

New Polymer Developments

Martin's Rubber keeps a careful eye on various industries and raw material producers to identify new developments in the fields of polymer technology and manufacturing techniques.

With increased demand in the automotive industry for oil-resistant materials suitable for higher temperatures, Martin's Rubber has evaluated the next generation of ethylene-acrylic rubber. Using novel pre-compounded filler materials, these elastomers push the limits on working temperatures to ensure the continued high performance of modern vehicles and support the next generation of automotive developments.

Martin's Rubber has identified the latest generation of EPDM materials, characterised by their very high molecular weight. These elastomers display remarkable physical properties, approaching those of natural rubber, whilst offering the same temperature and chemical resistance of current EPDM materials.

Design and Development

Martin's Rubber has recently implemented a gated design & development process in line with the requirements of ISO 9001.

This allows us to continue to offer innovative solutions to our customers, but with increased focus on accuracy and efficiency. We can design bespoke materials to specification, or to fulfil very specific requirements.

Technical Consultancy

The demands of the various industries we support require excellent standards of both manufacturing best practice and leading-edge technical support.

Our in-house technical consultancy includes FEA and in-house tooling, allowing us to advise and assist on all aspects of rubber technology and product design. This enables us to support design projects from feasibility study through to full production.



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Rubber bonding
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Engineering plastics
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Eutectic 'Melt-out' Mould Cores

Martin's Rubber has recently developed a refined moulding method using novel eutectic materials. These materials have been used as a 'melt-out core' to allow us to create complex internal features on a nearly completely closed 3D shape.



This technology can be used to make high-performance inflatable parts, for example, using conventional moulding techniques.

Nanomaterials

Martin's Rubber is exploring the benefits of utilising modern-day nanomaterials, such as plasma functionalised multi-wall carbon nanotubes and graphene nanoplatelets.



Through use of these functionalised nanomaterials we have improved the damping in dynamic conditions on a bespoke formulation. The optimised compound

is also lighter, shows improved strength and elongation all whilst maintaining compression set resistance.

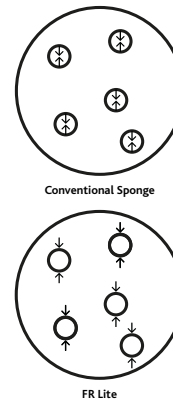
These lighter, stronger materials with improved damping characteristics can be used to benefit a wide variety of applications.

Martin's Rubber is also investigating the use of other 2D nanomaterials for enhanced thermal conductivity, and retained electrical insulation. This technology can be used to dissipate heat in electrical systems.

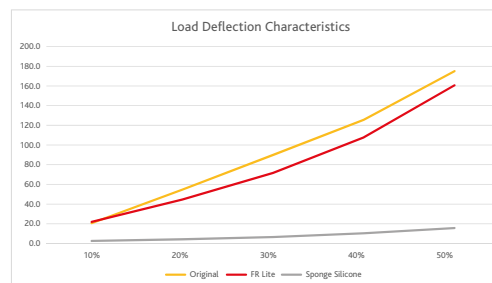


FRlite® is an innovative silicone that uses novel compositions and syntactic technology to reduce part weight by an unprecedented 25%.

Unlike closed cell porous sponge materials, this material utilises a self-reinforcing porous structure to reduce the density, without compromising on the characteristics of solid rubber. The porous structure resists collapse, so load is transferred through the bulk of the elastomeric material as with conventional solid rubber.



This lighter material retains the load-deflection and compression characteristics of solid rubber, providing the opportunity to utilise shape factor for engineering solutions.



RF/EMI Shielding Materials

EMI (electromagnetic interference) shielding components are commonly used when sensitive electrical equipment needs to be shielded from external RF fields along the seams and apertures of an enclosure. These components are used across many industries, including aerospace, defence and medical.

Martin's Rubber can produce bespoke 3D shapes in a wide variety of materials, including several MIL-DTL-83528C certified grades.

Magnetic Rubber

Martin's Rubber is exploring the use of ferrimagnetic fillers for magneto-responsive components. Through use of various ferrites, the coercivity of these materials can be tailored to the application.

These materials have many applications in a variety of industries, such as automotive and food & pharma.

