capacity of 100 t/month of PET containers.

“VTORMA” is a company in the field of secondary processing, which accepts film waste, PET bottle, waste paper, PVC waste, plastic waste, glass bottles and scrap glass, and aluminum cans. Processing of film and PET bottles is a key area of work of the “VTORMA” company. Simplified processing of waste film, plastic, PVC and other types of raw materials consists of the following stages: the raw materials are sorted, crushed into small particles, cleaned, dried, and continued to the production cycle. Wastepaper recycling also begins with sorting and pressing. Then the pulp is soaked and disinfected, bleached and whipped into foam, which turns into pulp from which new types of paper are made. The central office is located in Brovary, and branches are located in such cities as Bila Tserkva, Kyiv, Chernihiv, Nizhyn and Lviv. The company has 2 sorting lines, 8 forklifts, 8 large presses and 30 small presses.

The “Plastiker” company specializes in the collection, storage, and removal of secondary raw materials for further processing, namely: waste packaging film and stretch film, waste paper (for example, MC-5B, MC-7B, MC-2A), corrugated cardboard, PET bottle, plastic boxes, big-bag containers, etc. The main office is located in the city of Kyiv, and there are also reception points in Zhytomyr, Uman, Kherson, and Lviv.

“Ukrainian Waste Paper Company” processes 11 types of waste paper, in particular, waste from the production and processing of white unpigmented paper, paper for printing and drawing, packaging paper, paper bags, corrugated paper and cardboard, waste from the printing industry (books, magazines, brochures, notebooks, notebooks etc.), newspapers, paper and cardboard sleeves and

sleeves. The company also processes combined products that are not paper but consist of several layers (paper cups, tetra pack). It also accepts aluminium beverage cans, glass and broken glass (clear, mixed and colored glass). The production facilities of the enterprise allow to collection of various types of polymers - packaging for grains, fertilizers, sand, sugar, etc.; stretch film, polyethylene, polypropylene, PET bottle (transparent, colored, oil). Recycling points are located in Cherkaska (Cherkasy) and Rivnenska (Horodok) oblasts.

PE “Obuhivmiskvtorresursy” (Kyivska oblast) is an enterprise that has been operating since 2002 and has a processing capacity of 10,000 tons/month. The enterprise accepts the following types of secondary raw materials: wood waste (wooden containers, pallets, etc.); polyethylene and stretch film; aluminium beverage cans; PET bottles; plastic (boxes, furniture); broken glass

The functioning of enterprises engaged in the processing of secondary raw materials in Ukraine depends on the efficiency of the organization and coverage of separate collection of waste materials in the oblasts, a sufficient number of points for receiving secondary raw materials, as well as waste processing plants and waste sorting lines.

CHAPTER VI. PRODUCTS OF SECONDARY RAW MATERIAL PROCESSING

6.1 Market analysis of recycling products

The recycling market is an active sector of the economy, which includes the process of collecting, sorting, processing and selling materials and products from secondary raw materials.

Organizations and enterprises for the collection of raw materials (waste processing complexes, public organizations), processors, wholesalers and retailers operate on the sales market. Processors play a key role in the sales market of processed products, because they accept raw materials, sort them by type and quality, process them into new secondary raw materials or products. The use of secondary raw materials is diverse and can apply to various spheres of life. Recycled materials are used to make a variety of products that people use every day. Companies in packaging, construction, clothing, toys, logistics, automotive and many other fields use them.

The high level of waste generation and low indicators of its use as secondary raw materials have led to the fact that in Ukraine every year in the industry and utility sector, significant volumes of municipal waste (MW) are accumulated, of which only a small part is used as secondary material resources, the rest ends up in MW landfills and dumps. To popularize products from secondary raw materials, enterprises need to conduct information and educational campaigns about their advantages. The absence of a processing system (including a system of separate collection) for MW leads to the loss of millions of tons of resource-valuable materials contained in waste, which could potentially be introduced into economic circulation, in Ukraine every year. The development of separate collection and processing of waste is an integral part of increasing the efficiency of the use of natural resources and the transition to a sustainable economy [34].

Plastic (including film and PET bottles) is resistant to water and corrosion, the material is light and strong. It is used, in particular, for the manufacture of products such as packaging material (PET, HDPE, PP). However, a large part of plastic is not recycled due to the lack of capital investments in appropriate technologies.

Recycled waste paper is used to make a large number of items such as copier, newsprint, toilet paper, cardboard packaging, bags, grocery boxes, egg cartons, paper towels, envelopes, notebooks and books. Small enterprises can use secondary raw materials for the production of thermal insulation and building materials.

Recycled glass, on the other hand, is used to make cans, bottles, glass wool and fibre, as well as decorative shavings. Glass and scrap glass can be recycled an infinite number of times due to their physical and chemical properties.

Recycled metals also have a variety of uses. They can be processed into cans, as well as structural elements of vehicles, ships or planes; they are reused to make tools, electrical wires and even jewellery.

In connection with the constant increase in the environmental awareness of the population and the implementation of Ukrainian legislation in the field of waste to European standards, the market for the sale of secondary raw materials tends to increase the demand for these products, increase the number of processing enterprises and points of reception of secondary raw materials, increase competitiveness, as well as development of Ukraine's export potential.

6.2 Main consumers of recycled products

Products of processing of secondary raw materials are used both in everyday life and in industry and various types of production.

Consumers of processing products can be of various types, including:

1. Organizations of the public sector - institutions in the sphere of health care, education and culture, shopping and entertainment centers, office centers. For example, waste paper products for sanitary and hygienic purposes, such as paper towels or toilet paper, etc.

2. Business consumers – organizations and enterprises in the field of construction for the construction of structures or during repair work. Recycled glass and scrap glass are added to the concrete. Recycled waste paper is used in the printing industry, which produces cheaper products (for example, notebooks, notebooks and books) or in the production of packaging. They use recycled products to reduce material costs or to follow sustainable development principles to enhance their image.

3. Individual consumers are natural persons who buy recycled products for personal use. For example, furniture made of recycled wood, vases made of recycled glass or accessories made of recycled metal. Mostly, such consumers are environmentally conscious and understand the impact of waste on the environment.

Plastic film and packaging materials are used in courier services and the food industry. Products of secondary plastic are used for the production of clothes and shoes for consumers. In the field of construction and infrastructure, various types of pipes, wires, thermal insulation and fuel materials, etc. are used. Polypropylene is also widely used in the chemical and pharmaceutical industry for the production of pipelines resistant to chemical elements. Plastic is the most common material in the textile, furniture and automotive industries.

Glass is used in the food, perfumery, pharmaceutical industry, as well as for the production of lamps, tubes, fibre, etc.

The raw material, which is formed after the melting of scrap metal, has the same properties as the primary one and can be used in various areas of production. In particular, metallurgical production, production of electrical and electronic equipment, and automobile and construction production. Aluminium scrap metal is processed for the production of beverage containers or radiators, steel - for metal products of wide use, copper - in agriculture. During the processing of scrap steel, by-products such as steelmaking and foundry slag are formed, which are suitable for use in road construction. Scrap metal is the raw material base of the metallurgical and machine-building industry, and operations with scrap metal are carried out only by specialized or metallurgical processing enterprises [43].

Consumers of secondary raw materials play an important role in stimulating the waste recycling market and reducing production from primary materials. Their wide and economically effective use, ensuring proper collection and harvesting of used waste as secondary raw materials is expedient.

CHAPTER VII. CONCLUSIONS AND RECOMMENDATIONS

General conclusions

Processing of secondary raw materials is the process of transforming production or consumption waste into new products or materials. This process is aimed at reducing production costs, saving energy and reducing the burden on the environment by processing and using already available raw materials. Processing of secondary raw materials can be carried out in various industries, including metallurgy, chemical industry, textile industry and others. There are various methods of processing secondary raw materials, including recycling, secondary use, and recovery. Recycling involves shredding materials for further use. Secondary use involves using waste in its original form, for example, using glass to make new bottles. Recovery is the cleaning and recovery of waste for new use, such as the recovery of paper from books.

In 2022, more than 7 million tons of municipal waste were generated, which is 1 million tons more than 5 years ago. Every year, the amount of municipal waste increases significantly, most of which (more than 90%) is buried in landfills or dumps, which occupy huge areas of land that eventually exhaust their capacity. Improvement plans, which include requirements for municipal waste management, have been approved in only 13.6% of settlements. Most processing plants are only 50-60% loaded. Trends in changes in national legislation and compliance with European standards and goals of sustainable development, demand for secondary raw materials among market operators and gradual increase in environmental awareness stimulate the establishment of waste management infrastructure, in particular separate collection of waste and secondary raw materials.

The market of secondary raw materials in Ukraine is a significant sector of the economy and has significant potential for growth as consumers become more conscious of conserving natural resources. Ukraine has a large and diverse amount of secondary resources - paper and cardboard, glass and scrap glass, plastic, metal, etc. The market of secondary raw materials has many components, namely collection, storage, processing and sale of processing products. Storage of secondary raw materials is carried out at the expense of individual enterprises, reception points, and communal or private enterprises. Processing enterprises sort the received raw materials and grind/remelt them to restore them to primary material or for the production of new products. Both large and small and medium-sized enterprises operate on the market. Large enterprises usually have their reception points, which provide them with a supply of recycled materials in large volumes. Small and medium enterprises are concentrated in small towns and rural areas. The main factors in the formation of the secondary raw materials market are state regulation and the price and demand for raw materials.

Recommendations

There are many unofficial operators involved in the collection of secondary raw materials on the recycling market. This violates environmental regulations and reduces competitiveness among legal enterprises. Therefore, it is important to strengthen monitoring of the activities of operating enterprises, namely, where and where collected and storage secondary raw materials are transferred.

The efficiency of separate waste collection depends on the quality of the selected secondary raw materials. It is necessary to introduce gradually different fractions for sorting while simultaneously finding points of sale of secondary raw materials, equipping waste management centers and setting up points of reception of raw materials from the population. This will ensure the stable functioning of the entire system. The presence of sorting lines will improve the quality of recycled materials.

It is important to focus on the population and conduct information and educational campaigns when forming the infrastructure for the collection of secondary raw materials at the local level. Involvement of residents in the sorting process, through print media, online media, social networks, etc. seminars on the benefits of sorting with concrete actions.

The development of the market of secondary raw materials in Ukraine requires deepening of cooperation between the state, business and the population. Local self-government bodies must take the main role. Recycling of secondary raw materials has numerous advantages: helps to reduce the amount of waste and garbage that ends up in landfills and incineration; reduces pollution of atmospheric air, land and water resources, soils, biodiversity and exploitation of natural resources. In addition, it can be economically beneficial as production from secondary raw materials can be cheaper than production from primary raw materials. Recycling is an important link in the creation of a circular economy, where materials are recycled and reused, instead of ending their cycle in a landfill or the atmosphere.

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ANNEXES

ANNEX A. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE VOLYNKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|--|---|--|---|
| 1 | LLC “Delta A” | Volodymyr-Volynskyyi, 134, Generala Shukhevych st | 050-378-48-88 | Scrap metal of ferrous metals, plastic, waste paper, film |
| 2 | PE “Euro-V”, Lutsk, St. Zaporizhia, 37 | Reception point, Volodymyr-Volynskyyi, 111, G. Shukhevicha st | 067-382-33-58 | Scrap metal of ferrous metals |
| 3 | LLC “Volyn Lom”, Lutsk, St. Industrialna, 2b | Reception point, Volodymyr-Volynskyyi, 81, Lutska st | 067-673-65-60 | Scrap metal of ferrous metals |
| 4 | Enterprise “Volodymyr-Volynska zahotkontora” | Volodymyr-Volynskyyi, 111, G. Shukhevicha st | (03342)2-13-45 | Wastepaper |
| 5 | PE “Vlad-nadra” | Volodymyr-Volynsky district, Zarechje, 1 V, Nova st | 067787254 | Scrap metal of ferrous metals |
| 6 | FOP Demchuk Oleksandr Ivanovych | Volodymyr, 81, Lutska st | 0988840398 | Scrap metal of ferrous metals |
| 7 | Recycling point | Volodymyr, 253, Kovelska st | 0680966299 | plastic, glass, waste paper |
| 8 | VUKH ZHKO of the Novovolynsk City Council | Novovolynsk 8, Lesna st | 0679862961 vukg@nov-rada.gov.ua | PET bottles, waste paper, tire glass are damaged |
| 9 | FOP “Grebenkin M.I.” (Ukrekoresursi) | Novovolynsk, 2a, Nebesnoy Sotna st | - | collection of wastepaper and secondary raw materials |
| 10 | LLC “Green Company NV” | Novovolynsk, 25, Lutska st | 0502790008 | processing of PET bottles |
| 11 | PJSC “Novovolynsky Foundry Plant” | Novovolynsk, 29 Lutska st | (03344) 3-00-61, 3-03-87 | scrap metal of ferrous and non-ferrous metals |
| 12 | LLC “Promlyt Plant” | Novovolynsk, 49, Shakhtarska st | (03344) 4-05-55, 4-05-56, 3-21-20 | scrap metal of ferrous and non-ferrous metals |
| 13 | LLC “Mechanical Foundry Plant” | Novovolynsk, 55A, Shakhtarska st | (03344) 9-26-33, 4-11-51 | scrap metal of ferrous and non-ferrous metals |
| 14 | LLC “Kronospan UA” | Novovolynsk, 20, Lutska st | (03344) 43606 | collection, storage of wood waste |
| 15 | FOP Grebenkin M.I. | Lutsk, 1s, Karbysheva st (mobile points) | 0504382818 ekokom2015@gmail.com | wastepaper, film, plastic, tires |
| 16 | PE Lototska Lesya Ivanivna | Tarasove village, 2A, Naberezhna st | 0635993185 | wastepaper |
| 17 | FOP Petrovskyyi M.I | Lutsk, 16, Dubnivska st, the territory of the Renault Auto Center (mobile points) | 0503832889 | wastepaper, film, PET bottle |
| 18 | LLC “Vtorma-Volyn” | Lutsk, 5b Elektroaparatna st (mobile points, 200 containers around the city) | (0332)789651 (0332)789361 Vtormavoium@ukr.net | waste paper, film, PET bottle |
| 19 | PP Khvesyuk Maria Vadimovna | Prylutske village, 79, Kivertsivska st | 0957889289 | wastepaper, broken glass, PET bottle, plastic |
| 20 | LSCAP “Lutskspeccomuntrans” | Lutsk, 66, Dubnivska st (garbage sorting station at 7, Trunkina st.) | 245451 0972344680 lskap@ukr.net | film, PET bottle (7 types), plastic |

