



## Research News

### Plastics reinforced by agrofibres

**Agrofibres are highly competitive with glass fibres as reinforcers of plastics due to their advantageous price-performance ratio. Agrotechnology & Food Innovations has developed an innovative processing technique for the compounding of agrofibres in plastics (patent published), which can be applied on common machinery. The 'green granules' can be processed into 3D moulded products for a wide range of applications.**

#### Why Agrofibres

In plastic compounds, agrofibres can compete with glass fibres on the basis of their intrinsic mechanical properties. The strength of the agrofibres is up to 80 percent of the strength of glass fibres, whereas their stiffness can exceed it. Supplementary benefits include low cost, low density, and re-use. In addition, agrofibres are less abrasive during processing with thermoplastics and do not expose operators to potential safety or health risks.

#### Patent position

A proprietary technology for the production of agrofibre reinforced plastic granules has been developed. This technology, which homogeneously distributes the fibres into the plastic matrix with preservation of the fibres' high aspect ratio, can be applied on common industrial twin-screw extruders. The resulting compound is processed to an intermediate product – granules – which can be injection moulded into innumerable end products. The melted compound is also easily incorporated in production techniques like profile extrusion- and 'one-shot' processing.

#### Materials and properties

Any desired thermoplastic can be used; some successfully applied examples are PE, PP, PS, ABS and PBT. Also any agrofibre can be used; annual fibres like flax, hemp, kenaf and jute give the best material reinforcement. They increase the stiffness of the plastic up to five times- and strengthen it up to twice its original value. Cheaper cellulosic fibre sources, e.g. originating from the pulp & paper- or fibre processing reject streams give up to 80% of these values.

#### Markets

Although the potential applications are countless, the technology has basically been developed for mass production. To name some areas of interest:

- Automotive industry
- Packaging industry
- Consumer products
- Building/construction industry

#### Future R&D topics

- Improvement impact properties
- Industrial implementation
- Fibre feeding on industrial scale
- Recycling/recollection technology

#### Information

If you want to discuss the application of agrofibres or other renewable materials in your production process and you are interested in running a research or development trajectory with us, please do not hesitate to contact us.

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