



Low-cost and compact recycling method of expanded polystyrene (EPS)

VTT has invented and patented a method to collect, store and recycle expanded polystyrene (EPS) into convenient forms, including slivers, pellets, sheets or other specific forms. About 99% of the US EPS recycling industry still uses mechanical methods (viz. grinding and extrusion). But if you can save on freight (transportation), you can pay to recycle.

Invention

The invention is based on an idea, where high volume demanding EPS is dissolved into a solvent forming low volume gel in situ. Formated gel is transferred and stored further close to conversion plant. The gel is converted into expected form by treating gel with another low cost solvent. The mixture is treated mechanically to reach the wanted particle size and form. The mechanical devices include for example mills, extruders and extruders with pelletizing equipment. The solvent mixture is refined for reuse and conversion can even be operated in closed cycle.

Solution benefits

The method is low-cost, compact and convenient, and it does not require remarkable investments. The method is valuable in case where legislation leads the environmental issues concerning EPS waste (packages, construction etc.). This technology should be positioned as an innovation that can save EPS recycling operations money by cutting transportation costs, and in turn helping to generate increased revenues by adding efficiency and processing capacity.

Application areas

For EPS manufacturers, EPS users, plastics industry
Recycling in EPS manufacturing, EPS parts, PS products



Why partner with VTT?

10 reasons for technology partnering with VTT

1. Key factor in Finland's success story with a track record to prove it
2. Licensing and co-venturing opportunities
3. Portfolio of more than 1,000 patents and inventions
4. New business and product concepts based on strong IP and world class research
5. Combined experience of more than 2,000 motivated researchers in eight focused areas of technology
6. Active member in hundreds of scientific & business communities
7. Excellent track record as coordinator and partner in EU projects
8. Collaboration with TOP 50 R&D companies in Finland
9. Global R&D partnership with 50 Fortune 500 companies
10. Market driven multi-disciplinary solutions

Additional information

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