Successful Searching of the Polymer Library
http://www.polymerlibrary.com

November 2003
Rapra Technology Ltd.
# Table of Contents

**Rapra Technology Ltd.** .......................................................... 3  
- The Polymer Library ......................................................... 3  

**Source Material** ............................................................... 4  
- Subject Coverage and Selection Policy .................................. 4  
- Economic and Commercial Information ................................... 4  
- Industrial Organisation/Administration .................................. 5  
- Environmental and Industrial Hazards/Toxicity ....................... 5  
- Legislation and Regulations ............................................... 5  
- Machinery and Test Equipment ............................................. 6  
- Polymeric Materials and Monomers ....................................... 6  
- Additives and Compounding Materials .................................... 6  
- Synthesis, Polymerisation and Chemical Modification .............. 7  
- Natural Rubber Cultivation ................................................ 7  
- Properties and Testing ..................................................... 7  
- Applications of Polymers .................................................. 8  
- General guidelines as to coverage on the Polymer Library:........ 9  

**Guide to Searching** ............................................................ 11  
- Search Aids ........................................................................... 11  
  - Rapra Classification Code .................................................. 11  
  - Rapra Thesaurus .................................................................... 11  
- General Guidelines ............................................................. 11  
  - Spelling Policies .................................................................. 11  
  - Searching by field ............................................................... 12  
  - Search Stemming ................................................................... 13  
  - Wildcards ............................................................................. 14  
  - Proximity Operators ............................................................ 15  
  - Phrase searching ................................................................. 15  
  - Boolean operators and brackets ......................................... 16  
  - NOT operator ....................................................................... 16  
- Searching using the Classification Code .................................. 17  
- Mechanical Properties of PE .................................................. 17  
- Economic Information on PP (Polypropylene) Materials ........... 17  
- Economic Information on Packaging Products ......................... 17  
- Economic Information on PP Products ..................................... 18  
- Company Information on the ICI Group ................................... 18  
- Searching using Keywords (Index Terms) ............................... 18  
  - Short items .......................................................................... 18  
  - Economic Information:index_terms ....................................... 18  
  - Statistics:index_terms ........................................................... 19  
  - Data:index_terms .................................................................... 19  
  - Company or Companies):index_terms ................................... 19  
  - Commercial Information:index_terms .................................... 20  
  - (Machine or Machinery):index_terms ..................................... 20  
  - Rubber or Elastomer (natural language rather than descriptors) 20  
  - Material* ADJ Replacement ............................................... 20  
  - Reinforced Thermoplastic .................................................... 20  
  - Non-Polymer Terms (:non_polymer_terms) ......................... 21  
- Searching for Polymers ........................................................... 21  
  - ABS, Acrylonitrile Butadiene Styrene Terpolymer ............... 21  
  - Butyl Rubber, Butene Isoprene Rubber ................................. 21  
  - EPDM, Ethylene Propylene Diene Terpolymer ....................... 21  
  - EVA, Ethylene Vinyl Acetate Copolymer .............................. 21  
  - NR, Natural Rubber ............................................................. 22  
  - Nitrile Rubber, Butadiene Acrylonitrile Rubber (also NBR) ... 22  
  - PE, Polyethylene ................................................................. 22  
  - PETP (also PET), Polyethylene Terephthalate ....................... 22  
  - PMMA, Polymethyl Methacrylate ........................................ 22

©2003 Rapra Technology Ltd.
Rapra Technology Ltd.

Rapra Technology Ltd. is the leading international organisation offering technology, information and consultancy in the fields of plastics, rubber and polymeric composites. Operating on two sites in the UK, the company employs approx. 130 staff, more than half of whom are professionally qualified in a range of disciplines including polymer science and technology, polymer engineering, physics, chemistry, economics and information science.

Our 4 hectare site encompasses laboratories, testing areas, workshops, pilot plant and pre-production units together with an information centre.

Rapra’s Information Centre has at its foundation the world’s most comprehensive collection of data on polymers and their uses. One of the many tasks undertaken in the centre is the production of the Polymer Library Abstracts Database.

The Polymer Library

The Polymer Library (also known as Rapra Abstracts) is the only online database in the world which is dedicated exclusively to information on rubbers, plastics, adhesives and polymeric composites. There are over 820,000 records in the database, from 1972 to the present, covering commercial, marketing, technical and academic aspects of the rubber and plastics industries. The file is updated every two weeks with the addition of approx. 1400 new abstracts.
Source Material

Source material for the database is selected from more than 400 journals in a wide range of languages from 30 different countries including North America, Australia, Europe, Japan and China.

Several journals are considered to form a good representative core of rubber and plastics trade journals, e.g. Plastics and Rubber Weekly, European Plastics News, European Rubber Journal, Modern Plastics International, Rubber and Plastics News, selections are made avoiding duplication wherever possible.

Many of the academic journals, by the very nature of their content, are also selected extensively. These include such titles as:

- Polymer
- Macromolecules
- Progress in Rubber & Plastics Technology, etc.

