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Secondary Use Waste Paper and Paperboard

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Secondary material resources (SMR) – waste that, after collection, can be involved in civil circulation as secondary raw materials. One of the most profitable types of secondary raw materials for processing is waste paper. It is distinguished by composition, quality and processing ability.

In the Republic of Belarus waste paper should be divided into three groups:

- high quality,
- medium quality,
- poor quality.

Depending on the composition, sources of input, color and ability to dissolve, there are 13 brands of recycled fibrous waste paper. Table 1 presents the groups, grades and composition of waste paper in Belarus in accordance with GOST 10700-97 [1].

Table 1. The composition and brands of waste paper

Group	Mark	Composition
A	MC-1A	White Paper Waste
	MS-2A	Waste from the production of all types of white paper in the form of scraps with a ruler and a black-and-white or color stripe
	MS-FOR	Waste from paper production from unbleached sulphate pulp
	MS-4A	Used paper bags are non-moisture resistant (without bitumen impregnation, interlayer and reinforced layers)
B	MS-5B	Waste from the production and consumption of corrugated cardboard, paper and paperboard used in its production

	MS-6B	Waste from production and consumption of cardboard of all kinds with black, white and color printing
	MS-7B	Used books, magazines, brochures, catalogs, notebooks, posters and other products of the printing industry, paper and white-paper with monochromatic and color printing without bindings, covers and roots published on white paper
IN	MC-8V	Waste from the production and consumption of newspapers and newsprint
	MC-9V	Paper sleeves, spools, bushings
	MC-10V	Pulp Products
	MC-11B	Waste from production and consumption of paper and paperboard with impregnation and coating
	MC-12V	Waste from the production and consumption of paper cardboard of black and brown colors, paper with a copy layer for computer technology, backing paper coated with dispersed dye of various colors, as well as roofing cardboard
	MC-13B	Waste from the production and consumption of various types of cardboard, white and colored paper (except black and brown), cover, photosensitive, including sealed on machines duplicating equipment, poster, wallpaper, pack, bobbin, etc.
Notes: 1 P on agreement with the consumer is allowed: as a part of MS-4A waste paper, the presence of paper bags made from kaolin, cement, chalk, soda, asbestos, gypsum, mineral fertilizers and other chemical non-toxic products without residue of tare substances. 2 P on agreement with the consumer, it is allowed to have labels, trade labels and hard-to-peel paper adhesive tape (except for polyethylene tape) in the waste paper of grades MS-5B, MS-6B.		

The increase in the number of SMR is growing every year, but despite this, according to the National Statistical Committee of the Republic of Belarus [2] the amount of paper and cardboard waste is almost half of the total number of secondary material resources, as can be seen in Figure 1.

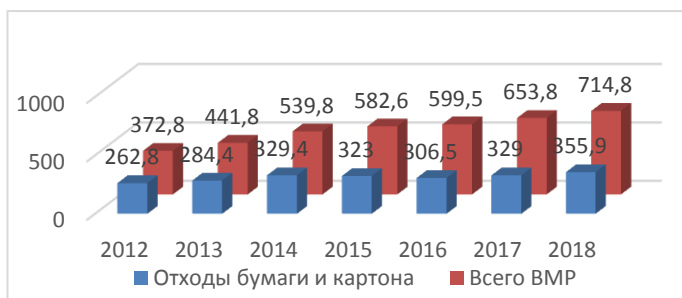


Figure 1. The collection of secondary material resources in the Republic of Belarus (author development)

The use of recycled fiber has an environmental effect. For the production of 1000 sheets of paper from the feedstock, 15 kg of wood and 300-350 liters of water are needed; and from secondary fibrous raw materials – 5-6 kg of waste paper and 200-250 liters of water are needed.

Waste paper is used as raw material for the production of such products as printing products, writing paper, box and container cardboard, kraft paper, disposable tableware, newspapers, heat and sound insulation materials, fuel pellets and briquettes, fabric for clothes, building materials, etc. Collection of paper, paperboard waste and recycling reduces waste of plant resources; requires significantly less energy, fuel and water, compared with the manufacturing process of wood products.

References:

1. Waste paper and cardboard. Specifications: GOST 10700 – 97. – In the Vedas. 01.01.2001. – Minsk: State Committee for Standardization of the Republic of Belarus, 2001. – 16p.
2. Medvedev, I.V. Environmental Protection in the Republic of Belarus: Statistical Digest / I.V. Medvedev and others // Minsk: National Statistical Committee of the Republic of Belarus. - 2019. – 200 p.