| No. | Name | Location | Contacts | Specialization |
|-----|--|--|--|---|
| 21 | PEP "SBB" Sivak S.V | Lutsk, 61/1 Hetman Mazepa, st - home address (30 containers around the city) | 0955052359 0979533440 | PET bottle |
| 22 | FOP Maiboroda M.I. | Lutsk, 12, Trunkina st | 0509515210 | broken glass, metal containers |
| 23 | Volyn Oblastal Union of Consumer Societies | Lutsk, 13, Kovelska st (Central and Zavokzalny market) | 0332723769 0332723862 volynska@vocc.lutsk.ua | waste paper, scrap glass, polymers |
| 24 | PJSC "Volynvtormet" | Kovel, 13, Timoshenko st | 0509547090 | scrap metal |
| 25 | PE Artemiuk Oleksandr Anatoliyovych | Kovel, 37A, Teatralna st | 0506227179 | glass container |
| 26 | FOP Gerasimchuk V.I. | Kovel, 178, Kutuzova, 178 st | 0979769571 0961304320 | wastepaper, PET bottles, scrap glass |
| 27 | PE Khoroshikh Yuriy Vasyliovych | Kovel, 15, Hrebinky st | 0660821121 | wastepaper, pet bottles, broken glass |
| 28 | TP "Vtormetservice" | Kovel, 20, Kiyana st | 03332788696 0505210729 | ferrous metals |
| 29 | LLC "Volynvtorprom" | Kovel, 1B, Tymoshenko st | 0506784988 0502242433 | ferrous and non-ferrous metals |
| 30 | LLC "Volynlom" | Kovel, 20, Kiyana st | 0673641290 | ferrous metals |
| 31 | FOP Kravchyk S. V. (territory of the Kolodyazhenska village council and the Golobska settlement council) | Skulin village, 26, Shkilna st, Kovelsky district | 0964117760 03352-93519 | plastic, glass |
| 32 | FOP Ivaskiv V. P | Turiysk township, 1, Dubivska st | 0986638560 | waste paper, broken glass, plastic products |
| 33 | FOP Kalkov A. P. | Manevichi village, 12A, Mayakovsky st, Kamin-Kashirskiyi | 0689166556 | glass, PET bottle |
| 34 | PE Shlapa Lyudmila Ivanivna | Lyuboml, 62, Volodymyrska st | 0506725892 nadiyaluboml@ukr.net | waste paper, glass, PET bottle |
| 35 | PE "SBB" | Lutsk, 61, Hetmana Mazepa st, app. 1 | 0332253988 | polymeric waste |
| 36 | PE Sydoruchuk S. O. | Rozhishche, 7, Naberezhna st | 0336821536 rudnyabudtreid@ukr.net | glass, rubber waste |
| 37 | KP "Cooperator" | Rozhishche, 41, Heroiv UPA st | 0336822484 | scrap metal |
| 38 | LLC "Etalon" | Gorohiv, 3, Studentska st | klemba@ukr.net | glass containers, PET bottles, waste paper |
| 39 | FOP Vasylevskiy Yu. P. | Kamin-Kashirskiyi, 120, Kovelska st | 0673348344 pp_vpa@gmail.ua | polyethylene, waste paper, glass |
| 40 | FOP Vitaliy Anatoliyovych Romanyuk | Kamin-Kashirskiyi, 3, Shevchenko st | 0688681805 | polyethylene, waste paper, glass |
| 41 | PE "Vtormetservice" Churak Volodymyr Stepanovych | Kamin-Kashirskiyi, 174, Kovelska st | 0680028500 | operations with scrap ferrous metals |
| 42 | FOP Sinyuk R. M. | Kovel, 3a, Danyla Halytskyi st | 0961304320 | PET bottle |
| 43 | Lyubeshivske KP "Lyubeshiv-Comfort-Service" | Lyubeshiv township, 90A, Bondarenko st | vzkg-komfort@ukr.net | glass, plastic |
| 44 | LLC "Logistic Group LTD" Sas Oleg Mykhailovych | Lutsky district, Kolkiv settlement council | 0676745686 | glass, plastic |
| 45 | FOP Pradiychuk I. A. | Kovel, 17, Gerlogiv st | – | glass |
| 46 | FOP Myselyuk V. M. | Stara Vyzhivka township, 7, Luhova st, | 0677792643 | plastic |

| No. | Name | Location | Contacts | Specialization |
|-----|--|--|--------------------------|----------------|
| | | Kovelsky district | | |
| 47 | FOP Kravchyk S. V. | Skulin village, 26, Shkilna str, Kovelsky district | 0964117760 0335293519 | glass, plastic |
| 48 | Communal institution “Center for safety and vital activities of the community” of the Ratnivska settlement council | Ratne towhship, 19, Tsentralna st | 0983311277 | glass, plastic |
| 49 | Starovyzhivske Production Department of Housing and Communal Services | Stara Vyzhva township, 2, Kotsyubinsky st | 0334630355 | glass, plastic |

ANNEX B. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE DNIPROPETROVSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|--|--|--|
| 1 | KP "Dzherelo" | Kamiansky district, village Bozhedarivka, str. Chkalova, 17a | 098-982-53-39 kp-gerelo@ukr.net | Logging services (shredding branches into chips) |
| 2 | FOP Ponurko Dmytro Oleksandrovych | Pokrov, str. Myroshnichenko, 252 | 098-727-77-77 | Recovery of sorted waste (glass, plastic) |
| 3 | Reception point for secondary raw materials "Chiste Misto" FOP Polovyi Vitaliy Volodymyrovych | Kryvyi Rih, ave. Victory, 30B | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass and metal containers |
| 4 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Nedelina, 29A | 067-564-07-54 chistemisto.com.ua | Wastepaper, glass and metal containers |
| 5 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Almazna, 18 | 067-638-53-93 067-564-06-64 chistemisto.com.ua | Wastepaper, broken glass, polymer waste |
| 6 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Commonwealth, 72 | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 7 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Cosmonautiv, 13 | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 8 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Sonyaknyi 29 | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 9 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. V. Velykiho, 49 | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 10 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Teselenko, 20 | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 11 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Ya. Mudrogo, 34v | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 12 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. V. Ocerklevycha, 41 | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 13 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Sviatogeogryivska, 7a | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 14 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih m-d Hirnytskyi, 7b | 067-539-10-01 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 15 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. S. Kolachevsky, 118a | 067-638-53-93 067-638-44-91 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 16 | Reception point for secondary raw materials "Clean City" | Kryvyi Rih, st. Heroes of Mariupol, 44a | 64-52-26 64-15-35 | Wastepaper, scrap glass, glass |

| No. | Name | Location | Contacts | Specialization |
|-----|---|---|--|--|
| | (FOP Polovyi V.V.) | | chistemisto.com.ua | containers, polymer waste, textiles |
| 17 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Cherkasova, 28a | 64-52-26 64-15-35 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 18 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Kashtanova, 50a | 64-52-26 64-15-35 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 19 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. V. Tereshchenko, 2a | 64-52-26 64-15-35 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 20 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Edward Fuchs, 3b | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass container, PET bottle |
| 21 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, 4th Zarechyny, 16a | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass container, PET bottle |
| 22 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Eduard Fuchs, 59b | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass container, PET bottle |
| 23 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Vatutina, 48 | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass container, PET bottle |
| 24 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Vatutina, 76 | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass container, PET bottle |
| 25 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Mussorgsky, 13 | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass container, PET bottle |
| 26 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, ave. Gagarina, 50a | 067-638-44-91 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 27 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, st. Sobornosti, 36a | 067-638-44-91 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 28 | Reception point for secondary raw materials "Clean City" (FOP Polovyi V.V.) | Kryvyi Rih, ave. Metalurgiv, 36 | 067-638-44-91 chistemisto.com.ua | Wastepaper, scrap glass, glass containers, polymer waste, textiles |
| 29 | Reception point for secondary raw materials "Clean City" (FOP Ivanyushko D. M.) | Kryvyi Rih, st. P. Kalnyshevsky, 7a | 067-638-53-93 067-564-06-64 chistemisto.com.ua | Wastepaper, broken glass, polymer waste |
| 30 | Reception point for secondary raw materials "Clean City" (FOP Ivanyushko D. M.) | Kryvyi Rih, st. Sviato-Mykolayivska, 36 | 067-638-53-93 067-564-06-64 chistemisto.com.ua | Wastepaper, broken glass, polymer waste |
| 31 | Reception point for secondary raw materials "Clean City" (FOP Ivanyushko D. M.) | Kryvyi Rih, st. L. Borodycha, 2a | 067-638-53-93 067-564-06-64 chistemisto.com.ua | Wastepaper, broken glass, polymer waste |
| 32 | Reception point for secondary raw materials "Clean city" (FOP Vysotsky O. E.) | Kryvyi Rih, st. Main street, 23A | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass containers, polymer waste |
| 33 | Reception point for secondary raw materials "Clean city" (FOP Vysotsky O. E.) | Kryvyi Rih, 2 European Blvd | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass containers, polymer waste |
| 34 | Reception point for secondary raw materials "Clean city" | Kryvyi Rih, st. V. Chornovola, 63 | 067-638-44-91 chistemisto.com.ua | Wastepaper, glass containers, polymer |

| No. | Name | Location | Contacts | Specialization |
|-----|--|--|--|---|
| | (FOP Shishkin O.O.) | | | waste |
| 35 | Point of reception of secondary raw materials (FOP Bondarenko D.O.) | Kryvyi Rih, st. Sobornosti, 80 | 098-352-28-55 | Wastepaper, glass containers, polymer waste |
| 36 | Receipt point for secondary raw materials (FOP S. V. Sukharov) | Kryvyi Rih, st. Military medics, 1B | - | Wastepaper, glass containers, polymer waste |
| 37 | FOP Pestryuga Vitaly Oleksandrovych | Kryvyi Rih, ave. Victory, 13A | 067-961-60-58 | Wastepaper, glass containers, metal containers, polymer waste |
| 38 | FOP Pestryuga Vitaly Oleksandrovych | Kryvyi Rih, st. Sedneva, 27A | 067-961-60-58 | Wastepaper, glass containers, metal containers, polymer waste |
| 39 | FOP Larisa Mykhailivna Votkalenko | Kryvyi Rih, ave. South, 30A | 097-633-84-87 | Wastepaper, glass containers, metal containers, polymer waste |
| 40 | FOP Guganova Davyd Otarovych | Kryvyi Rih, st. Yaroslav the Wise, 70 b | 050-577-34-17 | Wastepaper, glass containers |
| 41 | Point of reception of secondary raw materials (FOP Grobovy I. G.) | Kryvyi Rih, st. Darwin, 2b | 096-317-50-01 | Scrap of ferrous and non-ferrous metals |
| 42 | Andrii Viktorovych Panteleev | Kryvyi Rih, st. Pyatikhatska, 38N | 067-569-27-64 | Scrap of ferrous and non-ferrous metals |
| 43 | KP "Zelenodolsky WTP" | Zelenodolsk, str. Sadova, 2 | 067-181-51-86 kpzmv@i.ua | PET bottle, plastic, waste paper, broken glass |
| 44 | PJSC "Marganetsk Ore Repair Plant" | Marganets, st. Unity, 162 | (05665)2-25-50, 050-421-01-98 info@mrrz.dp.ua | Scrap metal of ferrous and non-ferrous metals |
| 45 | Subsidiary enterprise "Manganetsk production and storage enterprise" LLC "South-Eastern oblast production association "Tsvetmet" | Marganets, st. Promyslova, 1 | (05665)3-30-19 | Scrap metal of ferrous metals |
| 46 | IPC "Pokrovvodokanal" | the city of Pokrov | (05667)6-05-61 pto.voda@ukr.net | Use of sewage sludge from sewage treatment plants as fertilizer |
| 47 | LLC "Sklobaza" | Nikopol city: - st. Dobrolyubova, 28; - "Alpova" market; - "Selyansky" market; - "Zhukivskyi" market; - st. T. Shevchenko, 188;- str. T. Shevchenko, 231;- str. V. Usova (Cafe "Said") | 050-969-65-03 | Glass, scrap glass, PET waste, plastic, aluminum can |
| 48 | LLC "Nikopolvtorma" | Nikopol, st. Elektrometallurgiv, 6a | 050-720-65-29 | Glass, scrap glass, PET waste, plastic, aluminum can |
| 49 | LLC "NORD VTORMET" | Synelnkyivskiyi district, village Ilarionov, str. Shevchenko, 2 | 095-407-15-35 | Metal, plastic, paper |
| 50 | Dnipropetrovsk oblast KP "Synelnkyiv printing house" | Synelnikove, st. Vykonkomivska, 22 | 050-188-80-19 | Wastepaper |

