Smithers Rapra Technology Limited

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Smithers Rapra Technology

- Introduction to the Rapra & the Smithers Group
- Overview of products and services
Smithers Rapra Technology

To provide industry with technology, information and consultancy on all aspects of rubber and plastics
History of Smithers Rapra Technology

- Rubber And Plastic Research Association
- Original Rubber-Based Research Association established in 1919
- Plastics Research added in 1960
- Rapra Technology – independent of government funding since mid-1970s
- Management Buyout in 2002
- Bought by Smithers Group in April 2006
- Founded in Ohio, USA in 1925
- Independent analytical testing & consulting services
- Laboratory facilities in U.S.A. & Switzerland
- Affiliate office in Japan
Smithers Rapra Technology – The Facts

- Two sites in the U.K.
  - Shawbury in Shropshire (West Midlands)
  - Billingham in the North East of England
- Independent and impartial consultants
- 120 people + contractors/agents
- 2,000 technical projects p.a.
- Sales to over 60 countries annually
<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Technical Consultancy &amp; Services</td>
<td>55%</td>
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<tr>
<td>Information Products &amp; Services</td>
<td>20%</td>
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<tr>
<td>R&amp;D projects</td>
<td>20%</td>
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<tr>
<td>Regional SME programmes</td>
<td>5%</td>
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### Clients in all end-use industry sectors

- Automotive
- Aerospace
- Agricultural
- Building / construction
- Domestic Appliances
- Defence
- Electronics
- Medical
- Nuclear
- Offshore
- Power

The list goes on...
What can Rapra offer?

➢ Technology
  • Analytical Services
  • Regulatory Support
  • Material & Product Testing
  • Polymer Technology
  • Product Design
  • Research Projects

➢ Information
  • Training Courses
  • Polymer Library
  • Conferences
  • Publications
Analytical Services - Business Areas

- **Product Analysis**
  - Polymer identification, reverse engineering, failure diagnosis

- **Environmental**
  - Fume analysis, scrap tyres in road surfaces, analysis for PAH in tyres, COSHH, air monitoring.

- **Polymer Reaction Chemistry**
  - Prediction of reaction products from polymer cure systems.

- **Food Contact**
  - Testing of materials to National and European Regulations
  - Preparation and submission of Food-contact notifications (new materials) to the US-FDA and European Food Safety Authority
  - Regulatory consultancy Routine testing (global & specific)
  - Research for the Food Standards Agency and Industry.
Analytical Services – Techniques available

**Spectroscopy**
- FTIR
- UV/VIS

**Chromatography**
- GC
- HPLC
- GPC

**Thermal**
- TGA
- DSC
- DMA

**Microscopy**
- Microscope FTIR
- Optical

**Spectrometry**
- GC-MS
- LC-MS
- LC-MS/MS
- GC x GC-MS (TOF)

**Outsourced**
- SEM, EDAX, NMR, ICP, AA, SIMS & XPS
Pharmaceutical Services

- Extractable Testing
- Leachable/Stability Testing
- Routine/Release Testing
- Method Development and Validation
- Compendial Testing
- Contamination Analysis
Regulatory Support

- Pharmacopoeia Monograph testing
  - USP <661> Containers
  - USP <381> Elastomeric closures
  - EP Section 3 - 3.1.15 Materials for containers
  - JP monographs
  - Also USP <87> and <88> and ISO 10993 Pt’s (subcontracted)
  - Ad hoc national standards
Polymer Testing - Business Areas

- Material validation
- Product specification and validation
- Design and manufacture of bespoke product test equipment
- Durability and life prediction
- Material properties for design
- QC & audit testing
- Out-sourced testing
Polymer Testing - Equipment

- Mechanical Testing
  - tensile, flexural, abrasion, impact etc.

- Physical Testing
  - permeability, thermal, electrical, rheological etc.

- Environmental Resistance
  - UV, heat ozone, cold, salt spray, compatibility etc.

- Long Term Properties
  - creep, fatigue, ESC, stress relaxation
Polymer Technology - Business Areas

- Material and supplier selection
- Process development and selection
- Product design and simulation
- Low volume prototypes
- Failure diagnosis
- Technical process audits
Polymer Technology - Equipment

- **Rubber**
  - 1.6 litre internal mixer
  - Compression/transfer moulding
  - Ram and cold feed extruders
  - Two-roll mills
  - Cryogenic de-flashing equipment

- **Plastics**
  - Twin screw compounding extruder & granulators
  - Various laboratory extruders
  - Injection moulding machines (25 & 100 tonne)
  - RIM equipment
  - Blown film lines
Product Design

- Material Selection
- Long-Term Mechanical Data Generation
- Stress Analysis
- Injection Moulding Simulation
- Dimensional Tolerance Analysis
Research Projects

- European or DTI funded
- Multiclient programmes
- 12 current projects. For example:
  - **NANORUB** - Customised nanocomposites based on rubber matrices for high demand applications.
  - **CRIOSINTER** - Development of an innovative recycling process based in cryogenic and water jet grinding and sintering techniques for extending the use of recycled rubber in the development of high quality products.
  - **ALAMO** - Development of innovative high performance anodised aluminium moulding tools for the thermoplastic processing sector to achieve competitive advantage.
  - **SUREFIRE** - Next Generation Fire-Resistant Lightweight Structural Materials.
  - **PolyCond** - Creating competitive edge for the European POLYmer processing industry driving new added-value products with CONDucting polymers.
Information Division

The world’s leading polymer database of Technical & Commercial Information

- Polymer Library
  - Over 1 million articles on line, via CD-ROM or via the Internet
- Training Courses
  - Short bespoke courses
- Conferences
  - 10 international events/year
- Publications
Thank-you

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