We also select from a number of journals relating to specific application areas e.g.:

- Adhesives Age
- Journal of Coatings Technology
- Packaging
- Pipes and Pipelines International
- Polymers, Paint and Colour Journal
- Reinforced Plastics
- Medical Device Technology
- Tire Science and Technology.

Specification/standards from world-wide sources are included in the database, as well as books, technical reports and a large collection of trade literature. We also collect conference papers from such organisations as:

- Plastics and Rubber Institute (PRI)
- American Chemical Society (ACS)
- Society of Plastics Engineers (SPE)
- Society of the Plastics Industry (SPI)
- British Plastics Federation (BPF)

All new patent applications relevant to the rubber and plastics industries from the European and US patent office were covered between January 1994 and December 2001. Adhesive patents are ongoing.

The majority of the source material is held at Rapra and is available to users of the database via our Copyquest document delivery service.

Subject Coverage and Selection Policy

The coverage of the database is world-wide, with about half the information coming from and relating to the UK and Europe, and the remainder to the USA, Japan and the rest of the world.

Economic and Commercial Information

Most of this information comes from the leading trade journals and includes:
(1) Articles of a review nature, i.e.
   (a) Company profiles
   (b) Statistical articles giving details of consumption, production, forecasts etc. of:
      (i) Individual materials
      (ii) Individual countries, i.e. UK, USA, Japan etc.
      (iii) Geographical areas, i.e. Western Europe, South East Asia, North America, etc.
(2) Brief articles giving information of interest to the industry, e.g. mergers and acquisitions, company name changes, etc.
(3) Information on new products. Brief abstracts are given containing trade name, company name, material and application. Such articles provide data to assist in marketing activities, such as forecasts, company information, market trends, statistics and information on new developments in materials and applications.

**Industrial Organisation/Administration**

Generally only review type articles are included in this section. Information on the following subjects comes under this heading.

- Factory layout
- Quality control
- Drainage
- Effluent treatment
- Pollution
- Ventilation
- Handling
- Storage
- Noise control
- Dust extraction
- Training and education
- Employment

**Environmental and Industrial Hazards/Toxicity**

This area is covered as comprehensively as possible, but it must be noted that only articles relating to the rubber and plastics industries are covered.

Topics covered include:

- Industry related diseases
- Industrial environmental monitoring
- Toxic effects of specific materials used in the rubber and plastics industries
- Threshold limit values
- Accidents and accident prevention
- Law relating to health and safety
- Environmental issues such as recycling, reclaiming, waste disposal etc.

**Legislation and Regulations**

The majority of the information under this heading relates to environmental matters and selection is made from the polymer journals, COM Documents, the Official Journal and conference papers. All articles reporting on developments or changes in legislation and regulations world-wide are selected, covering topics such as recycling, packaging, food contact, scrap tyres, ecolabelling, CFCs and health and safety. Also covered is law relating to patents, design, trade marks, copyright and companies.
Machinery and Test Equipment

All review type articles are selected, together with any articles providing specifications of particular machines or detailing the introduction of new machinery. It should be emphasised that this section covers only machinery and test equipment for processing and testing of plastics and rubber materials and products, e.g. testing of creep of PE; injection moulding of polycarbonate; testing of wear of tyres; extrusion of PP.

There are certain areas, where, mainly because of overlap with other UK Research Associations, we would not select, i.e. an article on machinery for producing plastics film for packaging will be selected, but, an article which gives details of a machine for converting that plastics film into an item of packaging will not necessarily be selected. Similarly, an article on a machine to produce fibres from plastics will be selected while an article on a machine for converting those fibres into carpets or textiles may not be.

The types of machinery covered come under the following fairly broad headings:

- Preliminary processing equipment
  - (a) Bale cutters
  - (b) Powder processing equipment
  - (c) Mixers, masticators and mills
  - (d) Granulators
  - (e) Heating and cooling equipment
- Extruders of various types
- Moulding and vulcanising equipment
  - (a) Injection moulding machines
  - (b) Blow moulding machines
  - (c) Transfer moulding machines
  - (d) Compression moulding machines
  - (e) Rotational and slush moulding machines
- Calenders
- Equipment for forming from sheet
- Coating and impregnating equipment
- Laminating equipment
- Vulcanisation equipment
- Bonding, welding and heat sealing equipment
- Fabricating equipment
- Repairing and retreading equipment
- Reclaiming equipment
- Control equipment

Polymeric Materials and Monomers

The coverage on monomers is limited mainly to reviews and economic information. Polymers are however covered in depth, with articles covering their manufacture, processing, applications and properties.

Additives and Compounding Materials
We generally select review type articles on additives and compounding ingredients, and in addition articles on additives are selected which may not appear to be directly related to rubber and plastics but which contain useful information. Particular attention is paid to additives where there is concern in the industrial health and safety areas. Additives and compounding ingredients come under the following broad headings:

- Reinforcing agents and fillers
- Colour pigments and dyes
- Plasticisers, extenders, lubricants, peptising agents and tackifiers
- Antidegradants, antioxidants, antiozonants, preservatives, stabilisers, and protective agents
- Accelerators, crosslinking and curing agents
- Odorants
- Blowing agents
- Solvents and swelling agents
- Surface active agents
- Creaming agents
- Coagulants
- Antideteriorants
- Gelling agents
- Thickening agents, viscosity modifiers, thixotropic agents

**Synthesis, Polymerisation and Chemical Modification**

Selection in this area is fairly comprehensive and all significant articles on the synthesis and polymerisation of polymers are covered. It should be noted that synthesis of monomers is not fully covered. Catalysts and initiators for polymerisation processes are included in this section.