**ANNEX C. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY
RAW MATERIALS IN THE DONETSKA OBLAST**

| No. | Name | Location | Contacts | Specialization |
|------------|---|---|---|--------------------------------|
| 1 | FOP Sivaev S.V. | St. Ya. Mudrogo, 12, Sloviansk | (050) 959-45-34 | Paper, polymer waste, glass |
| 2 | LLC “Slav Composite Polymer” | St. Tsentralna, 39, Sloviansk | (050) 701-41-95 | Polymeric waste |
| 3 | LLC “Ectoline” | St. 111 Literaturna St., Slovyansk | (098) 260-44-25 | Polymer waste, paper |
| 4 | LLC “Vtorbaza” | St. Gogolya, 27/17, Selidove | Director - Mykola Hogovich Gazarov (050) 959-38-55 | Glass, paper, polymer waste |
| 5 | LLC “Manufacturing and financial company “Rutex” | St. Festivalna, 5, Dobropillya | (050) 680-95-33 | Scrap metal |
| 6 | LLC “Ukr Met” | prov. Sanatorny, 26, Dobropillya | – | Scrap metal |
| 7 | FOP Mashkovskiy V.V | prov. Sanatorny, Dobropillya | (095) 602-45-05 | Glass, paper, polymer waste |
| 8 | FOP Vulida K.M. | prov. Kazatskyi, 5, Dobropillya | – | Glass, paper, polymer waste |
| 9 | Soledar communal enterprise “Komunalnyk” | St. 23 Tsylinnikiv, Soledar | (050) 474-22-62 Kommynalnik@ukr.net | PET bottles |
| 10 | FOP Kondratyuk O.A | Registration address: str. Shevchenka, 4/18, Dobropillia, (recyclables are collected on the territory of the Pokrovska city territorial community) | abrisplus@ukr.net | Glass, polymer waste |

ANNEX D. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE ZHYTOMYRSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|--|---|---------------|--|
| 1 | LLC "ECO ZAHIST-UKRAINE" | Zhytomyr, st. Cathedral, 4A | (0412) 468079 | <ul style="list-style-type: none"> - Waste from the production, production and use of pharmaceuticals, except waste specified in the Green List of waste - Waste containing as components or pollutants mercury, mercury compounds (collection, storage); - Spent batteries of lead batteries, whole or broken; - Packaging and container waste (collection, storage); - Waste from production, production and use of ink, dyes, pigments, paints, varnishes, oil; - etc. |
| 2 | LLC "EKO NOVA" | Baranivka, St. I. Franka, 104 A | 0972379001 | <ul style="list-style-type: none"> - Waste from the production, production and use of ink, dyes, pigments, paints, varnishes, and oil (collection, transportation, and storage). - Packaging and container waste - Waste containing as components or pollutants mercury, mercury compounds (including spent fluorescent lamps and devices containing mercury) - Copper compounds, including copper-containing slags - Zinc compounds, including zinc-containing slags - etc. |
| 3 | LLC "ECOTECH-NOLOGY" | Zhytomyr, St. Promyslova, 6 | (044) 5026775 | <ul style="list-style-type: none"> - Sludge waste from electrolytic purification and copper extraction systems. - Spent catalysts containing compounds of copper, zinc, aluminium, nickel, and cobalt. - etc. |
| 4 | PE "GRAND LIGHT" | Korostyshiv, St. Bolshevik, building 59-A, office 1/16 | (044) 2258880 | <ul style="list-style-type: none"> - Waste containing as components or pollutants mercury, mercury compounds (including spent fluorescent lamps and devices containing mercury). - Used lead acid batteries, whole or broken. - Waste from the production, production and use of ink, dyes, pigments, paints, varnishes, oil. - Packaging and container waste. - etc. |
| 5 | EMERGENCY AND RESCUE UNIT OF THE SPECIAL PURPOSE OF THE DEPARTMENT OF EMERGENCY DEPARTMENT IN ZHYTOMYRSKA OBLAST | Zhytomyr, St. Heroes of Firemen, building 67-B | (0412) 242612 | <p>Waste from the production, production and use of biocides and phytopharmaceuticals, including waste from pesticides and herbicides that do not meet standards, have expired or are not suitable for use as intended</p> |

ANNEX E. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE TRANSCARPATIA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|--|---|--|--|
| 1 | LLC “Eco Life” | St. Ogaryova, 25, Uzhhorod | (03122) 2-65-51 | Collection, storage of waste paper, broken glass, polymer waste, rubber waste, including worn tires, secondary textile materials |
| 2 | FOP Povkhan Ya.I | St. Sadova, 8, p. Antalovci, Uzhhorod district | 0507623565 | Collection, storage of waste paper, broken glass, polymer waste, secondary textile materials, used metal containers |
| 3 | FOP Solyanyk R.M. | St. Verkhovinska, 21, Uzhhorod | (0312) 66-03-63 star04081983@ukr.net | Collection, storage of waste paper, polymer waste, glass |
| 4 | FOP Solyanyk D.M | St. Verkhovinska, 21, Uzhhorod | (0312) 66-03-63 | Collection, storage of waste paper |
| 5 | LLC “Ekovest” | St. Zankovetska, 1, Uzhhorod | 0992922839, 0505596638 ecowest.uz@gmail.com | Collection and storage of waste paper, broken glass, polymer waste, rubber waste, including worn tires, secondary textile materials, used metal containers |
| 6 | LLC “New Ecosvit” | St. 336 Domanynska, Uzhhorod | 0664462143 newekosvit@gmail.com | Collection and storage of waste paper, broken glass, polymer waste, rubber waste, including worn tires, secondary textile materials, used metal containers |
| 7 | LLC “Assib” | 18/57 Mozhaiskoho Street, Uzhhorod | 0504325277, 0504325277 | Collection, storage of waste paper, broken glass, polymer waste |
| 8 | FOP Schwartz R.K. | St. Peremohy, 159/16, Uzhhorod | – | Collection, storage of waste paper, broken glass, polymers |
| 9 | LLC “Eco Karpaty Plus“ | St. Voloshina, 16/1, Uzhhorod | 0958681359 ecokarpatyplus@ukr.net | Collection, preparation of polymers, and rubber, including worn tires |
| 10 | FOP Gubkovich V. M. | St. Dokuchaeva, 6/16, Uzhhorod St. Hrushevsky, 25, Uzhhorod; village Dovge Pole | (0312) 665550 0504326470 | Collection, storage of rubber waste, including worn tires |
| 11 | FOP Breza O.O. | St. Tsentralna, 149, Baranyntsi, Uzhhorod district | 0505127224 zakvtor@gmail.com | Collection, and storage of waste paper, glass containers, polyethylene, worn tires |
| 12 | LLC “AVE Uzhhorod” | St. L. Tolstogo, 33a, Uzhhorod | (0312) 642852, 0504347700 office.Uzhhorod@ave.ua | Collection of waste paper, plastic/polyethylene, glass |
| 13 | Storage station recycled materials “Proektna, 3” | St. Proektna, 3, Uzhhorod | shvarts.rr@gmail.com, 0502821862 | Collection of polymer waste, waste paper |
| 14 | LLC “Eco Chop” | St. Holovna, 43, Chop | (0312) 711239 | Collection of polymer waste |
| 15 | KP “Komunalnik” | St. Uzhhorodska, 68, Perechyn | 0502022247 (2-15-33) | Collection of PET bottles |
| 16 | FOP Piosa V.M. | St. Tolstogo, 60, Perechyn | 0509494248 | Collection of plastic waste, glass, waste paper, scrap metal, rubber, wood |
| 17 | FOP Devitskyi I.M. | St. Zernovska, 19, Poroshkovo village | 0953166124 | Collection, treatment and disposal of safe waste |
| 18 | TDV “Garant Group” | St. Krylova, 15, | (03131) 2-35-08 | Collection, storage of waste |

| No. | Name | Location | Contacts | Specialization |
|-----|--|--|---|--|
| | | Mukachevo, | (03131) 3-78-64 garantgroup.m@gmail.com | paper, broken glass, polymer waste, small metal containers |
| 19 | LLC "AVE Mukachevo" | St. Hrushevsky, 4/7, Mukachevo | (03131) 3-19-75, (03131) 2-22-69, 0507757700 officemukatshevo@ave.ua | Collection of plastic waste, glass, waste paper |
| 20 | LLC "Karpaty LTD" | St. Krylova, 65A, Mukachevo | (03131) 3-78-90 karpaty1@mukachevo.net | Collection and storage of waste paper, broken glass, polymer waste, small metal containers, rubber waste, textile materials |
| 21 | Collective enterprise "Second" | St. I. Franka, 164, Mukachevo, | (03131) 2-14-21 | Collection of polymer waste, waste paper, broken glass, and rubber waste, including worn tires |
| 22 | LLC "Gringer" | St. Petefi, 10/17, Mukachevo | 0506100934 | Collection of waste glass, plastic, waste paper, small metal containers |
| 23 | FOP Mykulanynets Evgeny Evgenovich | St. Lenina, 182, New Davydkovo village | – | Collection of waste paper |
| 24 | FOP Mykulanynets Yosyp Yosypovych | St. Lenina, 24 A, New Davidkovo village; Kolchyno village, str. Zaliznychna, 2 | 0509207879 | Collection of glass waste |
| 25 | DP Svalyavska District Consumer Union "Raikoopzagotprom" | St. Main, 6, Svalyava | (03133) 2-28-50, (03133) 2-36-24 | Collection, storage of waste paper, broken glass, polymer waste |
| 26 | FOP Koshel V.M | St. Dukhnovycha, 30, Svalyava | (03133) 2-48-33 koshelia.v@gmail.com | Collection, and preparation of polymer waste |
| 27 | FOP Hertz S. V. | St. Yablunovo, Volovets village | svsidi@i.ua | Collection, storage of polymer waste, waste paper, broken glass |
| 28 | PE "Brenner" | St. Slivova, 30-A, Khust | (03142) 5-53-01 | Collection, storage of waste paper, broken glass, polymer waste, rubber waste, secondary textile materials, metal containers |
| 29 | District KP "Khustshchyna WTP" | St. Gvardiyska, 122, Khust | (03142) 5-21-08 | Collection of polymer waste, broken glass, waste paper |
| 30 | FOP Baburnych I. V. | St. Nova, 9, Iza village | (03142)5-53-05, 0503722910 | Collection of polymer waste, broken glass, waste paper |
| 31 | LLC "Second export" | St. Druzhby, 760, Socirnitsia village | vasil23hotmail.cov | Collection, and preparation of polymer waste |
| 32 | FOP Sivach M. P | St. Michurina, 10, Irshava | 0979051093 sivachsasha@ukr.net | Collection, and preparation of broken glass, waste paper |
| 33 | FOP Chukhral I.A. | St. Nezalezhnosti, Irshava | 0688579630 | Collection of small metal container waste |
| 34 | FOP Burkush M.V. | St. Zavertyanska, Keretsky village | – | Collection of waste glass, plastic, waste paper |
| 35 | LLC "AVE Vynogradovo" | St. Vakarova, 18, Vynohradiv | (03143) 2-31-65 office.vinogradovo@ave.ua | Collection of waste plastic, glass, waste paper |
| 36 | LLC "Vynogradivskiyi plastic plant plumbers" | St. Leizman, 27, Vynohradiv | (03143) 2-26-61 plastic@vzpsv.com.ua | Collection, and disposal of polymer waste |
| 37 | "VBS" Vynohradiv without garbage" | St. Leizman, 27, Vynohradiv | (099) 237-95-11 | Collection of plastic, glass, waste paper, small waste metal container |
| 38 | FOP Matii Y. Y. | St. Vaydy, 42, Vynohradiv | 0981532633 | Collection, and recycling of waste paper |

| No. | Name | Location | Contacts | Specialization |
|-----|--|---|---|---|
| 39 | FOP Marchyshinets Sebastian Vasyliovych | Vynohradiv, st. Zhukova, 42, | – | Collection of waste glass, plastic, waste paper |
| 40 | Bativsk settlement council | Batyovo, 128, Berehivsky district | (0314)149356 | – |
| 41 | PE “Plastor” | St. Myru, 85, Svoboda village, | 0673423185; 0673423184 0503722024; syta@ukr.net | Collection, preparation of polymer waste |
| 42 | FOP Baksha Istvan- Beilo Andriyova | St. Shimon Mengert, 3 A, Batyovo village | 0506983720 | Collection, storage of waste paper, broken glass, and plastic waste |
| 43 | FOP Tkachuk V.V. | St. Prytisyanska, 1, building A, township V. Bychkiv | optkachukvv@gmail.com 0313235680 | Collection, and storage of waste plastic, glass containers |
| 44 | LLC “Ekobat Shuravi” | St. Tsegelna, 17, villagef V. Bychkiv | (03132) 3-56-80 ekobatllc@gmail.com | Collection of waste plastic, glass containers |
| 45 | MCP “Rakhivcomunservice” | St. Shevchenko, 43, Rakhiv | 0313222089 | Collection of plastic waste, glass, waste paper |
| 46 | Kobyletsko-Polyanske VZHKP | St. Shevchenko, 29, village Kobyletska Polyana | 0677322135 | Collection of waste plastic, glass, |
| 47 | Velikobychkivsk VZHKP | Velikiy Bychkiv village, st. A. Koperlos, 7, | 0988457756 | Collection of waste plastic, glass, |
| 48 | Chornotisyansk VZHKP | St. Tsentralna, 170 A, Chorna Tisa village | – | Collection of plastic waste, glass, waste paper |
| 49 | Bohdansk VZHKP | St. Shevchenko, 114, Bohdan village | 0966154160 | Collection of plastic waste, glass, waste paper |
| 50 | FOP Simodeyko V. M | St. Maramoroska, 1 B, Teresva township | – | Collection of plastic waste, glass, waste paper |
| 51 | LLC “Clean City Tyachiv” | St. Gollosi, 5 A, Tyachiv | 0974760814 | Collection of plastic waste, glass, waste paper |
| 52 | FOP Pavlyuk V. Yu | Tyachiv, str. Lazivska, 14 | 0679884467 | Collection of waste glass, polymers, waste paper |

