



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.

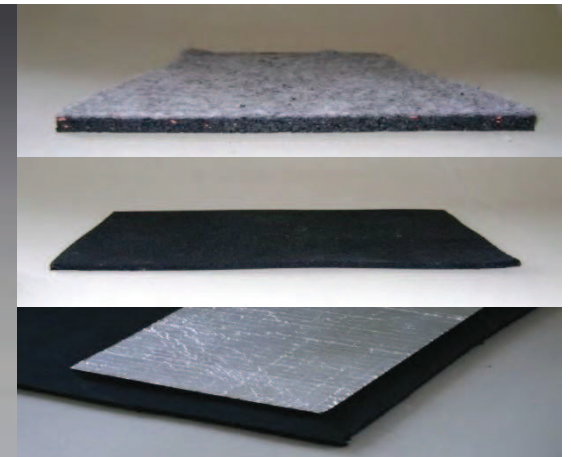


- ✓ Whereas most conventional thermoplastic powders do not meet the necessary requirements of this application such as not 'cracking' when flexed, a technically excellent product has been achieved using a powder to rubber crumb ratio as low as 10% - 15%. This is due to the excellent cohesive strength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

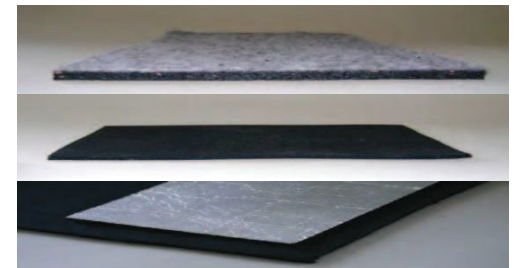
- ✓ Highly flexible
- ✓ Noise dampening
- ✓ Shock absorbing
- ✓ Insulating
- ✓ Protecting
- ✓ Sealing





Some applications for rubber & fleece matt

- ✓ **Building**
- ✓ **Roofing**
- ✓ **Flooring**
- ✓ **Plumbing**
- ✓ **Civil Engineering**
- ✓ **Public transportation**
- ✓ **Automotive**
- ✓ **Packaging**
- ✓ **Sport Surfaces**



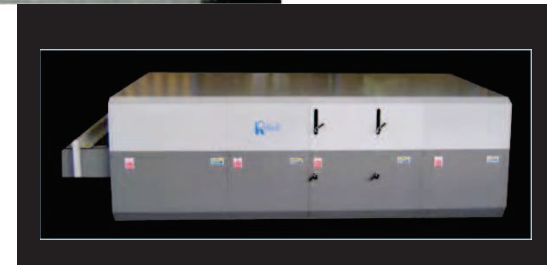
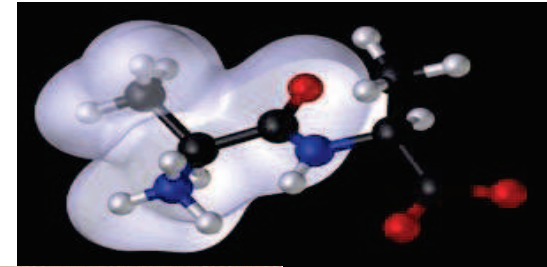


The system

To convert crumb rubber and fibre fluff into sheets and continuous roll goods.



- ✓Eco technology
- ✓Consolidated hot melt adhesives
- ✓Several equipment installations.

