

Abstract

The invention relates to a continuous process for converting a plastic material containing a polyurethane, comprising the following steps:

providing a reaction mixture, wherein the reaction mixture comprises

- a plastic material in solid form and containing a polyurethane, and further
- an aqueous medium, optionally containing a reaction additive,

wherein in the reaction mixture the mass ratio between the water of the aqueous medium and polyurethane is not more than 0.6 to 1,

transporting the reaction mixture by means of a first screw conveyor arranged in a first line to a pressure lock formed filling opening of a reactor tapering at least in one end region, relative to the transport direction,

transporting the reaction mixture by means of a reactor screw conveyor arranged in the reactor vessel at a pressure of > 1 bar to 60 bar at a temperature of 180 °C to 270 °C to the end region of the reactor,

in the end area of the reactor, transferring the reaction mixture thus pressure- and heat-treated via a discharge opening designed as a pressure lock into a second line, transporting the pressure- and heat-treated reaction mixture by means of a second screw conveyor arranged in the second line,

providing within the second line an evaporation zone with a temperature which is higher than the temperature prevailing in the reactor,

in the evaporation zone, removal of gaseous components via at least one degassing point and in or after the evaporation zone, recovery of the reaction mixture which has been pressure- and heat-treated and freed of gaseous components.

(Fig. 2)