ANNEX F. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE ZAPORIZKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|--|---|---|
| 1 | Private enterprise "Slavutich-Tara" | St. Prof. Toloka, 26, Zaporizhzhia | 095-773-35-33 | Collection of glass containers, waste paper |
| 2 | Private enterprise "Slavutich-Tara" | St. Ladozhka, 26, Zaporizhzhia | 095-773-35-33 | Collection of glass containers, waste paper |
| 3 | Private enterprise "Slavutich-Tara" | St. Serhiy Synenka, 53, Zaporizhzhia | 095-773-35-33 | Collection of glass containers, waste paper |
| 4 | Private enterprise "Slavutich-Tara" | St. Portova, 4a, Zaporizhzhia | 095-773-35-33 | Collection of glass containers, waste paper |
| 5 | LLC "Universal-Bud" | St. Dniprovske Shosse, 62, Zaporizhzhia | 066-771-41-01 | Collection of glass containers |
| 6 | LLC "Universal-Bud" | St. Rustavi, 5, Zaporizhzhia | 066-771-41-01 | Collection of glass containers |
| 7 | LLC "Zaporizhzhia-resources" | St. Kotlyarevsky, 4, Zaporizhzhia | (061)224-66-41 | Collection of glass containers, waste paper |
| 8 | FOP Volkova T. O. | St. Turbinna, 2, Zaporizhzhia | 097-295-20-22 | Collection of glass containers, waste paper |
| 9 | LLC "TARSERVIS" (mobile network) | boulevard Belforskyi, 11, Zaporizhzhia | 095-773-35-33 | Collection of glass containers |
| 10 | LLC "TARSERVIS" (mobile network) | St. Borodinska, 19a, Zaporizhzhia | 095-773-35-33 | Collection of glass containers |
| 11 | LLC "TARSERVIS" (mobile network) | St. Degtyarova, 5a, Zaporizhzhia | 095-773-35-33 | Collection of glass containers |
| 12 | LLC "TARSERVIS" (mobile network) | St. Dniprovske Shosse, 48, Zaporizhzhia | 095-773-35-33 | Collection of glass containers |
| 13 | LLC "TARSERVIS" (mobile network) | St. Zvenigorodska, 7, Zaporizhzhia | 095-773-35-33 | Collection of glass containers |
| 14 | LLC "TARSERVIS" (mobile network) | St. Zestafonska, 4, Zaporizhzhia | 095-773-35-33 | Collection of glass containers |
| 15 | LLC "TARSERVIS" (mobile network) | St. Zestafonska, 11, Zaporizhzhia | 095-773-35-33 | Collection of glass containers |
| 16 | LLC "TARSERVIS" (mobile network) | St. Tregubenko, 17, Zaporizhzhia | 095-773-35-33 | Collection of glass containers |
| 17 | LLC "Estron" (mobile network) | St. S. Synenka, 75, Zaporizhzhia | 050-641-61-21 | Collection of glass containers |
| 18 | LLC "TARSERVIS" | St. Tovariska, building 37, apartment 58, Zaporizhzhia | (061) 252-35-09 | Sklotara, other types of secondary grey matter |
| 19 | LLS "ESTRON" | St. Menoniteska (Fadeeva), bldg. 24, Zaporizhzhia | – | Sklotara, other types of secondary grey matter |
| 20 | LLC "ZAPORIZZHIA VTORESURY" | St. Victory, bldg. 81, sq. 13, Zaporizhzhia | 066-001-12-80 | Sklotara, other types of secondary grey matter |
| 21 | PP "SLAVUTYCH-TARA" | Soborny ave., bldg. 187, sq. 33, Zaporizhzhia | 061-279-08-38, 061-213-83-43, 067-612-17-78 | Reception point of secondary raw materials |
| 22 | LLC "Zaporizhhyavtoresursy" Dmytro Serhiyovych Kretov | St. Severokiltseva, 5A, Zaporizhzhia | 066-751-91-44 | Reception point of secondary raw materials |
| 23 | LLC "Zaporizhhyavtoresursy" Dmytro Serhiyovych Kretov | St. Chumachenko, 21-B, Zaporizhzhia | 066-751-91-44 | Reception point of secondary raw materials |
| 24 | PE "Slavutich Tara" Stariy E.V. | St. Novokuznetska, 12, Zaporizhzhia | (061) 279 08 38, (061) 213 83 43 | Collection and disposal of glass containers in temporary structures |

| No. | Name | Location | Contacts | Specialization |
|-----|------------------------------------|---|-------------------------------------|--|
| 25 | PE "Slavutich Tara" Stariy E.V. | St. Novokuznetska, 44, Zaporizhzhia | (061) 279 08 38, (061) 213 83 43 | Collection and disposal of glass containers in temporary structures |
| 26 | PE "Slavutich Tara" Stariy E.V. | St. Komarova, 1, Zaporizhzhia | (061) 279 08 38, (061) 213 83 43 | Collection and disposal of glass containers in temporary structures |
| 27 | PE "Slavutich Tara" Stariy E.V. | St. Topolina, 35, Zaporizhzhia | (061) 279 08 38, (061) 213 83 43 | Collection and disposal of glass containers in temporary structures |
| 28 | PE "Slavutich Tara" Stariy E.V. | St. Vodograyna, 4, Zaporizhzhia | (061) 279 08 38, (061) 213 83 43 | Collection and disposal of glass containers in temporary structures |
| 29 | FOP Postrygach I. B. | St. Kosmichna, 21- B, Zaporizhzhia | 067-259 42 05 | Reception point of secondary raw materials |
| 30 | FOP Postrygach I. B. | St. Severokiltseva 17B, Zaporizhzhia | 067-259 42 05 | Reception point of secondary raw materials |
| 31 | LLC "TARSERVIS" | St. Tovariska, 37, sq. 58, Zaporizhzhia | 095-773-35-33 | Collection of safe waste (sklotara) |
| 32 | FOP Korochansky V.M. | St. Kachalova (district, building No. 16), Zaporizhzhia | 050-619-72-08 | glass container |
| 33 | FOP Korochansky V.M. | St. S. Makovsky (building no. 6-8), Zaporizhzhia | 050-619-72-08 | glass container |
| 34 | FOP Korochansky V.M. | St. Avramenko (district, building No. 7), Zaporizhzhia | 050-619-72-08 | glass container |
| 35 | FOP Korochansky V.M. | St. Shevchenko (district, building No. 260a), Zaporizhzhia | 050-619-72-08 | glass container |
| 36 | FOP Korochansky V.M. | St. Klymova (district, building No. 2a), Zaporizhzhia | 050-619-72-08 | glass container |
| 37 | Ecopolis-Yug | village white St. Cooperative, 26 | 098-177-11 77 | Wastepaper (cardboard, books, magazines, newspapers), colored plastic (buckets, bowls, boxes, chairs), glass containers, PET bottles |
| 38 | LLS "Veltum-Zaporizhzhia" | St. Ivanova, 99, Zaporizhzhia | 0612285501 | PET, paper, glass |
| 39 | LLC "Vtormix" | St. Shevchenko, 2, Orihiv | 0667557577 | PET, paper, scrap and others |

ANNEX G. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE IVAN-FRANKIVSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|--|--|---------------------------------------|---|
| 1 | Verkhovynsky Combine of Communal Enterprises | St. Zhabievskya, 54 Verkhovyna village | +380962471812, vkkp@ukr.net | Plastic, paper, glass |
| 2 | PE Rozenchuk N. B. | St. Kotsyubinsky, Verkhovyna village | +380984357646 | PET bottle, broken glass, waste paper, polyethylene, scrap metal |
| 3 | LLC "Visa-Vtorma" | St. Botanichna, 10 a, Ivano-Frankivsk | vizavtorma@meta.ua | Wastepaper, broken glass, plastic, plastic, PET bottle |
| 4 | FOP Kaminsky I.Z. | St. L. Ukrainky, 76, Halych | +380974285964 | Glass, waste paper, plastic |
| 5 | LLC "Halychpromgroup" | St. D. Halytskogo, 6d, Rohatyn | (03435)24760, 29041975o.@gmail.com | Scrap metal |
| 6 | FOP Boretsky I. V. | St. Halytska, 117/71, Rohatyn | +380679771106 | Wastepaper |
| 7 | KP "City communal economy" | St. Plavyuka, 22A, Tlumach | +380965803522 kp_mkg@ukr.net | Glass, paper |
| 8 | LLC "Eco-Prykarpattia" | main office: str. Podvalna, 2A Kalush, production base: St. B. Khmelnytskoho, 82, Kalush | +380673402717 doc.ekokalush@gmail.com | PET bottle |
| 9 | PP Kuryliv O.O. | Heroiv square 24; ave. L. Ukrainky, 14. Kalush | +380980883774 | Wastepaper, glass, polyethylene |
| 10 | FOP Hoshovsky V.V. | St. Shevchenko, 22/1, Bolekhiv | +380663401122 | Wastepaper, plastic, glass |
| 11 | PE VTF "DOK" | St. 2/1 Simonenka, Kolomyia | +380677274838 | Wastepaper |
| 12 | FOP Melnychuk A. Ya. | St. Valova, 47 B, Kolomyia | +380970345298 | Wastepaper, glass, film |
| 13 | LLC "Isteel" | St. Simonenko, 2; St. Edelweisiv, 6; St. Maidanska, 12, Kolomyia | +380506662958 | Scrap metal |
| 14 | LLC "Spetslom" | St. Edelweisiv, 6 Kolomyia | +380973096321 | Scrap metal |
| 15 | PE "Alliance" | St. Maidanska, 12, Kolomyia | +380631000850 | Scrap metal |
| 16 | FOP Tomaschuk R. V. | St. Mickiewicz, 44, Kolomyia | +38067-1762008 | Wastepaper, glass containers, plastic, PET bottle |
| 17 | NGO "Ecogvalt" | St. Valova, 47 b, Kolomyia | +380685131886 | Plastic bottles (PET and HDPE), polyethylene, plastic, cardboard, aluminum cans, foil, metal, batteries, wax, glass, Tetra Pak, Styrofoam |
| 18 | FOP Skorotizhuk M.M. | St. Kotlyarevsky, 22 p. Merchant | 380961700240 | Wastepaper, glass, film, plastic |
| 19 | FOP Feduniv S. L. | St. Hrushevskiyi, 66, Snyatyn | 0673370155, lvovich77@gmail.com | Glass, plastic |
| 20 | FOP Sidlyarchuk M.M. | St. Shiroka, 5 a Snyatyn | 0971030490 prtrashgy@gmail.com | Glass, plastic |
| 21 | PE Fokaschuk M. M. | St. Naberezhna, 23 village Old Kosiv | 0985238606 | Scrap metal |