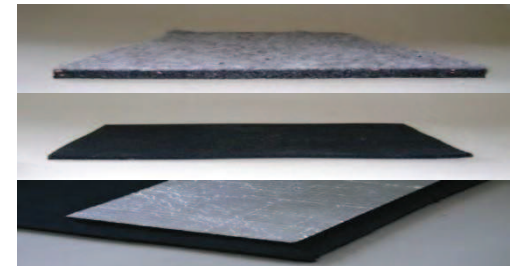




The bonding process

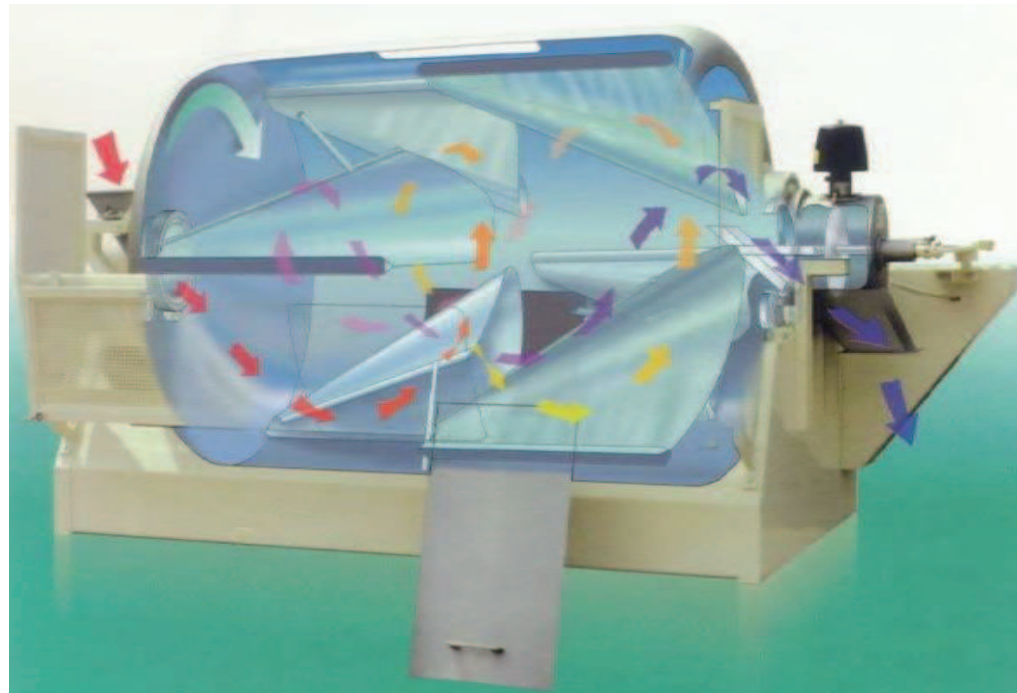
Ground rubber and fibre fluff

- ✓ 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

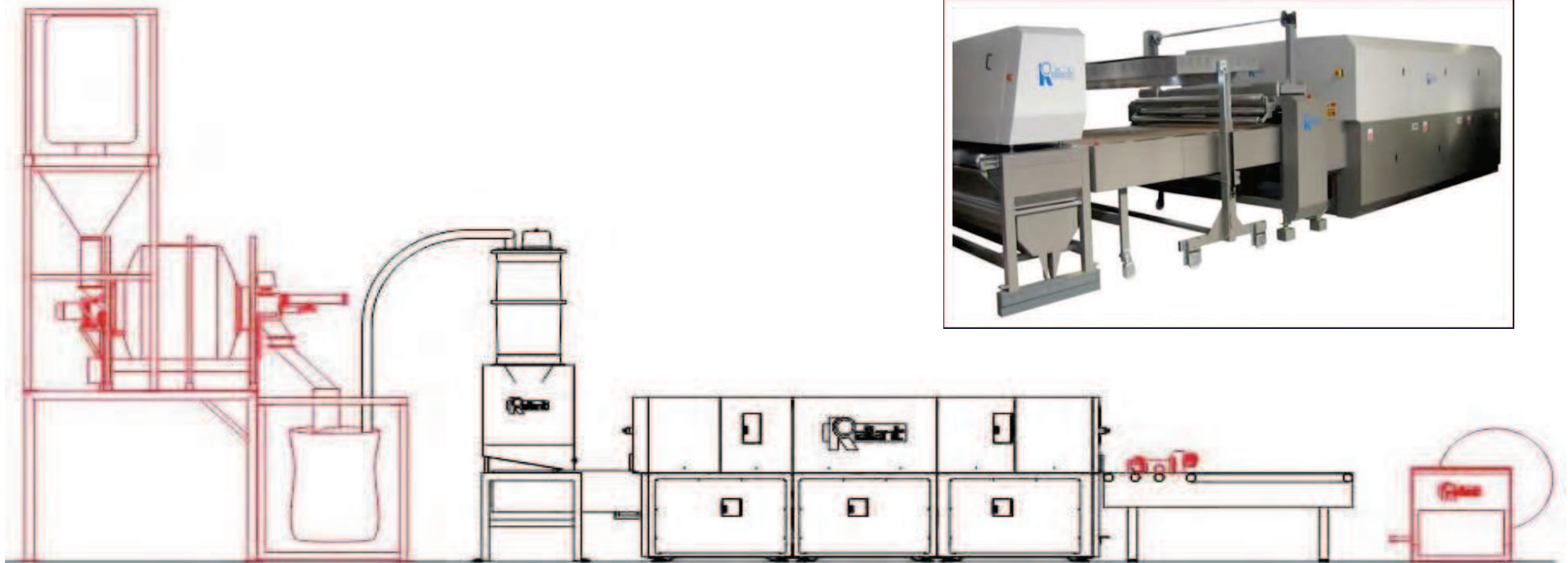
The base polymer of FX 2030 melts around 100 – 110°C and on additional heating the melt viscosity increases to a point of infusibility. The ideal temperature for cross-linking the product is 165 – 170°C. Depending on temperature/time, it is possible to react FX 2030 enough to withstand temperatures up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



