

ANALYSIS OF RESEARCHES OF PHYSICAL AND MECHANICAL PROPERTIES OF MATERIAL ARE PRESSED

V. N. Zubko, S. P. Sokolik, V. V. Chuba

Abstract. *The paper analyzes the research of physical and mechanical properties of plant materials, which are the raw material for production of fuel briquettes. The effect of these properties on the parameters and modes of operation of the equipment.*

Process performance size promote mixture in the cylinder of the extruder press heavily depends on the frictional forces generated between the material and the surface of the screw cylinder. The value of the coefficient of friction of the mixture in the cylinder must be greater than the friction mixture screw, which is also confirmed in practice.

Physical and mechanical properties of the plant mass are unstable in time and space. They manifest themselves differently depending on state parameters of temperature, size distribution, moisture content etc.

In this regard, a record of all the physical and mechanical properties of the plant material in the analytic dependency difficult not only because of the multiplicity, but also from the variability of their values in time and space.

Most of the physical and mechanical properties of plant material directly caused by humidity, temperature, mass fraction of components and size distribution. It is necessary to find a state of the plant material, in which the lowest energy consumption possible to obtain pellets satisfying quality indicators. Researchers granulation process to be reckoned with humidity, temperature and length of the compressed mass of particles. There is a combination in which the energy consumption can be minimized brittleness and pressing the resulting granules.

The process of granulation consists of several stages: compression, holding pressure, removing the pressure, the stress relaxation exposure without pressure, removing and elastic expansion of the granules after removal from chamber. Basic energy costs accounted for the first stage of compression portion of plant material to required density. So, the initial assessment of plant mass on energy costs with reasonable certainty can be achieved for a specific work of compression.

Key words: *granule, cake, pressing, physical and mechanical properties, plant mass, coefficient of friction*