ANNEX I. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE KYIVSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|-------------------------------|---|------------------------------------|---|
| 1 | KP "Community" | village Tarasivka, str. Shkilna | 0672543363 | Municipal waste |
| 2 | LLC Altfather Kyiv" | Legal Address: Kyiv, Pivotroflotsky Ave Actual: Kyiv, str. Volynska, 57 | 0442499517 0445015914 | Collection of safe waste (glass, paper, plastic) |
| 3 | MPE "Rada" | Legal Address: Irpin, str. Turgenivska, 25 Actual: Bucha, str. Yablunska, 99 | 0964607862 | Wastepaper, PET bottle, scrap metal, polymers |
| 4 | PE Tkachenko O. | township Baryshivka, str. Tsentralna, 71 | 0674027019 | Glass, paper, plastic |
| 5 | LLC "ECO City M" | township Baryshivka, str. Poleva, 1 | 0504719469 | Plastic, paper, glass |
| 6 | LLC "Eco Vtor" | Fastiv, Kozhanske highway, 4a | 0442225115 | Recycling of PET bottles |
| 7 | LLC "Waste Management Center" | village Fastivets, str. Shechenka, 52 | recycle.com.ua 0980430303 | Paper, glass, plastic, polyethylene stretch film, tetra pack, metal |
| 8 | LLC "KPD" | Fastiv, str. Polygraphic, 6 | 0567900997 0675218033 | Production of secondary granules (polyethylene processing) |
| 9 | LLC VEP "EKO-VTORMA" | Fastiv, str. A. Sheptytskoho, 6b | 0456560333 09323064840674017678 | Paper, PET bottle, polyethylene |
| 10 | LLC "ECOSPHERA NOVACY" | Fastiv, str. Kyivska, 22, office 1 | 0936534687 0637567694 | Sorting of MW |
| 11 | FOP Shulyarenko A.A. | Fastiv, str. Sayenka, 4a | 0634657903 0446562567 | Recovery of sorted waste (paper, PET bottle, glass) |
| 12 | FOP Orlenko S. M. | Fastiv, str. Byshivska, 14 | 0446567301 0964277001 | Wholesale of waste and scrap (glass, PET, paper) |
| 13 | FOP Linnyk O. A. | Myronivka, st. Zakharchenko, 40 | 0674081701 | Paper, glass container, PET bottle |
| 14 | LLC "Pereyaslav Bud" | Pereyaslav, str. B. Khmelnytskyi, 32 | 0933536030 | Paper, plastic, glass, metal |
| 15 | KP "Horyanin" | village Gora, str. Central, 5 | 0956130024 | Paper, plastic, glass |
| 16 | FOP Yakymenko O.V. | township Rokytno, str. Teleshivska, 3 | 0980550435 | Glass, paper, PET bottle, black metal |
| 17 | FOP Harkavenko O. M. | township Rokytno, str. Enthusiasts, 1 | 0672307873 | Glass, paper, black metal |
| 18 | KP "Tarashablougoustrii" | Tarasha city, str. Shevchenko, 78 | 0456642662 | Glass, plastic |
| 19 | LLC "Leto-Travel" | Kyiv, str. Zoological, 4 | 0672307873 | Scrap metal, waste of ferrous metals |
| 20 | ST "Ukrresurs" | Tarasha city, str. Vatutina, 3 | 0674425267 0509347504 | Scrap metal, waste of ferrous metals |
| 21 | LLC "Kramar-Station" | village Hnativka, str. Kochur tract, 1 | 0954084896 | Safe waste |
| 22 | LLC "Altfather Kyiv" | Kyiv, 72 Povitroflotskyi Ave | 0443344431 | Safe waste |
| 23 | FOP Shlyakhtychenko O.I. | Tetiiv, str. Ac. Bayfrakivskogo, 83A | 0963763668 | Wastepaper |
| 24 | LLC "RK-PROMMET-PODILLYA" | Legal Address: Kyiv, Pecherskyi uzviz, 19 Actual: Tetiiv, St. Volodymyrska, 67 | 0997022971 | Waste, scrap |
| 25 | KP "Community" | village Tarasivka, | 0672543363 | Municipal waste |

| No. | Name | Location | Contacts | Specialization |
|-----|--|---|-------------------------------|---|
| | | str. Shkilna, 1 | | |
| 26 | KP "Housing and communal center" | Slavutych, str. Kyivsky quarter, 14 | 0457923741 0457922822 | Glass, plastic, paper |
| 27 | FOP Romanchuk E.V. | Slavutych | 0679508931 | Glass, plastic, paper |
| 28 | KP "Grebinkivskyi housing society" | township Hrebinky, Nauky Avenue 82a | 0673472920 | Removal of MW |
| 29 | JEP "Research" | township Doslidnitske, st. Engineering, 6 | 0457133162 | Removal of MW |
| 30 | FOP Nosenko Yu. M. | Kagarlyk, str. May Day, 4 | 0639499687 | Plastic bottles, paper |
| 31 | PJSC "Ukrvtorchermet" | Kagarlyk, St. Kagatna, 2 | – | Scrap metal |
| 32 | LLC "Kyivvtormet" | Bila Tserkva, st. Levanevsky, 66a | 79128 09841110410970127675 | Scrap of ferrous and non-ferrous metals |
| 33 | LLC "Industrial and financial company "Intersplav" | Bila Tserkva, st. Skvirske highway, 194 | 6-75-48 | Scrap of ferrous and non-ferrous metals |
| 34 | PP "Shykom" | Bila Tserkva | 5-47-35 0679360278 | Scrap of ferrous and non-ferrous metals |
| 35 | LLC PFC "Interstal" | Bila Tserkva | 0503126205 0675038253 | Scrap of ferrous and non-ferrous metals |
| 36 | LLC "Ukrmet" | Bila Tserkva | 0983269815 | Scrap of ferrous and non-ferrous metals |
| 37 | LLC "Kuprum" | Bila Tserkva | 0978924099 | Scrap of ferrous and non-ferrous metals |
| 38 | LLC "ProMet" | Bila Tserkva | 0674054577 | Scrap of ferrous and non-ferrous metals |
| 39 | LLC "Unicum" | Bila Tserkva, st. Kyivska, 74 | 5-01-95 5-25-61 | Wastepaper, polymers |
| 40 | FOP Mohylko O. M. | Bila Tserkva, st. Sukhoyarska, 9 | 6-66-10 | Wastepaper, polymers |
| 41 | LLC "Aris-Pak" | Bila Tserkva, st. Glinyana, 47a | 39-74-24 | Waste polyethylene |
| 42 | LLC "SKV" | Bila Tserkva, st. Glinyana, 45 | 5-93-79 5-93-70 | Waste polyethylene |
| 43 | LLC "Inter TsVZV" | Bila Tserkva, st. Levanevsky, 85 | 7-12-19 | Rubber-containing waste |
| 44 | LLC "Shinnyk+" | Bila Tserkva, st. Glinyana, 40b | 5-04-51 | Rubber-containing waste |
| 45 | FOP Ilnytskyi S. M. | Bila Tserkva, st. Tomilivska, 72A | 0677436721 | Collection of safe waste |
| 46 | LLC "VTORMET-KYIV" | Vasylkiv, str. Poleva, 61 | 0967576318 | Storage and processing of scrap metal |
| 47 | Potryshevska O. L. | Vasylkiv, str. Soborna, 105 | 0950542370 | Acceptance of scrap metal |
| 48 | Tovba V.P. | Vasylkiv, str. Soborna, 105b | 0952805700 0504404132 | Realization of rolled metal |
| 49 | Pedchenko Ruslan | Vasylkiv, str. Romanticka, 3a | 0675003310 | Acceptance of recycled materials |
| 50 | Dmytro Chaus | Vasylkiv, str. Chekhova, 1 | 0687484592 | Acceptance of scrap metal |
| 51 | LLC "Vtorma Yua" | Brovary, str. Kyivska, 135 | 0459441233 | Recycling of recycled materials (glass, paper, film, PET) |
| 52 | FOP Pastukhov M. S. | Uzyn, st. Gagarina, 5 | 0675995100 | Wastepaper, plastic, scrap metal |
| 53 | FOP Pashynsky V.V. | Uzyn, str. Zavodska, 7 | 0989598314 | scrap metal |
| 54 | FOP Krupenko F.O. | Uzyn, str. Lesi Ukrainka, 47a | 0675080786 | Wastepaper, plastic, scrap metal |
| 55 | FOP Nevyhozhnyy M. V. | Uzyn, str. Aviators | 0677064610 | Wastepaper, plastic, glass |

| No. | Name | Location | Contacts | Specialization |
|-----|----------------------|-----------------------------------|------------|---|
| 56 | LLC "Nestle Ukraine" | Kyiv, str. V. Val, 72a | – | Wastepaper, plastic, glass, film, PET, tetra pack, cans |
| 57 | FOP Nepiyvoda M. O. | township Makariv, str. Franka, 20 | 0995346469 | Wastepaper, plastic, glass containers, glass |
| 58 | FOP Omelyanchuk I.M. | village Fasova, str. Sadova, 50 b | 0674408983 | Wastepaper, polyethylene film, aluminum cans, PET bottles, glass containers, plastic containers |

ANNEX K. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE KIROVOGRADSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|---|--|---|
| 1 | FOP Vdovichenko S.V. | Kropyvnytskyi, St. Avtolyubiteliv, 3 a, St. Viktor Domontovych (opposite building 3), St. Shevchenko, 41, St. Arseny Tarkovsky, 76/3, str. K. Popova, 31 on the corner of Andriivska Street - prov. V. Vyskovsky, St. Poltavska (near building 81); St. Evgena Telnova, 3; township Nove, str. Metalurhiv, 33 | 067 520 98 50 | Collection and destruction other waste (wastepaper) |
| 2 | FOP Bogoyavlenskyi O.V | Kropyvnytskyi, str. Patsaeva (near house 8), St. Sviatoslav the Brave, 1 St. Preobrazhenska (inter The building of trade unions and municipal "Ingul") prov. Fortechny, 25, St. Generala Zhadov, 24/27, St. Yuriy Kovalenko (at a public transport stop) | 050 573 77 61 | Collection and destruction other waste (wastepaper) |
| 3 | LLC "EKOVDM" | Kropyvnytskyi, St. Exhibition building, 1 b | 095 816 89 00; (0522) 56 76 42 | Collection, preparation individual species as secondary raw materials (polymeric waste, waste paper) |
| 4 | LLC "Ukrainian treatment center with waste" | Kyiv, str. Ryleeva, 10-a, actual address: Kropyvnytskyi, St. Ajamska, 29 | info@ucMW.com.ua (044) 455-97-58 (044) 362-86-77 | Collection, preparation certain types of waste as secondary raw materials (waste polymer, wastepaper) |
| 5 | LLC Naukovo-production company "Ecocenter" | Kropyvnytskyi, St. Tarasa Karpa, 59 actual address: Kropyvnytskyi, St. Ajamska, 29 | nvf@ecocenter.com.ua (0522) 04-26-32 (0522) 32-23-50 | Collection, preparation certain types of waste as secondary raw materials (polymeric waste) |
| 6 | BMP Komunalnyk | Blagovishchenske | 05259 2 11 89 | Glass, plastic |
| 7 | PE "Ukrstalprom" | Oleksandria, St. G. Sokalskyi, 20; prov. Tseglokamenyarskyi, 2 | 099 386 17 51 | Reception point scrap metal |
| 8 | FOP Koven O.M. | Oleksandria, st. Bratska, 26 | – | Reception point recycled materials |
| 9 | LLC "Ukrservice M" | Oleksandria, Zvenigorodskoe highway, 6 | – | Collection of safe waste |
| 10 | PE "Ekosvit-PLUS" | Oleksandria, st. Kozatska ("Aisberg" market), St. Shevchenko, 69, St. Kozatsky shlach, 8/2 | 066 199 69 94 | Reception, processing recycled materials |
| 11 | PE "Ecopoint" | Oleksandria, Zvenigorodskoe highway, 1 | 050 753 63 58 | Processing recycled materials |
| 12 | JSC "UKR-UTIL" | Oleksandria, prov. Tavriyskyi, 7 | 095 741 71 41 | Collection of safe waste |
| 13 | LLC "Kiev Spetsutil" | Oleksandria, prov. Tavriyskyi, 7 | 095 741 71 41 | Collection of safe waste |
| 14 | FOP Borovska V.M. | Svitlovodsk, St. Gvardiyska, 19 | 096 523 50 10 | Removal/disposal waste |

ANNEX L. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE MYKOLAIVSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|---|----------------------------|---|
| 1 | LLC “Yuzh-pobut 24” | Mykolaiv, St. Kolodyazna, 10, sq. 129 | 0984686363 0679810033 | Collection, storage of certain types of waste as secondary raw materials of rubber waste, polymer waste |
| 2 | LLC “Ukrainian scientific and ecological company” | Mykolaiv, St. Nikolska, 16A | 0512530025 unek@ukr.net | Collection, storage of certain types of waste as secondary raw materials: polymer waste, rubber waste |
| 3 | FOP Novokhatko O.I. | township Yelanets, Nezalezhnosti Ave., 8 | 0688209002 | Collection, and storage of certain types of waste as secondary raw materials: waste paper, glass containers, PET bottles |
| 4 | LLC “NVP “Unitep LTD” | Mykolaiv, Heroiv Ukrainy Ave., 39 | 0512508703 | Collection, storage of certain types of waste as secondary raw materials: waste paper, scrap glass, polymer waste, waste rubber, secondary textile materials |
| 5 | LLC “Vtorma-Mykolaiv” | Mykolaiv, St. Sadova, 18, sq.32 | 0512671442 0990312055 | Collection, storage of certain types of waste as secondary raw materials: waste paper, scrap glass, polymer waste, rubber waste, secondary textile materials, used metal containers |
| 6 | FOP Zvorygin A.V. | Mykolaiv, Heroiv Ukrainy Ave., 77A, | – | Collection, and storage of certain types of waste as secondary raw materials: polymer waste |
| 7 | LLC “Artnyk” | Mykolaiv, St. Kolodyazna, 16, sq. 18 | 0512243471 0972121163 | Collection, storage of certain types of waste as secondary raw materials: waste paper, scrap glass, polymer waste, rubber waste, secondary textile materials, used metal containers |
| 8 | LLC “Ukresursy-2011” | Mykolaiv, Central Ave., 93B, office. 408 | 0512473730 | Collection, and storage of certain types of waste as secondary raw materials: polymer waste, rubber waste, waste paper, scrap glass |
| 9 | LLC “Scientific-production enterprise “Ecoworld” | Mykolaiv, St. Lyagina, office, 405 | 0661736514 | Collection, and storage of certain types of waste as secondary raw materials: polymer waste, rubber waste, waste paper, scrap glass, metal containers |
| 10 | KP “Mykolaivcomuntrans | Mykolaiv, St. Kuznetska, 199 | 0512586960 | Collection, and storage of certain types of waste as secondary raw materials: waste paper, scrap glass, polymer waste |
| 11 | LLC “Second Service” | Mykolaiv, a/s 149 | 0577597001 | Collection, and preparation of certain types of waste as recycled materials: waste paper |
| 12 | LLC “ASK-Group” | village Halytsynov, St. Naberezhna,42 | 0512255948, 593225 | Collection, storage of certain types of waste as secondary raw materials: polymer waste, rubber waste |
| 13 | LLC “Ekovtor-M” | Mykolaiv, St. Decabristiv, 50/1 | 0512508597 | Collection, and storage of certain types of waste as secondary raw materials: polymer waste, broken glass, waste paper, textile waste |
| 14 | LLC “HERMES EXIM” | Yuzhnoukrainsk, Sobornosti Ave., 5, sq. 101 | 0675144493 | Collection, and storage of certain types of waste as secondary raw materials: polymer waste, waste paper |
| 15 | LLC “TIMAL” | Mykolaiv, Myru Ave., 2a | 0552424389 | Collection, and storage of certain types of waste as secondary raw materials: polymer waste |

| No. | Name | Location | Contacts | Specialization |
|-----|---------------------------|---------------------------------|---------------------------------------|--|
| 16 | KP "Ochakiv-erwis" | Ochakiv, St. Hetmanska, 41 | 0515430333, ochakov.servis@ukr.net | Collection, and storage of certain types of waste as secondary raw materials: polymer waste |
| 17 | KP "Mykolaivcomuntras" | Mykolaiv, St. 1 Ingulska, 1A | 0512586960 | Collection, and storage of certain types of waste as secondary raw materials: waste paper, polymer waste, PET containers |

