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# Laws in the Process of Disposal of Domestic Waste

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**ABSTRACT:** In the crushing chamber, the crushing process of the waste constituents occurs as it moves from the receiving hole to the outlet hole. As a result of the impact of the hammers and the return of the plates and columns to the grate, the material moves under the influence of gravity as a result of the collision of the components of the waste. The behavior of the waste organizers depends on random factors such as the shape and size of the waste organizers, the physical properties of the material, and the position of the waste organizers against the impact of the hammer.

**KEYWORDS:** paper and cardboard; food waste; metal (black and white); plastic; leather and rubber; bottle; wood, waste, efficiency criteria.

## I.INTRODUCTION

The amount of energy required to grind a material to a certain size depends on many factors such as size, shape, relative position of the pieces, strength, brittleness, homogeneity of the original material, its moisture content, the size of the working surface. rhinitis and condition and other similar factors. Therefore, it is necessary to establish an analytical relationship between energy consumption and grinding, which is only a general view of the physical and mechanical properties of the grinding material and the results of the process. In order to properly organize the collection, disposal, neutralization, sanitary and feasibility of solid waste, it is necessary to know their quantity and composition, as well as the factors influencing their change. To do this, it is important to have the correct classification that determines the origin and properties of the waste.

Solid household waste is divided into the following components according to morphological features:

- paper and cardboard; food waste; metal (black and white); plastic; leather and rubber; bottle; wood, various (unclassified) sieve residues (less than 15 mm). The design of a solid waste recycling plant will require morphological data on the composition of solid waste.

In order to solve the problem of using recyclable components of solid household waste, it is necessary to thoroughly analyze the composition of waste, conditionally differentiate, classify paper into clean and contaminated, metal into metal products, cans and non-ferrous metals, plastic packaging and plastic containers. will need to be allocated.

Seasonal changes in the composition of solid household waste depend on changes in the amount of food waste, for example, in the spring it increases by 25 ... 30%, in the fall by 34..40% (especially in cities in the south). will depend on the amount consumed.

The organization of the collection of paper, food waste, glass containers in the city has a significant impact on the composition of solid household waste. Experiments show that over time, the composition of solid household waste changes, and the content of paper and polymeric materials increases.

The percentage content of the mass (fractional composition) of the components passing through the cell sieves of different diameters will affect both the technology, the organization of collection and transportation, as well as the parameters of equipment and facilities of waste processing plants.

Fractional content, such as morphological content, varies with the seasons and varies in different climatic regions.

To determine the fractional content, solid household waste samples are passed through sieves with cells size 250x 250mm, 150 x150mm, 100 x100mm, 50x50mm, 15 x15mm.

The amount of components of household waste, ie the fractional composition, has a significant impact on the technology, the organization of their collection, the development of parameters of machinery and equipment for transportation (crushing, compaction, etc.).

The fractional composition of the waste is determined by the constituent components, i.e. the morphological composition. The greater the amount of food waste in the amount of less than 50 mm of solid household waste, the more small fractions it contains, and conversely, packaging materials larger than 150 mm in size (paper, cardboard, wood, etc.) contribute to the total amount of waste. large fractions account for a large proportion of the waste mass.

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Along with the process of increasing the role of cities in the development of society (urbanization) and rapid population growth, the amount of household waste that needs to be collected, disposed of and disposed of will also increase.

In order to determine the amount of waste to be disposed of, it is necessary to determine the rate of waste accumulation in the calculation of the capacity of vehicles and decontamination and processing facilities.

The waste collection rate is the unit of account set for a certain period of time (day, year) (1 person for residential buildings, 1 place for hotels, hospitals, $1m^2$ for shops, etc.).

The amount of waste collected depends on a number of factors:

- The average statistical value of GDP (GDP) per capita;
- nutrition culture;
- the level of landscaping of buildings (availability of sewers, heating system, availability of stoves for cooking and household needs, availability of water and sewage pipes);
- use of separate waste collection points;
- climatic conditions;
- type of fuel for local heating;
- development of public catering and consumer services;
- the level of availability of paper.

The effect of heating systems can be determined as follows. There is no waste in homes when gas is used for central heating or electricity is used for cooking.

The factors specified in the combined heating system (central heating and kitchen stoves on solid fuel) are partially affected.

The development of public catering establishments, kitchens, cafes, home kitchens, family restaurants and household services (for example, repair of household appliances) will reduce the amount of waste from residential buildings, but the total amount of household waste in the city may increase [1,2, 3].

