

# Processing of polyurethane waste



## Technology of waste recycling of flexible polyurethane foams with thermoplastic polymers by extrusion

### Technology description

The presented comprehensive technological solution enables processing of flexible polyurethane foams waste using methods of grinding, agglomeration and reactive extrusion of foam waste with the participation of low molecular polyethylene. Polyurethane foams waste is waste difficult to be recycled. These materials do not become plasticized as the temperature rises, and at high temperatures they decompose. In the previously used methods of processing flexible polyurethane foams with a bulk density of

about 34 kg / m<sup>3</sup> there are problems with dosing the shredded waste into the extruder and their extrusion in such a way that depolymerization does not occur.

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### Advantages

The presented technology eliminates the problem of dosing the shredded waste to the extruder and eliminates the problem of depolymerization. The use of metallocene copolymer ethylene and hexane in the process allows to disperse the polyurethane in the polymer matrix. It is possible to shape the properties of the obtained materials by changing the type of polyethylene introduced and the conditions of extrusion.



### Application

Products obtained as a result of the application of the presented technology can be used to produce new materials with elastic and resilient properties and used, among others, in construction for the production of e.g. insulating floor mats in industrial facilities, both inside and outside of buildings.

