

H&S delivers the world's first industrial system for flexible PU foam conversion

The Sulingen-based German company H&S Anlagentechnik GmbH has received an order from a major Polish slabstock foam manufacturer to supply the world's first industrial-scale system to recover polyol from flexible polyurethane foam waste materials. The main target of the project is increasing sustainability in the PU mattresses manufacturing.

Designed to produce 2,500 t of polyol per year, the system will begin operating in spring 2013. Besides the reactor as the core unit of the system, the **H&S Anlagentechnik** scope of delivery also includes the entire storage and conveying facilities for the solid and liquid input materials as well as the tank farm for the recovered polyol.

The method of polyol recovery developed by H&S is based on acidolysis under which flexible PU foam is being converted into polyol in presence of different carboxylic acids. The comprehensive testing of the polyol has already been performed in cooperation with the customer on the continuous slabstock production line. The polyol used for industrial test runs was generated in the pilot reactor of the H&S laboratory. The new recycling process enables now H&S' customer to return all flexible foam residues arising during processing of the foam blocks back into production.

According to H&S, the recovered polyol can replace original polyol in the range up to 20 % without compromising the quality of the resulted PU foam products. Besides the environmental advantages of in-house recycling, the customer was convinced by the considerable savings in the raw materials purchasing as well as short payback period, says H&S.

H&S Anlagentechnik – An Overview

For 25 years, H&S Anlagentechnik develops and manufactures systems and process technologies that allow companies working with PU to store, dispense, mix and formulate polyurethanes in an efficient, reliable and environmentally clean way. In the field of chemical recycling of waste polyurethane and PET, H&S Anlagentechnik provides the process and chemical technology for manufacturing different qualities of polyol.

Key product areas are:

1. Tank storage facilities: Tank storage modules for polyols, isocyanates and blowing agents such as pentane for stockpiling in contained systems
2. Mixing and metering units: Premixing units for continuous and discontinuous mixing of polyol with blowing agents, additives and fillers
3. Formulation systems: Compact systems formulate polyol blends in the discontinuous batch process
4. System-house plant technology: Systems for manufacturing different polyol systems and their corresponding prepolymers
5. Reactors for PU and PET: Equipment and systems for the chemical recycling of PU production waste or PET waste materials

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