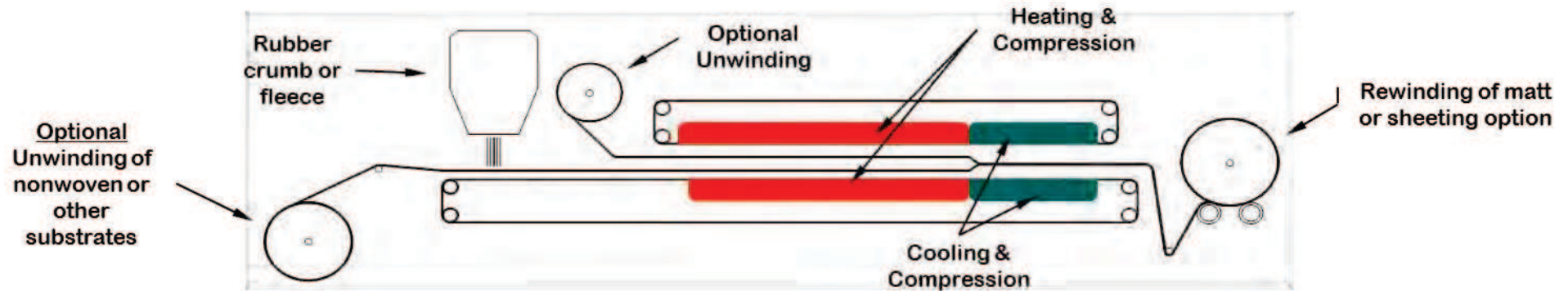
Reliant Powerbond HPC-RT

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

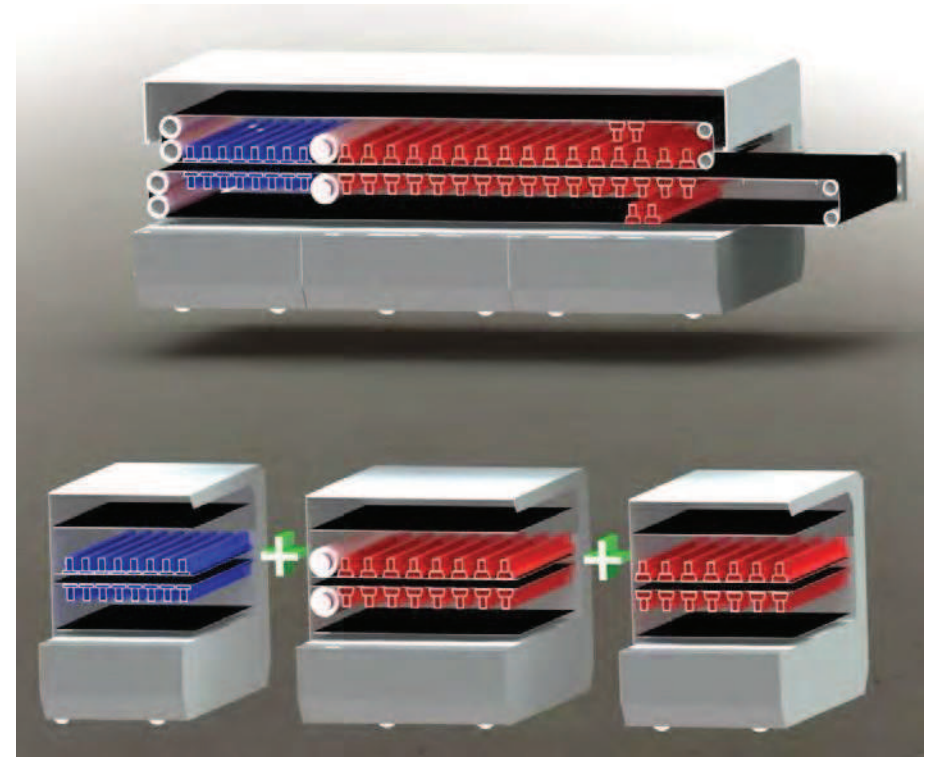


- ✓ Continuous mat can be produced in thickness of 1mm-10mm with density of up to 15kg per square metre
- ✓ Recycled rubber and fibre mat can be bonded and laminated to other materials in one pass