**Natural Rubber Cultivation**

We cover the major journals on this subject and of course all international rubber conferences. Articles of a review nature, and those giving details of notable events are selected but we do not attempt to duplicate the work of the Tun Abdul Razak Research Centre (formerly known as the MRPRA - Malaysian Rubber Producers’ Research Association) in fully covering all aspects of cultivation.

**Properties and Testing**

All articles containing information relevant to the plastics and rubber industries are selected and generally can be considered to fall under the following broad headings:

- Chemical constitution
  (a) Crosslinking phenomena
  (b) Crystallinity
  (c) Molecular structure and weight
• Toxicity/health and industrial hazards
• Ageing, swelling, weathering, chemical resistance, biological attack
• Colloidal properties
• Mechanical properties
  (a) Tensile, shear and compression properties
  (b) Frictional resistance and abrasion resistance
• Thermal properties and flammability
• Electrical and magnetic properties
• Optical properties
• Rheological properties
• Morphological properties
• Specific gravity, density, porosity
• Acoustic properties
• Surface properties
• Adhesion
• Non-destructive testing

Applications of Polymers
All applications of polymers are covered, including polymeric forms and semi-finished products through to specific applications in a number of end-use industries.

Polymeric forms
Included in this section are latices, solutions, plastisols, foams, blends, liquid polymers and thermoplastic elastomers.

Semi-finished products
These include mixes and compounds, powders, extrusions, sheeting, film, laminates, reinforced plastics, proofed and coated fabrics, fibres and synthetic leather.

Industries covered include:

<table>
<thead>
<tr>
<th>Agriculture</th>
<th>Armed forces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>Engineering</td>
</tr>
<tr>
<td>Energy</td>
<td>Entertainment</td>
</tr>
<tr>
<td>Marine</td>
<td>Mining and quarrying</td>
</tr>
<tr>
<td>Nuclear</td>
<td>Petrochemical</td>
</tr>
<tr>
<td>Printing</td>
<td>Transport</td>
</tr>
</tbody>
</table>

Specific applications
• Adhesives and coatings, sealants, etc. While adhesives and coatings are covered in depth, articles on decorative paints are not generally included except in the case of significant reviews.
• Belting (conveyor and power transmission)
• Clothing and footwear (Note: normal synthetic textile clothing is not covered. Topics which are covered include protective clothing, space wear, gloves, etc.)
• Domestic fittings and accessories; furniture and soft furnishings
• Electrical and electronic applications
• Fancy goods
• Games, sports appliances, toys
• Hose, tubing and piping
• Joints, seals, packings and other mechanical parts
• Optical and other scientific instruments
• Insulation other than electrical
• Polymers as chemical reagents
• Vehicle shells and accessories
  (a) Road
  (b) Marine
  (c) Aircraft and space vehicles
• Packaging and containers
• Roads, building and construction, flooring etc.
• Surgical, medical, dental and veterinary applications
• Tyres and tracks
• Vibration dampers and shock absorbers
• Rollers
• Stationers goods, office accessories etc.

General guidelines as to coverage on the Polymer Library:

Textiles: Articles on textile applications are included only when significant attention is being paid to the processing and/or properties of the polymer or when the polymer is being used as a reinforcing agent, i.e. in the case of coated fabrics.

Packaging: Items on processes, equipment, properties and materials are selected. Items on specific packaging products (e.g. Bloggs company’s new bubble packaging) are not selected unless other relevant information is included.

Paint: Articles on paints are not taken except in the case of significant reviews or where particular detail on processing and properties of the polymer concerned are included.

Natural Rubber Cultivation: Articles purely on cultivation, i.e. preparation of soil, raising of plants etc. are not selected. Review type articles on production from plantations and on processing the polymer after removal from the plant are included.

Natural Polymers: Articles about natural polymers are not selected unless they are
significantly modified and/or applied to uses where you would expect polymer applications.
Guide to Searching

The purpose of this guide is to share some of the specialised knowledge we have at Rapra to enable you to get the best possible results when searching the Polymer Library on the web. This will not be a definitive, all-embracing coverage of how to search our file, but is intended to help you make the best use of the searching facilities available. It can also be used in combination with the Rapra Classification Code and Thesaurus.

Search Aids

Rapra Classification Code

The Rapra Classification Code is an essential search aid for anyone making regular use of our database. It contains full details of the coding, together with general and polymeric indexes to the code, which allows each record to be searched on the basis of its subject coding rather than by natural language. A full list of adhesive category codes is also provided. This can be downloaded for free from www.polymerlibrary.com.

Rapra Thesaurus

The Rapra Thesaurus is an invaluable search tool for searching the Polymer Library, providing useful terms for building search strategies. Terms followed by (IT), (NP) or (LO) are valid keywords for respectively the Index Terms field, the Non-Polymer Terms field or the Geographic Location field.

