

# MouldPulp

Development of Durable, Fully Bio-Based Thermoplastic Composites from Bioplastics and Pulp Fibres for Injection Moulding Applications

## What and why?

- Promising wood-polymer concept DuraPulp® from cellulose pulp and PLA.
  - Fully renewable
  - Good mechanical properties
  - Perceived naturalness, nice tactile properties, dyeable with clear colours
- It won a lot of design awards and it became obvious the market should increase with a wider variety of plastics processing technologies available.
- The transnational project team from Sweden, Finland and Germany developed a processing technology that allows making injection moulded parts out of DuraPulp® but keeping the material identity.



Products from DuraPulp®:  
Kofes (top) and  
Parupu® chair (bottom)

## Project team along the whole value chain

### **Fraunhofer UMSICHT**

(Germany)

Material development bioplastics

Project Leader

### **Södra**

(Sweden)

Raw materials &  
product development

### **Innventia AB**

(Sweden)

Material development pulp

Assessment

Perception analysis

### **Elastopoli Oy**

(Finland)

Application development

### **FKuR Kunststoff GmbH**

(Germany)

Compounding company for bioplastics

### **nova-Institut GmbH**

(Germany)

Techno-economic and  
ecological assessment

Dissemination

### **Hammarplast Consumer AB**

(Sweden)

Consumer plastics products

R&D

Assessment

Materials

Manufacturing

Market

# Major achievements

## MouldPulp Bioplastics

- Nearly 100% bio-based from wood and agriculture resources
- Processing behaviour as well as the product properties fulfil the industrial and consumer requirements
  - Procesable on conventional plastics machinery
  - Use of hot runner systems
  - Dyeable in clear colours
  - Acceptable cycle times
- Positive evaluation on test persons
  - Measuring of the emotional performance
  - MouldPulp samples received on average significantly higher ratings than PP samples on quality and pleasantness



## Lessons learnt

- **Adapted compounding of PLA with cellulose pulp fibres leads to a dyeable, injection mouldable plastics with natural perception.**
  - How is the specific formulation, how to compound it, how to convert it.
- **New approach**
  - Development aimed clearly on 100% bio-based, natural impression and perception, and processing performance in injection moulding.
  - Mechanical performance is answered related to the application, e.g. by material optimization or by means of product design.
- **Application tests**
  - It is not only the material but also the product and surface design and the colour what determines the natural perception.
- **GreenPremium price is the additional price a market actor is willing to pay for the bio-based alternativ.**
  - The GreenPremium price exists and is measurable.