ANNEX M. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE POLTAVSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|----------------------------|---|--|--|--|
| Kremenchuk district | | | | |
| 1 | “Kremenchutsk Communal motor vehicle enterprise 1628” | Kremenchuk, St. Levka Lukyanenko, 48/75 | http://katp1628.com (0536) 758545, office@katp1628.com | Collection of polymer waste, as well as glass and paper waste, including: used glass containers; glass cullet; PET bottle; wastepaper; - small used plastic container; stretch film, polyethylene film |
| 2 | LLC “Company “Cream raw material” | Kremenchuk, ave. Lesi Ukrainka, 138, actual addresses of reception points: Kremenchuk, str. Profspilkova, 5-A; Lieutenant's embankment Dniprova, 58-A; St. Respublikanska, 134A | http://kremvtorcirovina.com.ua +380675304294 kremvtorcirovina@ukr.net | Collection of polymer waste, as well as waste paper, including: - waste paper; - PET bottle; - polyethylene; - plastic, - cans with drinks (aluminium) |
| 3 | LLC “Rubeekotworna-Center | Actual address reception points: Poltava Oblast, Kremenchuk - kw. 101, building 8; - st. V. Boyka, 7; - Ave. Freedom, 85; - st. Respublikanska, 134a. | +380503010608 rvc2009@ukr.net | Collection of polymer waste, as well as waste paper, including: - waste paper; - plastic bottle; - glass container (beer bottle); - film polyethylene; - a can with drinks (aluminium) |
| 4 | PE “Krem-metal product” | Actual address reception points: Poltava Oblast, Kremenchuk - 85 Gvardiyska St. (near residential building No. 1/73); - street Princess Olga (near residential building No. 14); - Ave. L. Ukrainka (near residential building No. 16) | +380960994333, kremmetalproduct@mail.ua | Collection of polymer waste, as well as glass waste and paper, including: - glass container used; - glass bottle; - PET bottle; - wastepaper. |
| 5 | FOP Zabolotny V.I | Legal address: the city of Horishni Plavni, Heroiv Dnipro Ave., 21 Actual addresses reception points: Poltava Oblast, Kremenchuk St. Vadim Pugachev, 14B; - street Victories, 56; - street Pavlivska, 9 | +380675325477 zvi-06@ukr.net ; rozalinda@ukr.net | Collection of polymer waste, as well as glass waste and paper, including: - glass container - glass bottle; - PET bottle; - waste paper; - polyethylene waste; - plastic waste; - PET bottle; - metal cans |
| 6 | FOP Pashkovska L.M. | Legal address: Kremenchuk | +380960990470 | Collection of polymer waste, as well as |

| No. | Name | Location | Contacts | Specialization |
|-----|-----------------------------|--|--|---|
| | | Avtokrazivnyi Blvd., 22, quarter 12 | pav591125@gmail.com pav@linkkremen.ne | glass waste and paper, including: - waste paper; - PET bottle; - glass container (beer bottle); - polyethylene film; - a can from under drinks (aluminium) |
| 7 | FOP Khomenko | Actual addresses reception points: M. Kremenchuk - street Myru, 21; - street Pravoberezhna, 38A; - street Velyka Naberezhna, 13A | +380977012555, +380677367900 | Collection of polymer waste, as well as waste paper, t. h.: -PET bottle; - plastic; - waste paper |
| 8 | FOP Shelter | Actual addresses reception points: Kremenchuk - street Bogaevsky, 5 | +380685581991 | Collection of polymer waste, as well as waste paper and scrap metal, including: - PET bottle; - wastepaper; - scrap metal |
| 9 | PP "Povtorstalmet" | Actual address reception points: Kremenchuk St. Yarmakov, 5 | +380963845111 | Waste collection scrap metal (black and color metal) |
| 10 | "Poltava Non-ferrous metal" | Actual address reception points: Kremenchuk St. Yarmakova, 5-B | +380962914000 | Waste collection scrap metal (black and color metal) |
| 11 | PE "Met-Invest SMC" | Actual address reception points: Kremenchuk - street Yarmakova, 9-B | +380672090630 | Waste collection scrap metal (black and color metal) |
| 12 | FOP Levochkov | Actual addresses reception points: Kremenchuk - street Yarmarkova, 9-B | - | Collection of polymer waste, as well as wastepaper and scrap metal, including: - PET bottle; - plastic; - wastepaper |
| 13 | FOP Nikitin | Actual address reception point: Kremenchuk - street Makarenko, 7 | +380961880904 | Collection of polymer waste, as well as waste paper and scrap metal, including: - PET bottle; wastepaper |
| 14 | KRISTIL LLC | Kremenchuk - street Salgania, 14-B | +380509716174 | Waste collection scrap metal (black, color metal) |
| 15 | "SVSTIL" LLC | Kremenchuk - street Makarenko, 36-B | +380954281187 | Waste collection scrap metal (black, color metal) |
| 16 | PE "Argentum" | Actual addresses reception points: Kremenchuk - street Betonna, 27; - Kyivska St., 36; - street Heroiv UPA, 4a | +380960994333, +380671062624 | Collection of polymer waste, as well as waste paper, glass and scrap metal: - PET bottle; - plastic; - sklotara; - wastepaper |

| No. | Name | Location | Contacts | Specialization |
|-----|---------------------------------------|---|---------------------------------|---|
| 17 | FOP Dormantov | Actual addresses reception points: Kremenchuk - street Princess Olga, 16; - st. V. Pugacheva, 4a - street Vadim Boyka, 9/9 | +380977689930, +380675425912 | Collection of polymer waste, as well as wastepaper, glass and scrap metal: - PET bottle; -plastic; - sklotara; -wastepaper; - scrap metal |
| 18 | Reception point recycled materials | Kremenchuk - street Respublikanska, 24 | +380974995651 | Waste collection scrap metal (black and color metal) |
| 19 | Reception point recycled materials | Kremenchuk - street Respublikanska, 27 | +380971190710 | Collection of polymer waste, as well as scrap waste metal: PET bottle; -plastic; - scrap metal |
| 20 | Reception point recycled materials | Kremenchuk St. Ivan Pryhodko, 135 | +380960360377 | Collection of polymer waste, as well as waste paper and scrap metal: - PET bottle; - plastic; -wastepaper; - scrap metal |
| 21 | FOP Lomonosov | Kremenchuk -prov. Prydniprovskiyi 17A | +380976447094 | Collection of polymer waste, as well as wastepaper and scrap metal: - PET bottle; -plastic; -wastepaper; - scrap metal |
| 22 | FOP Moshko | village Little Kohnivka - street B. Khmelnytskyi Kremenchuk - Ave. L. Ukrainky, 16 | +380688757132 | Collection of polymer waste, as well as wastepaper, and glass containers: -wastepaper; - PET bottles; - syllable; -cans from under drinks (aluminium) |
| 23 | Reception point recycled materials | Kremenchuk - street V.Veliky in the district residential building No. 52 | +380675425912 | Waste collection paper and scrap metal: - waste paper; - scrap metal |
| 24 | Reception point recycled materials | Kremenchuk - street V.Veliky in the district residential building No. 60 | +380977495162 | Waste collection paper and glass: -wastepaper; -glass |
| 25 | Reception point recycled materials | Kremenchuk - street Yakova Petrusya, 120-A | +380969676329 | Waste collection paper, plastic and scrap metal: -wastepaper; -plastic; - scrap metal |
| 26 | Reception point recycled materials | Kremenchuk - street Cooperative, 19 | +380988749549 | Waste collection scrap metal (black, color metal) |
| 27 | FOP Hanus | Kremenchuk - Stepovy dead end, 2 | +380960436797 | Waste collection plastic, paper and glass: - waste paper; -plastic; - syllable; -cans from under drinks (aluminium) |

| No. | Name | Location | Contacts | Specialization |
|--------------------------|---|--|---|---|
| 28 | FOP Rudych Yu. V. | Semenivka village St. Matrosova, 18 St. Pershotravneva, 18 | 0666794083 sortui.zdavai.smk@gmail.com | - cardboard; - film; - PET; - glass bottles; - glass; - steel bank |
| Poltava district | | | | |
| 29 | CP "Druzha" | village stepmothers, St. Lyali Ubiyov, 1 | kpdruzba@gmail.com | - plastic; - glass; - paper |
| 30 | FOP Kozovlev V. L. | village Opishnia | 0957915046 | plastics |
| 31 | PP "Crocus" | city of Zinkiv str. Vozdvizhenska, 1d | - | - scrap metal; - paper; - glass |
| 32 | Karlivske VUZHKG | Karlivka prov. Gorky, 6 | 0534621690 karlivske.vuzkg@ukr.net | PET bottles; - glass; - paper |
| 33 | Ltd "Rayagroenergo" | Dykanka village St. Michurin | 0505245957 | safe waste |
| 34 | FOP Momit V.A. | Dykanka village St. Kalinova, 8v | 0503620413 | safe waste |
| 35 | FOP Sakovich S.M. | village Stasi, str. Yakovenka, 15 | 0508898758 | safe waste |
| 36 | Poltava communal motor vehicle enterprise | Poltava street Kahamlyka, 84 | 0532592917 | - waste paper; - glass; - plastic |
| 37 | FOP Karnaukh T.I. | Poltava street Kukoby, 41 sq. 15 | 0505736609 | - waste paper; - glass; - plastic |
| 38 | Ltd Poltava ecoresources | Poltava (9 points reception of recycled materials city) | (0532)570355 vtorma@poltava.ukrtel.net | - PET bottles; - glass; - waste paper |
| Myrhorod district | | | | |
| 39 | KP "Service" Petrivsko-Romanska village advice | St. Engelsa, 28, Gadyach | 0958276908 servisgadyach@ukr.net | - glass; - plastic; - metal; - paper |
| 40 | Yuri Strange Oleksandrovich | Zavodske, St. Vyshneva, 1st | 050078097 | - plastic; - glass; - paper |
| 41 | PE "Pegas MT" | Zavodske, st. Vyshneva, 11 | 0503059353 | black scrap metal |
| 42 | FOP Kolchevskiy A.V. | Zavodske, - street P. Myrny, 7; - street European, 32b | 0503059395 | black scrap metal; paper |
| 43 | FOP Corkin V.V. | village Pisky, str. Tsentralna, 119 | 0661102380 | - black scrap metal; - plastic; - glass; - paper |
| 44 | KP "Spetskomuntrans" | Myrhorod, St. Shishatska, 86 | 0535544292, 4-36-56 skt3@ukr.net | - polymers; - PET bottle; - waste paper; - broken glass |
| 45 | Green Hadiach FOP Shulga A. O. | Gadyach on the street corner Kindratenka and Mykhailivska | 0961721688, 0957677223 | - paper; - PET bottles; - glass containers; - film |

| No. | Name | Location | Contacts | Specialization |
|--------------------------|---|--|----------------------------|--|
| | | | | polyethylene |
| 46 | FOP Shlapak N.S. | Gadyach, st. Vokzalna, 1 | 0509022839 | - paper; - PET bottles; - glass containers; - film polyethylene |
| 47 | FOP Sakovich V.Yu | Lokhvytsia, st. heroes of Ukraine, 106 | 0666042031, 0679699120 | - waste paper; - PET bottle; - polyethylene; - broken glass; - glass containers; - aluminum can |
| Lubensky district | | | | |
| 48 | FOP Nesterenko V. Yu. | Lubny street Industrialna, 7 | - | - paper; - PET bottles; - PE film |
| 49 | LLC "Glas Tras Service" Berezhny I. M. | Lubny street Industrialna, 13 | - | broken glass |
| 50 | LLC "METPROM LUBNY" | Lubny street Barvinkova, 5 | - | scrap metal |
| 51 | KP "Ecoservice-2022" | Pyryatyn sq. Heroiv Maidan, 8 | ceecoservice2022@gmail.com | - plastic; - paper; - glass |

