

Smithers Rapra

Smithers Rapra is recognised as a world leading rubber and plastics consultancy delivering a comprehensive and strictly independent service covering: design and material selection, material and product testing, chemical analysis, specialist production and funded research projects. Clients come from the polymer industry and industries using rubbers and plastics in any component product or production process. Smithers Rapra is the recognised brand of Smithers Rapra Technology Ltd. a wholly owned subsidiary of The Smithers Group, an American based group of specialist companies widely accepted as leaders in their individual fields of science and research.



Smithers Rapra ... *World leading independent rubber and plastics consultants*

Working for Industry

A varied selection of industries are supported by Smithers Rapra all requiring polymer knowledge and expertise. End-user industries include:

- Automotive – original equipment manufacturers and their suppliers.
- Industrial - off-shore, construction, utilities, power generation, hoses and pipes.
- Consumer - white goods, clothing, toys and food packaging.
- Medical products – inhalers, syringes, catheters and blister packs.
- Transport – aerospace, rail, bus and trucks, off road and marine.



The unique mix of expertise and facilities enable the application of an integrated approach to problem solving. The company's core capabilities are the extensive equipment available and the skills and experience of its people, many of whom are recognised and accepted by their peers, as leading experts in their particular field. Clients commission individual services, specialist consultancy or participate in multi-client research projects. Assistance in obtaining funding from the European Community and UK government and/or industry to progress research and development of polymer technology and its applications are provided.

Quality

Smithers Rapra's quality system is accredited by the UK Accreditation Service (UKAS), both as a testing laboratory (certificate No. 0067 and No. 0912) and a calibration laboratory (certificate No. 0306) in accordance with the recognised International Standard, ISO/IEC 17025:2005. The FDA has completed a full inspection and has approved Smithers Rapra for Laboratory testing. These accreditations and standards combined with an in-house quality management system underpin the technical competence of the range of services offered.

Mechanical Testing

Smithers Rapra has extensive experience of testing materials and products manufactured from rubber, plastic and other polymers. A broad spectrum of industries utilise the testing services and test programmes are implemented for; material suppliers, processors, manufacturers and end users.

Once a test programme is proposed, the type of testing required is assessed in consultation with the client and with reference to the applicable standards and previous experience. The proposed test programme will come under one of the following testing regimes:

- Conducting a test programme to a standard recognised internationally by following a testing procedure that is clearly documented.
- The development of a testing procedure to meet a defined standard, but there is no stipulated method to prove that standard.
- The creation of a testing regime where no standards exist, the requirement is discussed with the client and a programme of testing is agreed and actioned.

Consultants and test engineers at Smithers Rapra have become experts through experience in providing bespoke tests and schedules to meet individual client requirements. This level of experience also covers the fabrication of customised testing rigs and jigs to emulate actual environments.

Bespoke testing programmes are regularly implemented to meet the demands of manufacturers looking to provide independent evidence that their product is of the highest standard and fit for purpose. When taking a new or revised product to market, validation by Smithers Rapra a world renowned test facility will increase the speed at which it is accepted into the marketplace.

Chemical Analysis of Rubbers and Plastics

Smithers Rapra delivers a complete portfolio of rubber and plastic analysis, activities also include work for academia, the EC and UK Government Agencies (e.g. the Food Standards Agency). UKAS accredited laboratories provide techniques to examine the chemical and physical properties of numerous materials and compounds including:

- Base polymers - elastomers and thermoplastics .
- Compounds - rubbers, thermoplastics and thermoset formulations.
- Additives - fillers, plasticisers, antidegradants and curatives.
- Polymer based products - adhesives, paints, inks, lacquers, laminate films, plastisols and coatings.
- Manufacturing sector products and components used in - automotive, construction, electrical, medical and offshore industries.

The laboratories at Smithers Rapra are commissioned for data only projects or combined with consultancy services to form a comprehensive project. Analytical services typically support the following activities throughout the product lifecycle:

- Materials selection
- Product development
- Compound deformation/formulation
- Service life prediction
- Quality assurance
- Process improvements
- Technical specification compliance
- Failure analysis
- Forensic investigation
- Expert witness service

Identification of Rubber and Plastic Materials

Smithers Rapra provides a comprehensive analytical service to Industry, educational institutions and individuals. The range of materials analysed is vast and includes:

- Thermoplastic composites
- Cured elastomers
- Thermosets and composite materials and products
- Polymer additives and compounding ingredients
- Other polymer based products including additives coatings, adhesives, inks and paints

The analytical techniques used are constantly being reviewed and embrace latest technology and developments. Principal techniques currently include:

- Spectroscopic - (FT-IR, Infrared Microspectroscopy, UV/Vis Spectroscopy)
- Chromatographic (HPLC, GPC, GC, GC-MS, LCMS, GCMS TOF)
- Thermal (DSC, TGA, DMTA, Thermal Diffusivity)
- Plus - a range of wet chemical and other general, specialist or miscellaneous techniques.

