



R2COAT

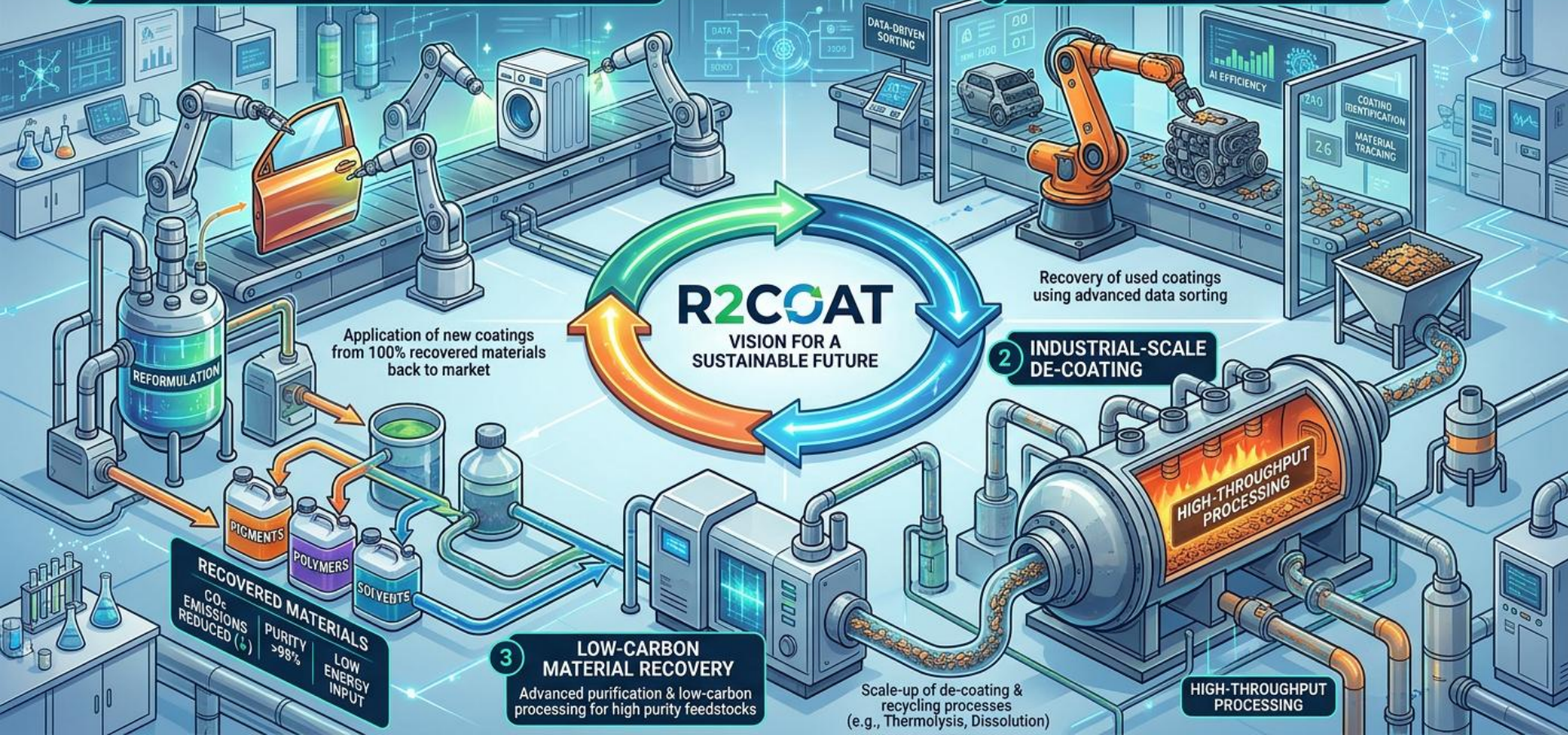
Data-Driven Recovery and Reprocessing of
End-of-Life Coatings for Circular Manufacturing

R2COAT: DATA-DRIVEN RECOVERY AND REPROCESSING OF END-OF-LIFE COATINGS FOR CIRCULAR MANUFACTURING

The vision is to develop:

4 RECOVERED MATERIAL → NEW COATING → NEW PRODUCT

1 CLOSED-LOOP COATING RECOVERY



ORGANISATION PROFILE

i2i R&D Ltd: *Invention-to-Innovations* is a technology and social innovation company based in Midlothian, Scotland, UK, dedicated to transforming research excellence into sustainable industrial and societal impact. Operating across engineering, advanced materials, renewable energy, digital technologies, and innovation ecosystems, the company combines scientific expertise with entrepreneurial approaches to address complex technological and socio-economic challenges. The company is registered in Midlothian, UK, and undertakes research and experimental development activities across science, engineering, and innovation domains.

PROPOSAL INTRODUCTION (I)

Vision

- Closed-loop coating recovery
- Industrial-scale de-coating
- Low-carbon material recovery
- Recovered material → new coating
→ new product

Motivation

- End-of-life coating waste
- Loss of valuable materials
- High energy & treatment costs
- Virgin material dependency
- Carbon & resource reduction
- Transition to circular manufacturing
- Preliminary techno-economic viability

Content — Developments to be made

- Carbon de-coating optimisation
- Coating separation & recovery
- Material purification & characterisation
- Recovered-material reprocessing
- New coating formulation
- Performance validation
- Industrial-scale demonstration
- LCA + techno-economic assessment
- Closed-loop demonstrator
- Scale-up & commercialisation roadmap

PROPOSAL INTRODUCTION (II)

Expected outcomes

- Validated carbon de-coating technology
- Recovered, purified & reusable coating material
- Closed-loop coating process demonstrator
- Performance comparable to virgin materials
- Technical, environmental & techno-economic validation
- Reduced virgin material, waste & carbon footprint
- Scale-up & commercialisation roadmap

Schedule

Start: October 2027

End: September 2030

Duration: 30 months

Impacts — Expected market impact

- New circular market for recovered coating materials
- Reduced demand for virgin raw materials
- Lower coating-related carbon footprint
- Reduced end-of-life treatment and disposal costs
- New products, services & business models
- Industrial adoption of circular coating technologies
- Increased competitiveness of European manufacturing
- Scalable solution across multiple coating applications

PARTNERS

Current i2i R&D Ltd will lead the data-driven framework.

Partners required:

De-coating Technology SME — Carbon de-coating process development & optimisation.

Coating Manufacturer — Reformulation and reuse of recovered coating material.

Recycling/Recovery Specialist — Material separation, purification & recovery.

University/Research Institute — Materials characterisation, process science & performance testing.

OEM / End User — Industrial validation and application testing.

LCA/TEA Partner — Environmental, carbon & techno-economic assessment.

CONTACT INFO

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