Crumb Rubber & Fleece Bonding System
A development with Reliant Machinery Ltd.

Fusetex – Company Profile

✓ Fusetex are a specialist in cross-linkable high-performance thermoplastic powders and powder coatings which are marketed as the Curabond range of products.
Due to its high specific adhesion, Curabond is an ideal choice as a binder for rubber crumb, or indeed other recycled particulate or short staple fibre materials delivering outstanding results.

Whereas most conventional thermoplastic powders do not meet the necessary requirements of this application such as not 'cracking' when flexed, a technically excellent product has been achieved using a powder to rubber crumb ratio as low as 10% - 15%. This is due to the excellent cohesive strength of Curabond along with a heat stable binding system.
The target

Economical and environmentally friendly system to produce rubber and fibre sheets or continuous rolls from recycled car and truck tyres.
Product properties of rubber & fleece mat

- Highly flexible
- Noise dampening
- Shock absorbing
- Insulating
- Protecting
- Sealing
Some applications for rubber & fleece matt
✓ Building
✓ Roofing
✓ Flooring
✓ Plumbing
✓ Civil Engineering
✓ Public transportation
✓ Automotive
✓ Packaging
✓ Sport Surfaces
The system
To convert crumb rubber and fibre fluff into sheets and continuous roll goods.
✓ Eco technology

✓ Consolidated hot melt adhesives

✓ Several equipment installations.
The bonding process

Ground rubber and fibre fluff

✓ Step 1: blend with Fusetex adhesive

✓ Step 2: scatter, press, heat and cool, and laminate if needed, in continuous process for sheets or rolls.
Stage 1 - Blending
The rubber crumb powder and Fusetex adhesive is mixed in the correct ratios

**FUSETEX TECHNOLOGY**

The base polymer of FX 2030 melts around 100 – 110°C and on additional heating the melt viscosity increases to a point of infusibility. The ideal temperature for cross-linking the product is 165 – 170°C. Depending on temperature/time, it is possible to react FX 2030 enough to withstand temperatures up to 250°C.

The polymer chain has a large proportion of polar chemical groups which facilitate excellent adhesion to a wide variety of substrates including metallised foils and glass fibre. It also exhibits excellent adhesion to Kevlar and carbon fibre and substrates with difficult finishes such as Teflon® and silicone.
Reliant Powerbond HPC-RT
Rubber & Fleece Bonding Production System: Including scattering, compression, bonding & laminating production line, together with blending system & optional sheet cutting & rewinding systems
Reliant flexible rubber bonding laminating process

- Accurate scattering of powder and fibre can be achieved for weights from 8gsm to 20,000gsm
- Reliant Powerbond HPC-RT modular system allows 1.5m sections of heating and cooling to be assembled to fit the process parameters required
- Processing widths from 600mm to 3000mm available
- Thickness capacity for 0-150mm in 0.1mm increments can be achieved
- Consistent pressure is applied throughout the heating and cooling stages
✓ Continuous mat can be produced in thickness of 1mm-10mm with density of up to 15kg per square metre
✓ Recycled rubber and fibre mat can be bonded and laminated to other materials in one pass
Reliant Powerbond HPC-RT modular system

- Reliant Powerbond modular system allows 1.5m sections of heating and/or cooling to be assembled together in any combination

- Modular system allows capacity of machine for fit the process parameters required

- Options for different levels of power rating and compression within each 1.5m are available

- Large range of standard widths available from 600mm to 3000mm
✓ Tunnel opening capacity up to 150mm in 0.1mm increments

Product variations:

Rubber sheets
Density: 0.7 - 1.0 t/m³
Thickness: 1 - 10 mm

Fibre sheets
Density: 0.3 – 0.4 t/m³
Thickness: 1 – 10 mm
**Benefits compared to today systems**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Flatbed</th>
<th>PUR Solvent</th>
<th>Solvent</th>
</tr>
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<tbody>
<tr>
<td>Continuous process</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Process steps</td>
<td>2</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Instant handling</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Special fire precaution needed</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Clean system – no pollution</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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Rubber mat production thickness possibilities.

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Flatbed</th>
<th>PUR</th>
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<tbody>
<tr>
<td>1mm</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2mm</td>
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<tr>
<td>3-10mm</td>
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## Comparison of binders for rubber & fleece

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<thead>
<tr>
<th></th>
<th>Curabond</th>
<th>PUR Solvent</th>
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<tbody>
<tr>
<td>Binder &amp; disposal</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Remelting waste</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Environmentally friendly</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Harmless at production</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>12 months shelf &amp; pot life</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Easy recycling</td>
<td>Yes</td>
<td>No</td>
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</table>
Your production output costs

✓ 1500-3000 t/a sheets per 8 hour shift
✓ €1m for blender & press
✓ Cost savings approx. 15% vs. PUR
✓ Added value not achievable with PUR
✓ Saving of fleece disposal costs
✓ Added value of fleece matt production
✓ Saving of air cleaning costs
Your chance today for Fusetex to help you:

✓ Open new growth markets

✓ Secure lasting & higher profits

✓ Offer an affordable, continuous, instant and green bonding system
With thanks and acknowledgment to-

Reliant Machinery Ltd
Unit L
Craddock Road
Luton
Bedfordshire
LU4 0JF
UK