An analysis of the literature shows that the relative density of wastes has been declining recently, which in turn is reflected in recycling technology. In the United States, for example, paper, cardboard, and plastic make up about 50 percent of total household waste.

The process of reducing the size of an elastic-brittle body from its initial state to a size of up to 5 mm using the influence of external forces is called crushing.

In many sectors of the economy, the process of crushing is observed, and in each area, depending on its characteristics, the process itself and the structures used in the crusher are unique.

Crushers used in devices in domestic waste recycling plants in large cities - waste crushers must be able to recycle materials with different strength and other characteristics of materials (bone, glass, plastic, cloth, etc.) in addition to high productivity.

The creation of crushers for the processing of household waste is a great challenge, because the waste conglomerate (random, random sum, mixture, composition of various objects) has different physical and mechanical properties, fiber additives (paper, wood, textiles, leather, rubber) , brittle components (glass, stone, bone), plastic, ferrous and non-ferrous metals.

## II.RESEARCH WORK

When hammering solid household waste in hammers, the load transfer to the material can be divided into two characteristic methods: with a free hammer when the piece does not rely on the working part of the shredder, and with a piece of shredder as in a sandbox.

In the first case, the impact force balances the part with its inertial force, and in the second case with the base reaction force.

For the first case, the energy transfer balance can be given graphically.

The energy $Э_1$ transmitted from the impact stroke along the abscissa axis is shown, and its distribution $Э_p$ in the rock fault and the change in kinetic energy are shown along the ordinate axis. The energy $Э_1 = a$ transmitted $A$ to the curvature of the curve at the point is used only to change its kinetic energy, while $Э_1 \rangle a$ in part it is used to break the rock [4,5].

The impact forces generated during the crushing of the material are transmitted to the working bodies and structure of the crusher.

Research conducted at the All-Russian Scientific Research Institute of Road Construction Engineering shows that a decentralized forging formula can be used to determine the forging momentum of a piece with a mass of less than 0.5 kg.

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$$S = \frac{m_k \vartheta_p (1+k)}{(1+e^2/r^2)},$$

here $m_k$ – mass of waste constituents; $k$ – recovery coefficient for colliding bodies; $e$ – eccentricity of the impact force relative to the center of mass of the waste constituents; $r$ – the radius of inertia of the masses of the waste constituents.

In the crushing chamber, the crushing process of the waste constituents occurs as it moves from the receiving hole to the outlet hole. As a result of the impact of the hammers and the return of the plates and columns to the grate, the material moves under the influence of gravity as a result of the collision of the components of the waste. The behavior of the waste organizers depends on random factors such as the shape and size of the waste organizers, the physical properties of the material, and the position of the waste organizers against the impact of the hammer.

The complete movement of the waste constituents in the crusher can be thought of as a separate phase, ie their movement along the receiving groove in the working zone of the rotor [7,8,9].

## III.CONCLUSION

The development of criteria for evaluating the efficiency of hammer crushers requires a comprehensive approach that includes technical, economic, social and environmental quality criteria.

The work done in the unit deformation of a piece of rock is proportional to the work done to form new surfaces, and the friction between the formed surfaces is in the compression zone on all sides.

From a careful analysis of the essence of the above hypotheses, it can be concluded that none of the hypotheses gives a satisfactory result in the theoretical determination of the energy expended, even in short-term conditions, for example, in the laboratory it is difficult to obtain a satisfactory result. As many authors have pointed out, even new hypotheses only complicate the calculation of the energy expended on decay, despite corrections and additions to the underlying hypotheses under consideration.

If we take into account the nature of the characteristic anisotropic material, which changes significantly at the primary, especially at the boundary of one place, and the nature of the degradation process, which depends on many random cases, then the data on all parameters of the process

We conclude from the fact that solid household waste is multi-component and non-homogeneous, and in an anisotropic environment that we can use these assumptions in initial calculations.

Based on the specifics of the problem to be solved, it is expedient to optimize the energy capacity, material capacity and other similar technical and economic parameters of the designed machine by the first integral method in determining the efficiency criteria. Therefore, the assessment of efficiency and technical level on the basis of the stated costs requires that the values of $b_0^1$, $b_1$, $b_2$ coefficients be known in advance, which complicates the evaluation process.

It is not possible to describe the solution of the allowed options, which fully takes into account all the purposes of processing and the creation of a mechanical system, bringing the problem to a single criterion.

If we take into account that solid household waste is not homogeneous and is an anisotropic environment, the above assumptions will only be valid for the established calculation.

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