Material analysis is often requested to answer the following questions:

- What materials are my competitors using in their products?
- Is my material supplier providing the same material as sampled?
- Can you monitor the quality of material supplied to me by my supplier?
- What material do I need to specify for my product?

Consultancy Services

The Polymer Consultancy Centre provides assistance with pre-production issues including product design, guidance with material selection, durability and lifetime prediction.

Post production services cover an accurate understanding of product and material evaluation and development.

The common link between the varied industries that the Consultancy Centre serves is that they all have issues with rubber, plastics or other Polymeric materials. The Consultants work alongside their customers offering guidance and support as an integral part of the product design and development process.

Smithers Rapra uses the necessary skills and experience to undertake entire product design and development programmes using knowledge built up over many years of supporting the Rubber and Plastic industry. The Consultancy team has an unrivalled understanding of how polymer materials perform in service, not just on "Day One" but after many years of service.

Failure Analysis and Process Trouble-shooting

Tens of thousands of polymer (rubber, plastic, TPEs, fibre, adhesive, coatings & paint) failure investigations have been completed and a rapid and unbiased assessment of failed products / materials and identification of the probable cause of failure have been delivered.

The Polymer Consultancy has a dedicated team of polymer specialist's drawn from industry and academia who have a fundamental understanding of polymer behaviour, how polymer products / parts perform in-service, extensive experience of failure modes and a practical appreciation of design and processing. Supported by extensive microscopy, analytical and mechanical testing laboratories the consultancy team characterise polymer composition and mechanical performance in order to rapidly assess the cause of product/material failure and, importantly, recommend remedial/corrective actions to minimise the risk of further failure and if possible improve device, component or structure performance.

Specialist Manufacturing

From Smithers Rapra's unparalleled knowledge of the relationships between polymers, product design, performance, durability and manufacture, a low volume high quality manufacturing service for plastics, rubber and polyurethane parts has been developed.

Technologists are experienced in designing and utilising small scale production lines and developing novel processing technology. The highest production standards are maintained by in house quality and auditing systems to ensure product quality and consistency. Consultants and technologists regularly advise on developing or improving manufacturing processes and on tooling, including the development of moulds and dies. A range of manufacturing techniques including compounding, extrusion based processes, moulding and rubber parts are supported on site.

The processing service delivers benefits to new and existing clients with new product ideas as well as companies that would otherwise have to shut down complete manufacturing lines to develop new products.



Smithers Rapra has provided a world leading portfolio of Rubber, Plastic and other Polymer Information products and services for 90 years. To improve the delivery and range of products a new company was formed in July 2008 called **iSmithers**. Detailed information on the range of books, training courses, conferences and searchable data can be found at www.ismithers.net

Company History

- 1919 - Established as RABRM (the Research Association of British Rubber Manufacturers).
- 1960 - Evolution into RAPRA (Rubber And Plastic Research Association) when plastics were added to the companies remit.
- 1986 - Saw the incorporation of Rapra Technology Ltd and a board of directors were appointed.

- 2002 - The management team of Rapra Technology Ltd exercised a Management Buyout (MBO), acquiring the assets and liabilities of the company from Rapra Technology Ltd.
- 2002 - The former Rapra Technology Ltd was re named Rapra Ltd and remained a not-for-profit company limited by guarantee.
- 2006 - The Smithers Group acquired the company and renamed it Smithers Rapra Technology Ltd.

Company Statistics

- 5,000 clients worldwide from 60 countries per annum.
- 2,000 technical projects completed each year.
- 2 sites in the UK: Shawbury Shropshire, Billingham Cleveland.
- 130 employees made up of scientists, technologists and support personnel.

The Smithers Group

Headquartered in Akron, Ohio, The Smithers Group of companies provide strictly independent technology-based services to a diverse mix of market sectors. Expertise has been developed in well-defined niche areas and a reputation of Quality and the highest levels of service earned. The group is progressive and is expanding its technologies, capabilities and markets. For more information, visit www.smithers.com

For further information on testing, analysis, consultancy or small scale manufacturing services available from Smithers Rapra e-mail the enquiry bureau at info@rapra.net or telephone +44 (0)1939 250383.

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