There are some special Index Terms, which our indexers are instructed to consider first when indexing. These are:

- RUBBER;
- THERMOPLASTIC;
- THERMOSET;
- PLASTIC;
- ECONOMIC INFORMATION;
- STATISTICS;
- COMMERCIAL INFORMATION;
- COMPANY;
- INSTITUTION;
- REVIEW;
- THEORY;
- DATA;
- SHORTITEM;
- PRODUCTANNOUNCEMENT;
- TECHNICAL

These terms can be very useful, but be aware that indexing policies have changed over the years. Several of these terms were only introduced in 1986.

To purchase a copy of the Rapra Thesaurus online please visit http://polymer-books.com, or contact:

Publication Sales
Rapra Technology Limited
Shawbury, Shrewsbury, Shropshire SY4 4NR, UK
Telephone: +44 (0)1939 250383
Fax: +44 (0)1939 251118
E-mail: publications@rapra.net

General Guidelines

Spelling Policies

Rapra’s original policy on spelling was to always use the Anglicised English version in the
abstract and indexed sections and depending on the type of document the original language spelling may have appeared in some titles. Since 1998 Rapra’s policy is to leave the original spelling in the title, have the Anglicised English spelling in the abstract and have both the Anglicised and American English versions in the index terms.

The following list of words are intended to help remind you of some of the different spellings to use when searching the Rapra file.

<table>
<thead>
<tr>
<th>American Spelling</th>
<th>English (Rapra File) Spelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>Aluminium</td>
</tr>
<tr>
<td>Color</td>
<td>Colour</td>
</tr>
<tr>
<td>Fiber</td>
<td>Fibre</td>
</tr>
<tr>
<td>Hemodialysis</td>
<td>Haemodialysis</td>
</tr>
<tr>
<td>Mold</td>
<td>Mould</td>
</tr>
<tr>
<td>Molding</td>
<td>Moulding</td>
</tr>
<tr>
<td>Orthopedic</td>
<td>Orthopaedic</td>
</tr>
<tr>
<td>Sulfone</td>
<td>Sulphone</td>
</tr>
<tr>
<td>Sulfur</td>
<td>Sulphur</td>
</tr>
<tr>
<td>Tire</td>
<td>Tyre</td>
</tr>
</tbody>
</table>

Another area which creates some confusion is in the many words which can be spelt using either ‘s’ or ‘z’. The Rapra policy is to use ‘s’. i.e. polymerisation NOT polymerization.

When searching, use ‘s’ or for complete safety use ? where the ‘s’ or ‘z’ would appear.

**e.g. Polymeri?ation**

Other words in this category include plasticiser and stabiliser.

To allow for optional characters use $  

**e.g. Colo$r**  
will find both color and colour.

Other words which cause some confusion are the use of different words with the same meaning - the following are typical:

<table>
<thead>
<tr>
<th>American</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavement</td>
<td>Road</td>
</tr>
<tr>
<td>Windshield</td>
<td>Windscren</td>
</tr>
<tr>
<td>Gaskank</td>
<td>Fuel/petrol tank</td>
</tr>
<tr>
<td>Hood</td>
<td>Bonnet</td>
</tr>
<tr>
<td>Trunk</td>
<td>Boot</td>
</tr>
<tr>
<td>Fender</td>
<td>Bumper</td>
</tr>
<tr>
<td>Airplane</td>
<td>Aeroplane</td>
</tr>
<tr>
<td>Diaper</td>
<td>Nappy</td>
</tr>
</tbody>
</table>

The above listings are by no means exhaustive.

**Searching by field**

When you type in a search request you can specify in which field of the record you want to search. Some of the search boxes are already pre-set to search what you typed in a particular field. For example, anything typed in the author search box will only be searched in the author name field.
You could also do this from the main top search box by following a single search word by a colon and the name of the field to which you want to restrict the search.

    e.g. Willoughby:authors

or

    'injection molding':journal_name

Remember, if you don't specify a field in this top box, your search will be performed in all of the following fields:

· Title
· Abstract
· Index terms
· Non-polymer terms
· Locations
· Trade Names
· Copyquest Order Number

You can also specify more fields and more search words by using the following format:

    pet and recycling/f:title,abstract

This will only find those records containing both words in the title and/or abstract fields.

You can find which fields you can search and what they are called on the ‘About the Polymer Library’ web page.

**Search Stemming**

When you view abstracts resulting from your search, you will see that the search terms that you used are highlighted. You will also notice that these highlighted terms may vary somewhat from your original search terms. This is due to a process called stemming.

The Polymer Library strips query words of common suffixes that indicate plurality, verb tense, etc. After query words undergo stemming, a search is performed for variants of the resulting root words.

Stemming is performed automatically, in order to accommodate the variety and imprecision of the English language. For example, if you use the word extruder as a query word, stemming causes variants like extruding, extruders, extrudate, extrudates and extruded to be sought, so you retrieve information that would be overlooked under a strict interpretation of your query.