ANNEX N. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE RIVNENSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|---|--|--|
| 1 | Ltd NVP “Ukrvtorresurs” | Rivne, st.Boyarka, 28 | 098 028 45 45 067 310 60 08 ukrvtorresurs@hotmail.com | Collection, and storage of certain types of waste as secondary raw materials(wastepaper) |
| 2 | PP “Scrap metal” | Rivne, St. Kniaz Volodymyr, 111 | 067 300 93 22 | Collection, and storage of certain types of waste as secondary raw materials(waste paper, broken glass, used metal containers) |
| 3 | Ltd “VV Partner” | Rivne, str.Kurchatova, 32 | (0362) 62-10-60 067 5558055 vvpartner@ ukr.net | Collection, storage of certain types of waste as secondary raw materials(waste paper, broken glass, polymer waste, rubber waste, polyethylene) |
| 4 | Oblastal management “Rivneekoresursy” SE from issues of dealing with waste as recycled material | Rivne, St. D. Halytskoho, 19,Office 404 | (0362) 43-92-53 rivne@nec.gov.ua | Ensuring the organization of the collection, storage and disposal system used container and packaging materials |
| 5 | Ltd “ECO CONVERSIONS” | Rivne, St. Novodvirsk, 112a | 096 388 39 00 067 642 74 46 | Collection, and storage of certain types of waste as secondary raw materials(waste polymer, PET bottles, wastepaper) |
| 6 | Ltd “Ecopaper” | village Kvasyliv, St. Cathedral, 8 | (0362) 204-203 ekopapir@ukr.net | Collection, and storage of certain types of waste as secondary raw materials(waste paper, broken glass, waste polymeric, waste rubber, textile materials, used metal containers, PET bottles, high-pressure polyethylene, stretch) |
| 7 | Rivne affiliate Ltd UKRESOURCES - 2011” | Kyiv, str. heroes Defenses, 9/10 group approx. No. 31 Rivne, str. bread maker, 106a | 0676427446 office@ukreko.com.ua | Collection, and provision individual species waste as secondary raw materials |

ANNEX P. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE SUMSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|--------------------------------------|--|---|--|--|
| Bilopol'ya | | | | |
| 1 | FOP Voronov V.V. | Bilopilla, Trading area, 19 | 050 606 24 17 | Wastepaper, plastic, glass, plastic and glass bottles, aluminum banks |
| Nizhnysyrovat village council | | | | |
| 1 | KPERZH "Host" | village Stare Selo, str. Sumaska, 43 | 050 630 07 17 | PET bottles, glass |
| Konotop | | | | |
| 1 | FOP Trofimenko O.O. | St. Vyrivska, 62, str. Bohdan Khmelnytskyi, 6, St. Oleksandrivska, 5/1 | 067 607 40 17 | Wastepaper, PET bottles, glass |
| 2 | FOP Yevmenov S.O. | St. Mykhailo wort, 6, St. Uspensko-Troitska, 13/3 | 095 440 54 44 | Wastepaper, PET bottles, glass |
| 3 | FOP Voronov V.V. | St. Krasnohirska, 12, St. Sumy, 10, str. B. Khmelnytskoho, 20 | 097 011 17 20 | Wastepaper, PET bottles, glass |
| Glukhiv | | | | |
| 1 | Ltd "Slobozhanska construction - investment group" | St. station, 6 | 095 665 43 48 | Scrap metal black metals |
| 2 | LLC "Vtorchormet"/ Handless AT. | St. Zamiska, building 3 | 066 927 43 93 | Scrap metal black metals |
| 3 | PJSC "Ukrtorchormet" | St. industrial, 15 | 050 919 06 73 | Scrap metal black metals |
| 4 | LLC "Gradient - M" | St. station, 6 | 050 307 87 80 | Scrap metal black metals |
| 5 | PE "Yevmenova O.V." | area Svobody, building 7 St. Kyiv - Moscow, 1 | 066 975 92 29 | Wastepaper, batteries, glass containers, used polyethylene, used polyethylene bottles |
| Sumy | | | | |
| 1 | Ltd "A-MUSSON" | St. Hetman Paul Skoropadsky, 10/1, office 207 | 0542 775771 099 663 70 80 http://a-musson.com/ | PET bottle, paper, plastic, glass, tin jar |
| 2 | Ltd "SERVICE RESOURCE" | Legal address: Sumy, str. Birch grove, 3; Address production capacities: Krasnopilsky district, land of V. Bobrytskarural advice (proving ground for warehousing MW) | http:// www.servisresurs.sumy.ua (0542) 64-11-88 095 314 38 58 tovservisresurs@gmail.com | PET bottle, paper, plastic, glass |
| 3 | Ltd "SVOD-7" | St. Cherkassy, 4 | (0542) 64-11-88 095 314 38 58 tovservisresurs@gmail.com http:// www.servisresurs.sumy.ua | PET bottle, paper, plastic, glass |
| 4 | LLC "Sumsky Plant GTV" | St. Supruna, 17, building 1 | - | Used tires |
| Shostka | | | | |
| 1 | PE "Vtorsyryvyna" | St. Pryvokzalna, 1 | 095 731 64 86 | Cardboard, paper, glass container PET bottles, |
| 2 | LLC "Ukrvtorchormet" | St. Komarova, 127 | 050 221 02 13 | Scrap metal black metals |
| 3 | LLC "Metalsoyuz" | St. Gagarin, 1 | 067 540 13 21 | Scrap metal |
| 4 | PE "Technosplav" | St. Shevchenko, 57 | 095 167 53 76 | Scrap metal |

ANNEX P. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE TERNOPILSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|-------------------------------|---|--|---|
| 1 | LLC "Utilvtorprom" | Ternopil, St. Textile, 18 | (097) 178-55-98 (097) 830-84-08 (096) 148-57-80 (098) 441-04-19 utilvtorprom@gmail.com | polyethylene waste, scrap glass, waste paper, plastic containers, worn car tires |
| 2 | "Tara-Zahid" Company | Ternopil - street Mykulynetska, 46; - street Youth, 7; - street Biloghirska, 1 - street Lozovetska, 13 | (067) 275-63-77 (096) 006-06-69 | waste paper, glass containers, scrap glass, plastic, polyethylene |
| 3 | LLC "Karton-Plast" | Ternopil - street Kopernyka, 3A, - street Torgovytsia, 25 - street April 15, 6 - street Hayova, 30 - street Obyzna, 17 | (0352) 25-88-28 (0352) 52-00-50 (068) 044-88-63 (067) 350-20-60 (067) 350-20-58 karton-plast.com.ua karton_plast@ukr.net | polyethylene waste, waste paper, used wooden euro pallets |
| 4 | LLC "Grad Svitly" | Ternopil St. Lukyanovicha, 8 | (067) 975-27-26 (067) 296-30-66 | waste paper, polyethylene, plastic containers, worn out car tires |
| 5 | LLC "Vtorma-Ternopil" | Ternopil, St. Brodivska, 44 | (0352) 43-41-41, (097) 165-86-60 | waste paper, polyethylene, plastic, glass containers, PET bottles |
| 6 | Ecological company "Danko" | Ternopil, St. Hayova, 8 | (0352) 52-26-29 | waste paper, polyethylene (film, bottles), PET bottle) |
| 7 | LLC "KSK Vtor Resurs" | Ternopil, St. Promyslova, 20 | (050) 377-28-95 (0352) 25-24-62 (096) 880-09-40 | waste paper, broken glass, scrap metal |
| 8 | PP Kravtsov Oleksandr | Ternopil | (068) 885-08-07 | waste paper and high- pressure polyethylene |

ANNEX R. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE KHARKIVSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|---|---|---|
| 1 | LLC “Ukrekologiya-Kharkiv” | Kharkiv, st. Moskalivska, 81A | 063-758-44-48 | Plastic, paper, polyethylene, aluminum cans |
| 2 | LLC “Megatrans Invest” | Kharkiv, st. Kostomariivska, 13 | 057-716-42-88 050-400-66-32 ecotek@ukr.net | Wastepaper, film waste, PET, aluminum cans, barrels used, used pallets |
| 3 | “Global Eco” Company | Kharkiv, ave. Heroiv Kharkiv, 281 | 098-888-21-88 info@globaleco.ua | Wastepaper, film PET, plastics, PVC (window profile) |
| 4 | LLC “Grandrich” | Kharkiv, st. Industrial, 3 | vtormet.kh.ua 099-019-08-60 admin@vtormet.kh.ua | Paper, scrap metal |
| 5 | Yuriy Leontiyovych Kanunnikov, 3172209194 | town Shevchenkove, st. Kharkiv road, 6-D | 097-234-34-31 | Paper, glass, plastic |
| 6 | KP “Hospodar” Bogoduhiv city council | Legal address: Bogoduhiv, prov. Likarnyany, 3B Actual address: Bogoduhiv, St. Ya. Mudrogo, 2 | 057-58-32-332 096-086-06-69 gospodar.bogodukhiv@gmail.com | Sorting of MW Implementation of secondary raw materials: plastic, paper and cardboard, glass containers and broken glass, tin and aluminum cans |
| 7 | PE “Cascade 777” | Pervomaiskyi, str. Road, 2 | 050-911-89-01 | Storage and processing scrap metal of ferrous metals |
| 8 | LLC “Time 2050” | Pervomaiskyi, PDP “Khimprom” | 066-210-23-38 057-764-09-26 | Storage and processing scrap metal of black and non-ferrous metals |
| 9 | LLC “Shidvtormet” | Pervomaiskyi, st. Poleva, 24 | 050-303-21-02 | Storage and processing scrap metal of ferrous metals |
| 10 | LLC “Alt-metal” | Pervomaiskyi, st. Lisoshakhna, 7A | 067-281-22-41 | Storage and processing scrap metal of ferrous metals |
| 11 | FOP Kosinov O.O. | Pervomaiskyi, st. Bugaichenko, 25V | 067-916-27-56 | Collection of secondary raw materials (waste paper, glass containers) |
| 12 | Constanta LLC | Pervomaiskyi, st. Kharkivska | - | Storage and processing non-ferrous metal scrap metals |
| 13 | FOP Lavrenko | Lozova, 6, bldg. 2 | - | Polyethylene |
| 14 | KP “Ecoservice Plus” | village Ternova, str. Tsentralna, 16 | ekoservis-plus@ukr.net | Collection of PET, glass, paper |

ANNEX S. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE KHMELNYTSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|------------|---|----------------------|---|---|
| 1 | LLC “Vikolya” | Khmelnyskyi | (0382) 70-61-64, (098) 3335041 | Wastepaper, thermal film, stretch film |
| 2 | LLC “Khmelnyskyi-vtorresurs” | Khmelnyskyi | (0382) 2-10-60, (098)8191953 | Wastepaper, scrap glass, polymer waste, waste rubber, worn tires |
| 3 | LLC “Metalservice” | Khmelnyskyi | (0382) 64-41-05 | Black and non-ferrous metals |
| 4 | PE “Metalinvest Service” | Khmelnyskyi | (0382) 74-54-74 | Black and non-ferrous metals |
| 5 | FOP Vnyk P. Yu. | Netishyn | (097) 2366790 | Wastepaper, glass, film, PET bottle |
| 6 | LLC “Ukr-Euro” | Netishyn | (067) 9930964 | Scrap metal |
| 7 | LLC “Vtorresursy” | Khmelnyskyi | – | Wastepaper, glass container, waste, polyethylene, PET bottle, stretch film |
| 8 | LLC “Maro Voir” | Dunaivtsi | (03858) 3-43-04; (093) 630-76-50; | Secondary textile materials |
| 9 | LLC “Obolon Oil” | Horodok | (03851) 3-56-86; (050) 211-71-78; obolon@gr.km.ua; goko@gr.km.ua | Wastepaper, scrap glass, polymer waste, waste rubber materials, including worn tires, secondary textiles, used metal containers |
| 10 | Chemerovetske district consumer society | Chemerivtsi township | (097) 93-58-271 | Polymeric waste, waste paper, glass breaker |
| 11 | LLC “Magiya Plast” | Khmelnyskyi | (0382) 78-43-70; (067) 382-05-18. magicplast@mitel-ua.com | Polymeric waste |

