Background

When Old Corrugated Containers (OCC) are recycled and processed in a paper mill, the resulting pulp goes through a screening process to remove contaminants and impurities. The material that doesn't pass through the screens or is deemed unsuitable for recycling is termed "screen rejects." These rejects typically consist of materials like plastics, adhesives, metals, and other non-fibrous contaminants that are separated from the usable fiber during the papermaking process. At Greif, we are committed to building a sustainable future by achieving zero waste-to-landfill status at 97 percent of our facilities globally (excluding businesses acquired in 2023) by 2030. In alignment with our waste diversion goals, proper management and disposal of OCC screen rejects are essential to minimize environmental impact and maximize the efficiency of our papermaking process.

What we're looking for

Greif is exploring consultancy and R&D services to address better ways to reduce, recover and/or reuse OCC screen rejects from paper mill operations. We are seeking experts in waste management and recycling, particularly within the paper industry, to collaborate on and explore innovative solutions. The goal is to reduce waste, enhance sustainability, and optimize resource utilization.

Solutions of interest include:

- Advanced waste conversion technology that processes waste into usable fibers or materials, through advanced chemical recycling or other innovative processing methods.
- Advanced screening technology combined with additives to enhance the separation of usable fibers from contaminants.
- Technology for predictive maintenance of paper mill equipment to optimize processes, minimize waste generation, and improve overall operational efficiency.
- Circular Economy solutions that promote waste stream reduction, recycling or reuse, and/or alternative uses for OCC screen rejects (repurposing or upcycling).

Our must-have requirements are:

- Sustainability: solutions must aim to reduce environmental impact, enhance the sustainability of paper mill operations, and optimize the use of resources, including raw materials, energy, and water
- Cost-effectiveness: proposed solutions should be economically viable
- Scalability: solutions should be scalable to accommodate varying production volumes and integrate seamlessly within different paper mill settings
- Performance: solutions must maintain the overall efficiency and quality of paper production processes

Our nice-to-have's are:

- Solutions that contribute to positive public perception and corporate social responsibility initiatives of the organization

- Solutions that involve or benefit local communities through job creation, education, economic impact, or other social benefits

What's out of scope:

- Proposals that involve the disposal of OCC screen rejects through landfilling or other non-sustainable methods (e.g. incineration without energy recovery)
- Projects focused solely on theoretical research without practical implementation strategies or real-world applicability
- Solutions that require significant infrastructure overhauls or capital investments
- Proposals that conflict with existing environmental regulations or pose risks to human health and safety
- Projects that solely aim to shift the burden of OCC screen rejects management to external parties without addressing the root causes or exploring sustainable alternatives

Acceptable technology readiness levels (TRL): Levels 1-9

1. Basic principles observed
2. Concept development
3. Experimental proof of concept
4. Validated in lab conditions
5. Validated in relevant environment
6. Demonstrated in relevant environment
7. Regulatory approval
8. Product in production
9. Product in market

What we can offer you

Eligible partnership models:

- Sponsored research
- Co-development
- Supply/purchase
- Licensing
- Material transfer

Benefits:

Sponsored Research

Funding is proposal-dependent, with an initial allocation of up to $100,000 for 12 months. There is potential for additional funding based on successful proof-of-concept.

Who we are

Greif places the utmost importance on protecting, engaging, and developing a diverse workforce. More than 12,500 colleagues work in over 200 production, warehouse, and office locations in over 35 countries.

Reviewers

Geoffrey Westphal

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Please contact the University of South Florida Technology Transfer office representative for submission - Roisin McNally at rmcnally@usf.edu.