There are two ways to override this automatic search stemming:
If you use exact phrase searching, by placing the search terms in single quotes, no stemming will be applied, ‘extruder’ will thus give exactly the same result as extruder#.

When you use a wildcard in your search term, no stemming will be used.

**Wildcards**

With wildcard operators, you can search for words with variable characters. You can position wildcard operators at the beginning, middle, or end of a search term, and you can combine them within a word.

**Matching a Single Character**

You can use the single character wildcard - the question mark - to represent a single variable character in a query.

Examples:

- **Organisation** - this will search for terms like organisation and organization.
- **Tire?** - this will search for terms like tyres, tired, tires etc.
- **Mold??** - this will search for terms like molded and molder.

**Matching One or Zero Characters**

The optional character wildcard - the dollar sign - is similar to the Single Character wildcard, but it represents one or zero variable characters.

Examples:

- **color** - this will search for terms like color, colour, etc.
- **mold** - this will search for terms like mold, mould etc.
- **electron*** - this will search for terms like electron, electrons, electronic, electronics, etc.

**Matching a Character String**

The string wildcard - the asterisk - represents a variable string of zero or more characters in a query. The string wildcard is equivalent to an infinite series of adjacent One or Zero Character wildcards.

Examples:

- **Mould** - this will search for terms like mould, moulded, moulding, moulder, moulders, mouldmaker, mouldmaking etc.
- **man** - this will search for terms like man, men, mean, moon, melon, moron, maroon, Manhattan, manifestation, etc.
- **ane** - this will search for terms like bane, lane, crane, plane, profane, insane, membrane, etc.
- **15** - this will search for terms like 15, 175, 1995, etc.
Note: A query consisting of only the string wildcard operator will return a Hitlist comprising all records in a database.

**Proximity Operators**

Proximity operators not only specify that words need to appear within one record, but also that they need to be

- in the same field (e.g. Title field or Abstract field etc.) and they need to be
- within a certain distance from each other and
- (sometimes) in a particular sequence.

**ADJ** - This operator specifies that the words must appear next to each other in the sequence specified. Stop words (these are common words on which you can’t search such as a, an, the, it etc.) are ignored in these rules.

  e.g. solvent adj extraction

  This would find ‘solvent extraction’ but not ‘extraction solvent’

**NEAR** - This operator is not sequence specific.

  e.g. solvent near extraction

  This would find both solvent extraction and extraction solvent. It would also find something like ‘solvent for the extract’ (remember stemming and stopwords!).

You can also specify how close words need to be.

  e.g. solvent near/6 extraction

  This allows 6 words between the 2 specified words. So 'extraction with a low polarity fluorinated solvent' would be found.

**WN** - This works as NEAR but is sequence specific.

  e.g. solvent w/1 extraction

  is the same as

  e.g. solvent adj extraction

  but with the W you can specify a maximum number of words in between.

**Phrase searching**

You can find an exact phrase by using single quotes around the phrase

  e.g. ‘rotational moulding’

This will only find this phrase written in exactly this manner. Whereas searching with the proximity operator **ADJ** would also find rotationally moulded, rotational moulder, rotational mould, rotational moulds etc.
Boolean operators and brackets

When searching you can just type words separated by spaces,

   e.g. recycling pet bottles

In this case the result will be all abstracts that mention all of these words. Expressed in boolean logic the words are linked with the **AND** operator.

You would get the same result if you typed

   recycling and pet and bottles

Should you wish to use a synonym, such as ‘recycling’ as well as ‘reclaiming’, then the operator **OR** can be used.

   e.g. recycling OR reclaiming

If you use different operators in one search line it is a good idea to use brackets to clarify your intention, e.g.

   (recycling or reclaiming) and (bottles or jars) and (pet or 'polyethylene terephthalate')

which gives the results you want but

   recycling or reclaiming and bottles or jars and pet or 'polyethylene terephthalate'

will be interpreted by the system as: recycling or (reclaiming and bottles) or (jars and pet) or ('polyethylene terephthalate'). This is because it gives priority to the AND operator over the OR operator.

**NOT operator**

You can use the **NOT** operator if you want to exclude abstracts that mention a certain word of phrase.

If you are interested in literature on recycling of plastic bottles, but want to exclude literature on recycling polyethylene terephthalate bottles you could use the following strategy:

   recycling and bottles not pet

However, what you should always be aware of when using the NOT operator is that you also eliminate possible relevant literature. In this case you would miss all literature that discusses recycling of LDPE bottles as well as PET bottles.

The effect can be clearly illustrated by the following search strategy:

   recycling and bottles and (ldpe or hdpe or pvc)

This gives nearly double the hits as when using the ‘not pet’ strategy, and this is only specifying a small selection of polymers used in plastic bottles.

The consequences are complex and your search strategy really depends on what you want. If for instance you also want all articles that don't specify the type of plastic
recycled you could do something like this:

(recycling and bottles and (ldpe or hdpe or pvc)) or (recycling and bottles not pet)

**Searching using the Classification Code**

Many people prefer to use a coding system to search the database and the Rapra Classification Code provides the means to do this. It can be especially useful when searching broad subject areas.

