

Tech Venture Challenge

Developing a Production Logistics Framework for a Bio Resin within a Research Transfer



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Challenge description

The widespread use of petroleum-based resins, particularly phenolic resins in fire-resistant applications like aerospace, has significant environmental and health drawbacks. Recycling these resins is challenging, further amplifying their negative impact. Bio-based alternatives, such as furan-based resins, offer promise due to their high fire resistance but are hindered by brittleness. BioResin, an innovative startup, addresses this with FlexFuran – a sustainable, high-performance furan resin that is more ductile and suitable for demanding applications. FlexFuran reduces the CO₂ footprint by 75% compared to fossil-based phenolic resins. The initial target market, maritime and sports applications in Europe, is valued at €33 million annually, growing over 5% per year.

Thesis Focus

Within your master thesis, you will work on research related to:

- The role of production logistics and management in enabling bio-resin commercialization in Germany and the EU
- Integration of regulatory compliance frameworks for raw material and product handling within the bio-resin industry
- Analysis of logistical and production challenges and strategies for efficient production management tailored to bio-based materials
- Case studies of successful bio-resin production systems and their alignment with German and EU environmental regulations
- Barriers to establishing sustainable and compliant production networks for bio-resins and actionable strategies to address them

Profile and process

You apply with a motivation letter and a CV (but no project draft) and write a master thesis suitable to your study program. You should have:

- Motivation to innovate and revolutionize the industry with sustainable bio-resin systems

- Background in business, supply chain or production management, or related fields
- Experience or interest in production or supply chain management, logistics, or bio-based industries would be an advantage for navigating the bio-resin market
- Exceptional analytical and creative problem-solving skills
- Willingness to take responsibility and work independently
- A team player attitude

Upon successful application, you will become part of the TUM Entrepreneurial Masterclass and enjoy all its benefits.

**TUM Entrepreneurial Masterclass
and
Chair of Materials Handling, Material Flow, Logistics**

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