ANNEX T. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE CHERKASKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|--------------------------------------|---------------------------------------|--|
| 1 | LLC “Kolirmet” | Cherkasy, s70 Chhyrynska st | ookolirmet@ukr.net (0472) 43-31-27 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste 4. Used metal container 5. Secondary textile material waste |
| 2 | FOP Yarovy R. M | Cherkasy, 170 Chornovola st | yaroviy@ukr.net, (0472) 64-84-00 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste 4. Used metal container 5. Secondary textile material waste |
| 3 | PE “Olestras” | Cherkasy, 190 T. G. Shevchenko st | (0472) 32-93-67 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste 4. Rubber waste (including tires) 5. Used metal container 6. Secondary textile material waste |
| 4 | PE “Vtorynka” | Cherkasy, 62/1 Yu. Illenka st | (0472) 73-68-43, (0472) 38-67-37 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste 4. Rubber waste (including tires) 5. Secondary textile material waste |
| 5 | Private production and commercial company “Selena” | Smila, 7/1 Rzhavska st | (04733) 4-00-93 | 1. Polymeric waste |
| 6 | FOP Shtok O.H. | Cherkasy, 2/175 Smilyanska st | (0472) 32-19-05 | 1. Polymeric waste 2. Rubber waste (including tires) |
| 7 | LLC “Ecological center of hazardous waste management and industrial technology” | Cherkasy, 102/1 Sviatotoitska st | (0472) 56-97-89, (0472) 36-10-14 | 1. Polymeric waste 2. Rubber waste (including tires) |
| 8 | Production and commercial enterprise in form LLC “Obryi” | Uman, 6 Derevyanka st | obriy@ukr.net, (04744)3-33-33 | 1. Polymeric waste |
| 9 | FOP Palamarchuk I. M. | Kaniv, 61 Zaliznychna st | 097 554 70 94 | 1. Polymeric waste 2. Sklotara |
| 10 | LLC “Ekoton” | Cherkasy, 69 Heroiv Dnipra st | – | 1. Polymeric waste |
| 11 | LLC “Kaniv Pak” | point: Kaniv, 25 Fedorenko st | (04736) 3-29-51 | 1. Wastepaper |
| 12 | Shpolyansk district consumer society | Shpola, 137 Lenina st | (04741) 5-20-80 | 1. Wastepaper |
| 13 | Horodyschensk district consumer society | Horodyshe, 1 Slovianska st | (04734)2-20-65 | 1. Wastepaper 2. Polymeric waste |
| 14 | Zhashkiv district consumer society | Zhashkiv, 3 Maslovodska st | (04747) 6-00-83 | 1. Wastepaper 2. Polymeric waste |
| 15 | Lysyansk district consumer society | town Lysyanka, 17 Kyivska st | (04749) 6-20-68 | 1. Wastepaper |
| 16 | Chygyryn district | Chygyryn, | (04730) 2-77-21 | 1. Wastepaper |

| No. | Name | Location | Contacts | Specialization |
|-----|---|--|---|---|
| | consumer society | 21 Hetmanska st | | 2. Polymeric waste |
| 17 | LLC "Ergopak" | Kaniv, 191/1 Energetikiv st | (04736) 3-93-48 | 1. Polymeric waste |
| 18 | LLC "Ukrvtorservice" | point: Korsun-Shevchenkivskiyi, 8 Heroiv Maidany st | 0969277778 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 19 | LLC "Ukrmetcenter" | points: Zhashkiv, 9 Peremohy st | 0967668807 | 1. Scrap metal |
| 20 | LLC "Ukrmet-Invest" | Vatutine, 9 a Transportna st | 0976914356 | 1. Scrap metal |
| 21 | LLC "VP "Vtormetal"" | Points: Vatutine, Uman, Balaclava village, Khrystinivka, Chhyhyrin, Chervona Sloboda village, Balakleia village, Yerki township | 0974851401 (0472)-54-01-86 | 1. Scrap metal |
| 22 | LLC "Umanpivo" | Uman, 29 Uspenska st | (04744) 3-65-4 | 1. Glass containers, broken glass |
| 23 | FOP Svitlyshnyi I. D. | Monastyryshche, 39 Gagarina st | non.allservice@gmail.com | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 24 | LLC "Olesta Eco" | Cherkasy, 190 Shevchenko Avenue | (0472) 32-93-67 | 1. Rubber waste, including tires |
| 25 | FOP Gyrych E. V. | Kamianka, 10 Heroiv Maidany st | 0936031161 | 1. Glass maker 2. Polymeric waste |
| 26 | FOP Teslenko S. V. | Nova Dmitrivka village, Zolotonosha, | 0677281079, 0679017972 | 1. Wastepaper 2. Glass breaker |
| 27 | FOP Yefimov O. M. | Zolotonosha, 63 Shevchenko st | (04737) 5-45-83 | 1. Wastepaper 2. Polymeric waste |
| 28 | LLC "Zlatomet" | Zolotonosha, 2 Zavodska, st | 0936485987 | 1. Scrap metal |
| 29 | LLC "Vtormetal" | Cherkasy, 208 Shevchenko Avenue | 0989628590 | 1. Scrap metal |
| 30 | PE Dudnyk S. M. | Cherkasy district, Ratseve village | - | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 31 | KP "Comfort Plus" | Umansky district, Buzivka village | (04747) 9-20-60. buzivkarada@ukr.net | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 32 | LLC "Comfort Plus" | Kyiv, 32 Svyatoshyńska st Point: Zolotonosha | 0933434283 | 1. Scrap metal |
| 33 | FOP Gusev M. P. | Talne, 28 Samoiloova st | 0672303650 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 34 | LLC "ONOVA 1" | Monastyryshche | 0682282798 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 35 | LLC "Ukrainian waste paper company" | Cherkasy, 195 Blavovisna st | 0934837650 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste 4. PET bottle 5. Steel bottle |
| 36 | LLC "Cherkaska oblastal group" Myrkom" | Cherkasy district, Red Sloboda village | 0472434315 | 1. Scrap metal |
| 37 | LLC "Cherkaska oblastal group Europe" | Cherkasy district, Red Sloboda village | | 1. Wastepaper |

| No. | Name | Location | Contacts | Specialization |
|-----|---------------------------------------|---|--|--|
| 38 | FOP Kvitka A.V. | Cherkasy district, Red Sloboda village | 0677522064 | 1. Scrap metal |
| 39 | FOP Schwager A. A. | Zolotonisky district, Blagodatne village | 0933715052 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 40 | LLC “Merks” | Zolotonosha, 4 B Zavodska st | 0238654590 | 1. Scrap metal 2. Glass breaker |
| 41 | LLC “Ukrbrukht Cherkasy” | Cherkasy, Horodyshche, Kamianka, Zolotonosha | (096) 43-54-072 (096) 208-16-35 | 1. Scrap metal |
| 42 | LLC “Kaniv PAK” | Kaniv, 23 Yuriy Ilyenka st | 023631980 | 1. Wastepaper |
| 43 | FOP Siroshstan O.V. | Kaniv, 27A Heroiv Dnipra st | 0982292438 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 44 | FOP Vakula A.A. | Cherkasy, 123/1 Smilyanska st | (0472) 63-32-49 0506555883 | 1. Polymeric waste |
| 45 | LLC “Dobrobut Eco-Ukraine” | Cherkasy, 253 Engels st | (0472) 54-40-89, (0472) 38-39-87 | 1. Polymeric waste 2. Rubber waste, including tires |
| 46 | PJSC “Cherkasivtor- resources” | Cherkasy, 421 Hohol st | (0472) 64-80-93, (0472) 33-03-85, (0472) 64-54-27 | 1. Polymeric waste |
| 47 | LLC “Courageous author- resources” | Smila | (04733) 3-76-41, 4-03-33, (04733) 3-76-41, smila-vtorma.org | 1. Wastepaper 2. Polymeric waste 3. Rubber waste, including tires 4. Scrap metal |
| 48 | PE “Vtorma” | Uman | (04744) 2-34-65, (04744) 4-63-40 | 1. Wastepaper 2. Polymeric waste 3. Rubber waste, including tires 4. Glass breaker 5. Scrap metal |
| 49 | FOP Korol A.S. | Zhashkiv | 0674709615 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste |
| 50 | LLC “Firma Mercks” | Cherkasy, 12/211 30 Rokiv Peremogy st | (0472) 65-45-90, 0677575214 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste 4. Scrap of ferrous and non-ferrous metals |
| 51 | FOP Mudaryan A.M. | Zhashkiv, 6 Davydenko st | 0503521817 | 1. Polymeric waste |
| 52 | LLC “Rover Group” | Cherkasy, 49 Petrovskoho st | (0472) 31-33-14 | 1. Wastepaper |
| 53 | LLC “Sh.I.T” | Cherkasy, 13/23 Chhyrynska st | (0472) 71-10-54, (0472) 71-05-90 | 1. Wastepaper 2. Glass breaker 3. Polymeric waste 4. Rubber waste, including tires 5. Textile materials |

ANNEX U. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE CHERNIVETSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|--|---------------------------------------|---|
| 1 | LLC “Visa-Vtorma” | Chernivtsi | (0372) 52-48-68 | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, textile materials, used metal containers |
| 2 | LLC “Chernivtsivtorsyrovyna “ | Chernivtsi | 52-57-18 | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, textile materials, used metal containers |
| 3 | Alfater Chernivtsi with 100% foreign capital | Chernivtsi, 4 Lesyna st | 54-75-29 | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, textile materials, used metal containers |
| 4 | LLC “Vtorma-Chernivtsi” | Chernivtsi 9a Kolomiyska st | 55-84-09 | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, secondary textile materials |
| 5 | MKP “Chernivtsipetskomuntrans” | Chernivtsi, 4 Zhasminna st | 53-04-73 | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, secondary textile materials |
| 6 | FOP Kantemir V.V. | Chernivtsi 27 Uzbetska st | – | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, secondary textile materials |
| 7 | FOP Kachynska N.M. | Chernivtsi 23-25 Komarova st | – | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, secondary textile materials |
| 8 | PE “Zahidekogroup” | Chernivtsi 4 Musorhskoho st | 58-43-48 | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, textile materials, used metal containers |
| 9 | KP Storozhynetska of the city council “Carp eco 2010” | Storozhynets | 037352-12- 44, 037352-28- 39 | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, secondary textile materials |
| 10 | Khotynska district consumer goods union | Khotyn | – | Collection, storage of waste paper, broken glass, polymer waste, waste rubber, secondary textile materials |
| 11 | Chernivtsi educational and production enterprise No. 2 “Rehabilitant” | Chernivtsi, 5 Enthusiasts Avenue | (0372) 273663 | Collection, storage of waste paper, broken glass, polymer waste |
| 12 | PE “Dasor” | Chernivtsi | 050377597 7 | Collection, and storage of scrap non-ferrous and ferrous metals, disposal of cars |
| 13 | Reception point scrap metal from LLC “Vtorchermet” | Zastavna, 111 Bazhanskoho st | 050191700 1 | Acceptance of scrap metal of ferrous and non-ferrous metals |
| 14 | PP Boychuk Myroslav Vasylovych | Zastavna, 3 Transportna st | 097776997 3 | Acceptance of waste paper for toilet paper production |
| 15 | PP Kolesnik Vasyl Mykolayovych | Zastavna, 43 Bazhanskoho st | 050800032 9 | Acceptance of plastic and glass |
| 16 | LLC “Ukrpolimet”, Sumy, 105 prospect Kurskyi Avenue, office 2 | Kitsman district, Luzhany township, 1 Prutska st | 050341680 4 | Acceptance of scrap non-ferrous metals Acceptance of scrap metal |
| 17 | LLC “Ukro-Euro-SB” Kamianets-Podilskyi | Kitsman, 18a Mechanizatoriv st | (03949)271 71 | Acceptance of scrap metal |
| 18 | PP Bezhenar Mykola Vasylovych | Kelmentsi township, 9 O. Palamarya st | – | Acceptance of waste paper |

ANNEX V. BUSINESS ENTITIES THAT COLLECT, STORE WASTE AS SECONDARY RAW MATERIALS IN THE CHERNIGIVSKA OBLAST

| No. | Name | Location | Contacts | Specialization |
|-----|---|---|--|--|
| 1 | KP "Blagoustriy" | Koryukivka, 16, G. Kostyuk st | blagoustriy2017@ukr.net | Collection of safe waste (polymers) |
| 2 | KP "Sosnytskyi KZHU" | Sosnytsia township | sosnytsya-kp@ukr.net (04655) 2-03-24 | Glass, plastic |
| 3 | KP "Production management of communal economy" | Nizhyn, 128 Chernihivska st | http://unenizh.org.ua/ (04631)4-15-64 kMWukg@ukr.net | Glass, waste paper, waste polyethylene, PET, HDPE, polypropylene waste, aluminum waste |
| 4 | Bakhmatsky KVP Komunalnyk | Bakhmach, 48 Pivdenna st | 096 773 80 47 | Metal, glass, paper, plastic |
| 5 | FOP Hryhoryan V.V. | Nizhynsky district, Khvylyivka village | - | Wastepaper, glass, PET |
| 6 | KP "Dobrobut" | Novgorod-Siverskyi | dobrobytkp@gmail.com, (04658)2-28-55 | Paper |
| 7 | FOP Polutory V.I. | | (04658) 3-14-12 | Paper, plastic |
| 8 | KP "Blagoustriy" | Korop township | 098 424 38 04 | Paper, glass, PET |
| 9 | FOP Struk N.O. | Pryluky | .050 536 28 35 | Wastepaper, glass, PET |
| 10 | KP "Talalaivske VUZHKG" | Talalaivka township | (04634)2-17-53 | Plastic |
| 11 | KP "Horodnianske production management of communal economy" | Horodnya, 12 Lyonozavodska st | vugkg_gorodnya@ukr.net, 0-245-21573 | PET |
| 12 | KP "Chaika" Kiptivska village council | Novyi Shliakh village | 093 653 19 91 | Glass, plastic, metal |
| 13 | ECO-SERVICE-KOZELETS, LLC | Kozelets township | (04646) 4 18 96 | Glass, plastic |
| 14 | FOP Yanenko A. A. | Legal address: Chernihiv, 10 Murachevsky st | - | Glass, paper, plastic, metal |
| 15 | METAL-COM, LLC | Legal address: Chernihiv, 1 Muzychna st | 050 386 02 97 | Metal |
| 16 | KP "Goncharivske" | Goncharivske village | kp.goncharivske2007@gmail.com | PET |
| 17 | KP "Kulikivske VUZHKG" | Kulikivka village | (04643) 2-17-88 | Polyethylene, glass |
| 18 | FOP Skitsko V. O. | | - | Polyethylene |

ANNEX W. MAIN OPERATORS ON THE SECONDARY RAW MATERIALS MARKET FOR THE TRANSCARPATHIAN OBLAST