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

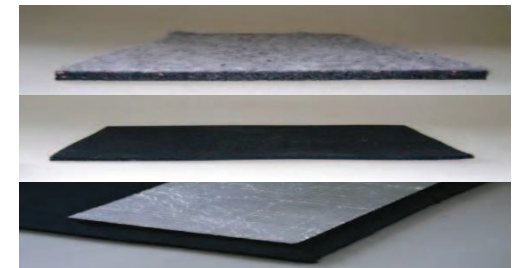
Thickness: 1 - 10 mm



Fibre sheets

Density: 0.3 – 0.4 t/m³

Thickness: 1 – 10 mm

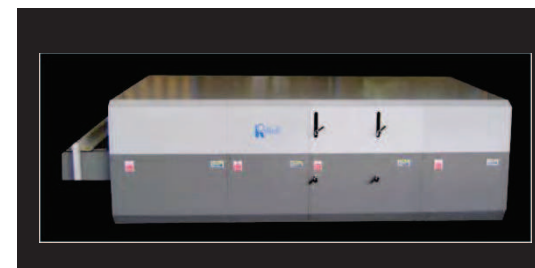
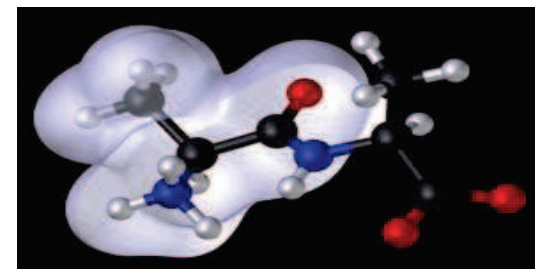




Benefits compared to today systems

Flatbed **PUR Solvent**

Continuous process	Yes	No	No
Process steps	2	4	4
Instant handling	Yes	No	No
Special fire precaution needed	No	Yes	Yes
Clean system – no pollution	Yes	No	No





Rubber mat production thickness possibilities.

	Flatbed	PUR
1mm	Yes	No
2mm	Yes	No
3-10mm	Yes	Yes





Comparison of binders for rubber & fleece

Curabond PUR Solvent

Binder & disposal

Yes

No

No

Remelting waste

Yes

No

No

Environmentally friendly

Yes

No

No

Harmless at production

Yes

No

No

12 months shelf & pot life

Yes

No

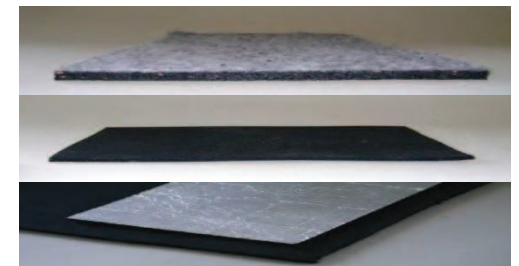
No

Easy recycling

Yes

No

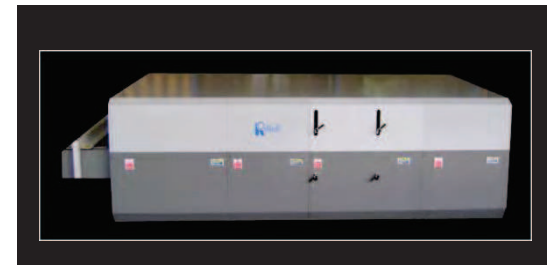
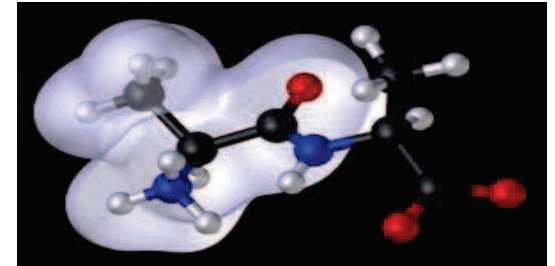
No





Your production output costs

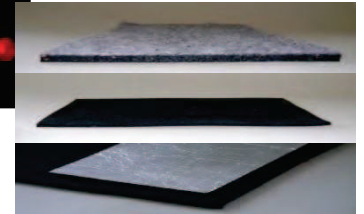
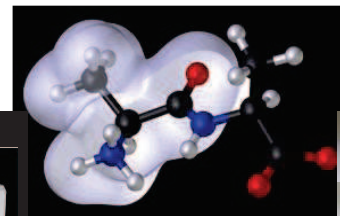
- ✓ 1500-3000 t/a sheets per 8 hour shift
- ✓ €1m for blender & press
- ✓ Cost savings approx. 15% vs. PUR
- ✓ Added value not achievable with PUR
- ✓ Saving of fleece disposal costs
- ✓ Added value of fleece matt production
- ✓ Saving of air cleaning costs





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-**

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