Recycle PVC/TPU coated textile - Recycling of textile fabrics coated with PVC or TPU (thermoforming-polyurethane)
LIFE96 ENV/D/000186

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Project description:

Background

Every year millions of square metres of coated and uncoated textile products are produced for the automobile, building, footwear and furniture industries to be used in trucks and tarpaulins, material handling and transport belts, films and flexible PVC-tubes. Technical scrap from production and ready-made is > 10,000 tons/year. A much bigger volume of end of life products could be reused as raw material if collecting systems were involved/installed.

Objectives

The project’s target was the recovery of production scrap and used products from textile fabrics coated or laminated with PVC (polyvinyl chloride) or TPU (thermoplastic polyurethane). This would be done by reconditioning and separating combined materials using chemical and physical processes.

Results

The technology developed by WIETEK with this project has made it possible to recycle coated textile sheets on an industrial scale. The recycling process was as follows: 1. The delivered combined materials are shredded and separated from the metal. 2. The shredded fraction is compounded with chemicals in a vessel and a mash is produced. 3. The mash is brought in to the newly developed...
separation unit and by this unit the coat is separated from the textile fabric. 4. After the drying process the textile fabric is brought to an additional processing, e.g. glycolysis. 5. The dissolution of the coat materials is cleaned by several steps and condensed. 6. The chemical is separated from the plastic dissolution by a patented procedure, it is processed/cleaned and remains in the cycle of the process. 7. The recovered plastic can be taken out of the unit either as powder or as pellets depending on the further application. With this technology of recycling, reusable recyclates are manufactured that close the cycle of material. The recovered recyclate has the properties typical of the coat material and can be reused in several formulation of PVC/TPU. A processing into new products is possible by extrusion, calendering or injection moulding. Previous dumping of the above mentioned scraps can be reduced to 90-96%. The costs of this recycling are covered by the commercialisation of the recyclate and by the source of income for waste disposal when the capacity of the plant is > 2.000 tons/year. In comparison of today’s methods of waste disposal the procedure offers industry ecological and economical advantages. The procedure can be used Europe wide. The application of the technology enables: - an economical reuse of the recyclates; - a very high selectivity between coat material and textile fabric; - resource efficiency due to a lower consumption of primary energy compared with the costs of polymerization; - the conservation of valuable raw materials in the cycle of material and; - the reduction of dump and incineration capacities.

Top

Environmental issues addressed:

Themes

Environmental management - Cleaner technologies
Industry-Production - Textiles - Clothing

Keywords

recycling, plastic, textile industry

Target EU Legislation

- Waste
- COM(1996)399 - Communication on an updated "Community strategy for waste management" (30.07.1996) ...
- Industry and Product Policy
Natura 2000 sites

Not applicable

Beneficiaries:

Coordinator: WIETEK GmbH
Type of organisation: International enterprise
Description: The beneficiary, Wietek GmbH, which started its activities in 1994, is specialised in the development of innovative technologies for the recovery of plastics from compound materials i.e. coated textile sheets. The company has a production capacity of 4000 tons a year.

Administrative data:

Project reference: LIFE96 ENV/D/000186
Duration: 01-OCT-1996 to 01-OCT -2000
Total budget: 1,088,556.63 €
EU contribution: 301,552.31 €
Project location: Saarland(Deutschland)