The best way to apply the code when searching online is to use individual codes for each relevant area and combine them using ‘AND’.

This method of searching results in a highly relevant search - it is by no means as exhaustive as free language or indexed term searching - as long as you are aware of this then it is an extremely effective search tool.

The following example and many others further on in this document will serve to illustrate the use of the classification code.

**Mechanical Properties of PE**

Classification for Mechanical Properties is 95* (* to pick up full range of mechanical property classifications). Classification for PE is 42C11. To carry out search:

(42C11 and 95*):class_codes

42C11: class_codes avoids the need to list the various types of PE i.e. LDPE, HDPE, LLDPE etc. and eliminates any possibility of confusion with such materials as polyethylene glycol, polyethylene terephthalate etc.

95*: class_codes avoids the need to list the full range of mechanical properties i.e. tensile properties, creep, abrasion, friction etc.

It should be noted that a paper on mechanical properties of a range of polymers including PE will not be retrieved by this approach, similarly, a paper on the full range of properties of PE including mechanical will not be found.

Many other instances will occur when the use of the classification code will help to pinpoint the particular type of information you want.

**Economic Information on PP (Polypropylene) Materials**

When searching for economic information on PP (polypropylene) materials only, free language or controlled term searching would make it impossible not to pick up additional unwanted references to products. This problem can be overcome by using 1742: class_codes which is our classification for economic information on synthetic materials with 42C12: class_codes our classification for PP. To carry out search:

(1742 and 42C12): class_codes

**Economic Information on Packaging Products**

Similarly for economic information on packaging products use 176: class_codes, (our classification for economic information on finished and semi-finished applications of
polymers) with 6P*:class_codes for the range of packaging applications classifications.

To carry out search:

(176 and 6P*):class_codes

**Economic Information on PP Products**

Sometimes a combination of the classification and terminology will be the best approach to achieve the desired result. For example, economic information on PP products (as opposed to materials) will be best searched using:

176:class_codes and (pp or polypropylene or ‘propylene polymer’ or polypropene or ‘propene polymer’):index_terms

**Company Information on the ICI Group**

Another classification code which will prove useful to those people seeking commercial company information i.e. takeovers, mergers, financial performance etc. is ‘06’, i.e. for company information on the ICI group:

06:class_codes and ici:company_names

this will give you information on the company activities of any of the ICI divisions.

One can obviously continue ad infinitum with examples of classification searching, but hopefully this should convey to you the possibilities that are offered with this index and if you think it will be useful for you then purchase the manual and study the classification section in more depth, calling on us for assistance if necessary.

**Searching using Keywords (Index Terms)**

There are a great many index terms which are frequently used and are very useful, some of these are listed below.

**Short items**

We abstract news items about mergers, take-overs, joint ventures, product announcements etc. Although many customers appreciate us including this type of information on the database, these announcements can be very brief. If they are so brief that we can include all the information in the abstract, we add the sentence:

‘This abstract includes all the information contained in the original article.’

If the article is less than one column we use the index term ‘short item’

When you consider a document delivery order please have a look at the keywords to see whether you are dealing with a short item. We gladly supply these articles, but please realise what to expect. To process a short item in document delivery is just as much work for us as a longer item and hence our normal charges apply.

**Economic Information:index_terms**

This term is always used on items which give any indication of economic factors such as
production, consumption, markets, statistics etc. All abstracts which are included in the ‘17’ section of the classification will include this term and many others where the economic factors are only a part of the paper will also contain the term.

**Statistics:index_terms**

This term is always used on records which contain any reference to actual figures i.e. consumption and production statistics, capacities etc. The term ‘ECONOMIC INFORMATION:index_terms’ will also be included on these items, but if you want to know that the original paper gives some actual figures use the term ‘STATISTICS:index_terms’.

**Data:index_terms**

We use data for technical documents that contain hard technical data, e.g. figures for hardness, viscosity, chemical resistance etc.

These figures won’t appear in our abstract, but the keyword data informs you that this kind of information is given in the original document.

You can limit your search to such papers as follows:

‘mechanical properties’ and data:index_term

**Company or Companies):index_terms**

Since 1980 (and before that date, but not as consistently) the term ‘COMPANY’ or ‘COMPANIES’ has been added to all records which have a company name indexed in either the corporate source field, the corporate editor field or the company name field and also to any record in which the original article makes reference to particular companies and there are possibly too many to index.

We have found this term useful in many searches where we are seeking definite references to companies but do not have a company name to specify.

e.g. To search for production, consumption, capacity details for PP materials with reference to the companies involved:

(1742 and 42c12):class_codes and (company or companies):index_terms

This will result in only those economic items on polypropylene which contain actual references to companies.

To search for companies involved in injection moulding of PS foams:

(company or companies):index_terms and injection adj mould* and (ps or polystyrene:index_terms or ‘styrene polymer’:index_terms) and (foam* or cellular):index_terms

Or if you wish to be more specific and use classifications:

(company or companies):index_terms and (831* and 42c382 and 6124):class_codes

You should be aware that this will lead to some false drops when the materials supplier or some other company not directly involved with the injection moulding process is indexed, but nevertheless the information you are looking for should be included.
Commercial Information: index_terms

This term is used on all company information items of a commercial nature i.e. financial performance, joint ventures, mergers, takeovers etc. It is basically equivalent to the ‘06’ classification but will also be used on items which are only partly commercial and may therefore be classified elsewhere.

