

TARGET MARKETS

The ISOPREP primary target market is the carpet industry, concluding the whole value chain of the project.

There is also the potential to expand into several secondary markets, as polypropylene is used in a huge variety of products, for example automobile interiors, food and beverage packaging, consumer goods packaging, electronics, construction materials, and home furnishings.



WHO

ISOPREP has a multidisciplinary consortium, represented by 10 partners, across 5 different European countries.



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WWW.ISOPREP.CO.UK



AN INNOVATIVE ALTERNATIVE TO DISPOSING POLYPROPYLENE PRODUCTS IN LANDFILLS



The ISOPREP project (Grant number 820787) is funded by the European Union's Horizon 2020 research and innovation programme.

WHY

Polypropylene, an oil-derived polymer, is the world's second most widely used commodity polymer and is used extensively in a huge variety of products such as food packaging, carpets and bank notes.

While it is extensively used, polypropylene is a non-sustainable resource and, with only 1% of polypropylene being recycled, it is one of the largest contributors to plastic pollution. Carpet, which makes up 17.6 % of the polypropylene product market, is mostly disposed of in landfills rather than being recycled at the end of its life.

The aim of the ISOPREP project is to develop a process that recycles end of life polypropylene, focussing on waste carpet feedstock, returning it to its original virgin quality and making it suitable for re-use in high value applications.

The proprietary recycling technology in ISOPREP will be scaled up in a 1 ton pilot plant to produce virgin quality polypropylene. The project will also include a full life cycle analysis within the framework of the circular economy.



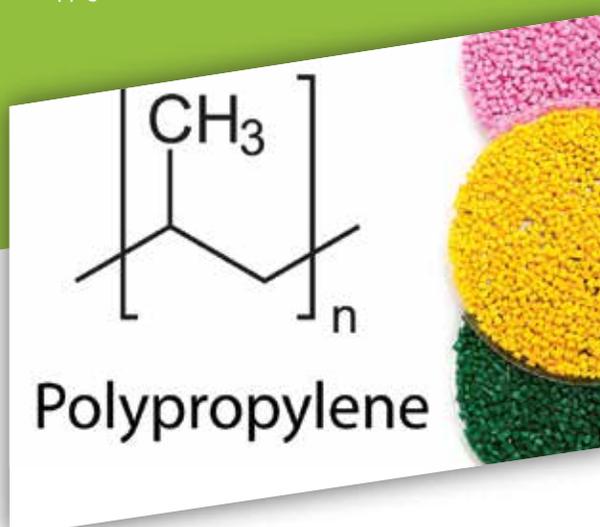
BENEFITS

ISOPREP technology produces a virgin quality polypropylene that is 100% recycled and recyclable:

- Performance is identical to freshly manufactured resin
- Cost effective
- Entirely closed loop, meaning minimal emissions and pollution
- Removes dyes, colours and impurities
- Reduces reliance on fossil sources for polypropylene

KEY PROJECT CONCEPT

1. Utilises waste polypropylene carpet as feedstock.
2. Development of feedstock preparation process.
3. Use of a patented and non-toxic ionic solvent, highly tuned to dissolve only the polypropylene content of the feedstock.
4. Recovery of both solid polypropylene and ionic solvent.
5. A final output of white virgin-like quality polypropylene resin for supply to customers.



HOW

The ISOPREP project introduces a novel method for recycling polypropylene products into virgin quality polypropylene.

This method exploits a novel ionic solvent designed for the highly tuned solubility of polypropylene. The solvent for the polypropylene recycling process is already known and patented.

The project aims to develop this process to a point of industrial applicability, by scaling up the purification of the carpet waste, dissolution and precipitation (recovery) of polypropylene, extrusion of the recycled material and solvent recovery to pilot scale, through the input of chemical and process engineering and supply chain partners.