(Machine or Machinery): index_terms

One of these terms is used on all items that refer to any piece of processing machinery. Our policy is to index the term for the process and the term for the machine separately. Therefore INJECTION ADJ MOULD*: index_terms will give you all items that refer to any aspect of injection moulding including machinery, for information on the machinery only i.e.

(Injection adj mould* and machine*): index_terms

If you want information on any machinery used in the processing of PE film and you do not know what these processes are then try:

(pe or polyethylene: index_terms or ‘ethylene polymer’: index_terms) and film* and machine*

Rubber or Elastomer (natural language rather than descriptors)

It has been our policy for many years to always make sure that the word ‘RUBBER’ or ‘ELASTOMER’ appears in the indexed terminology on all items about any type of rubber. You can therefore restrict your search to rubbers only by selecting the terms ‘RUBBER*’ OR ‘ELASTOMER*’. Unfortunately the same cannot be said with regard to the generic plastic terms i.e. ‘PLASTIC’, ‘THERMOPLASTIC’ and ‘THERMOSET’ although we are trying to remedy this and the terms have been consistently used since late 1986. We tend at Rapra to eliminate rubbers from our searches using the ‘NOT’ facility when we only want information on plastics. This does however have the disadvantage which occurs with most ‘NOT’ search strategies – you will eliminate papers which refer to both plastics and rubber. For recent articles you can limit the search using PLASTIC: INDEX_TERMS.

Material*: ADJ Replacement

This includes the terms ‘MATERIAL REPLACEMENT’ and ‘MATERIALS REPLACEMENT’. More specifically we also have the term METAL REPLACEMENT which is very relevant in the engineering plastics and automotive areas at present, and from a different angle ‘ASBESTOS SUBSTITUTE’ can result in a very nice search on the various polymeric materials which are replacing asbestos in a wide range of applications for health reasons.

Reinforced Thermoplastic

This term has been increasingly used over recent years to try to provide searchers with a method of differentiating between the newer reinforced engineering thermoplastics and the more traditional reinforced plastics, which were commonly thermosets.
Non-Polymer Terms (:non_polymer_terms)
The main value of controlled terms is when used with the Rapra Thesaurus to save extraneous hits from free-text searching. The additional benefit of using controlled terms is when searching for non-polymers (:non_polymer_terms). I.e. if searching for production figures for ‘ethylene’ as a petrochemical raw material the suffix :non_polymer_terms would eliminate possible hits on ethylene polymer. (PE)

Some useful terms in this category are the common raw materials:- i.e.

ETHYLENE:non_polymer_terms
PROPYLNE:non_polymer_terms
STYRENE:non_polymer_terms
OLEFIN:non_polymer_terms

Please note that use of :non_polymer_terms does not prevent retrieving non-polymer terms of which the specified term is a fragment, i.e. ethylene:non_polymer_terms would also retrieve ethylene glycol, ethylene oxide, etc. In some cases you may want to use classification codes to avoid this problem.

Searching for Polymers
You may find it helpful to know that it is our policy to use standard abbreviations for polymers and in the following set of examples the most frequently used term will in fact be the abbreviated version. (This does not mean that the abbreviation will always appear, in fact due to historical reasons the added up-posted term will not be the abbreviation.) The following list will give you some of our standard abbreviations, and the related classification and alternative search terms we would use at Rapra.

ABS, Acrylonitrile Butadiene Styrene Terpolymer
Search for using:

42C21C391D11:class_codes or abs or acrylonitrile adj butadiene adj styrene

Butyl Rubber, Butene Isoprene Rubber
Search for using:

42C13D12:class_codes or ‘butyl rubber’ or (butylene or butene) adj isoprene

EPDM, Ethylene Propylene Diene Terpolymer
Search for using:

42C11C12D1:class_codes or epdm or ethylene adj propylene adj (diene or terpolymer)

EVA, Ethylene Vinyl Acetate Copolymer
Search for using:

42C11C3311:class_codes or eva or ethylene adj vinyl adj acetate
NR, Natural Rubber
Search for using:
41C1:class_codes or nr or ‘natural rubber’:index_terms

Nitrile Rubber, Butadiene Acrylonitrile Rubber (also NBR)
Search for using:
42D11C391:class_codes or ‘nitrile rubber’:index_terms or nbr or butadiene adj acrylonitrile adj (copolymer or rubber):index_terms

PE, Polyethylene
Search for using:
42c11:class_codes (includes all types of pe) or pe or ldpe or hdpe or lldpe or polyethylene:index_terms or ‘ethylene polymer’:index_terms
For LDPE (low density polyethylene):
ldpe or low adj density adj (pe or polyethylene)
For HDPE (high density polyethylene):
hdpe or high adj density adj (pe or polyethylene)
For LLDPE (linear low density polyethylene):
lldpe or linear adj low adj (pe or polyethylene) or linear adj (low or ldpe)

PETP (also PET), Polyethylene Terephthalate
Search for using:
43C112:class_codes or petp or pet:index_terms or ‘polyethylene terephthalate’:index_terms or ‘ethylene terephthalate polymer’:index_terms

PMMA, Polymethyl Methacrylate
Search for using:
42C35121:class_codes or pmma or ‘polymethyl methacrylate’:index_terms or ‘methyl methacrylate polymer’:index_terms

PP, Polypropylene
Search for using:
42c12:class_codes or pp or polypropylene:index_terms or ‘propylene polymer’:index_terms or ‘propene polymer’:index_terms or polypropene:index_terms

PS, Polystyrene
Search for using:
42C21:class_codes or ps or polystyrene:index_terms or ‘styrene polymer’:index_terms

PTFE, Polytetrafluoroethylene
The classification code for PTFE is 42C38(10). To find this on the web version of the database the code need to be enclosed in single quotes. Similarly, for 9(12)5T-the code for non destructive testing - can be searched as ‘9(12)5T’:class_codes

**PU, Polyurethane**

Search for using:  
43c6*:class_codes (for all types of pu) or pu or polyurethane:index_terms or ‘urethane polymer’:index_terms

**For polyether urethane**

Search for using:  
43C66:class_codes or polyether adj urethane

**For polyester urethane**

Search for using:  
43C64:class_codes or polyester adj urethane

(Note that many papers on polyurethane do not give any indication of what type they are and hence will only be indexed generally)

**PVC, Polyvinyl chloride**

Search for using:  
42C382:class_codes or pvc or ‘polyvinyl chloride’:index_terms or ‘vinyl chloride polymer’:index_terms

**PVDC, Polyvinylidene Chloride**

Search for using:  
42C386:class_codes or pvdf or ‘polyvinylidene fluoride’:index_terms or ‘vinylidene fluoride polymer’:index_terms

**SBR, Butadiene Styrene Rubber**

Search for using:  
42D11C21:class_codes or sbr or butadiene adj styrene:index_terms

This sample of searching for polymers with abbreviations is by no means exhaustive and the principals illustrated above apply to many other polymers although in other cases you will find that the abbreviation is not the most frequently used term. For polymers without abbreviations the above examples will indicate the searching approach i.e. a mixture of index terms and natural language.

In a similar way to the use of abbreviations there are also situations where a polymer can be called by an alternative and completely different name. Usually as a result of a tradename being incorporated into normal terminology. The following three examples will illustrate this.
Polyamide
Polyamide is frequently referred to as nylon. Search for using:
- **43C3**:class_codes (includes all types of nylon) or polyamide or nylon or ‘amide polymer’:index_terms
For polyamide 6 search by using:
- **43C326**:class_codes or ‘polyamide addition 6’:index_terms or ‘nylon 6’:index_terms
For polyamide 66 search by using:
- **43C313**:class_codes or (polyamide adj 6 adj 6 or nylon adj 6 adj 6 or polyamide adj 66 or nylon adj 66):index_terms
(to find all versions, including those with hyphens and commas)

Polychloroprene
Frequently referred to as neoprene. Search for using:
- **42D14**:class_codes or polychloroprene or neoprene or ‘chloroprene polymer’:index_terms

Aramid Fibre
Frequently referred to as Kevlar. Search for using:
- kevlar or aramid? adj fibre?

Searching for Copolymers
When indexing copolymers other than the very standard ones such as ABS, SBR, EPDM, EVA etc. covered above, our normal policy is to index separately.

i.e. epoxy urethane copolymers should be searched as:
- ‘epoxy copolymer’ and ‘urethane copolymer’
It is always worth trying also:
- epoxy adj urethane or urethane adj epoxy
to make sure all possibilities are covered.
Similarly for propylene styrene copolymers:
- (‘propylene copolymer’ and ‘styrene copolymer’):index_terms or propylene adj styrene or styrene adj propylene

Searching for Blends
When previously polymerised compounds are blended together the term ‘BLEND’ will be added.
To search for blends of natural rubber and PS:
- (nr or ‘natural rubber’:index_terms) and (ps or polystyrene:index_terms or ‘styrene polymer’:index_terms) and blend*

It may be that a rubber is blended into a thermoplastic to produce a thermoplastic elastomer. In this case select the required polymer and:
- (‘thermoplastic elastomer’ or ‘thermoplastic rubber’):index_terms
Searching for Reinforced Plastics

This area can sometimes be a little difficult to reduce the set to a size you can handle. The following pointers may help.

Classification for all types of reinforced plastics is 627*:class_codes

In recent years we have adopted the policy of always adding the term ‘REINFORCED PLASTIC’ or ‘REINFORCED THERMOPLASTIC’. Prior to that if you want to retrieve all reinforced plastics materials then you can use ‘REINFORCED ADJ PLASTIC’ along with the standard abbreviations GRP, CFRP, SMC, BMC and DMC. (SMC, DMC and BMC are sheet, dough and bulk moulding compounds and are normally glass reinforced).

**GRP (Glass Fibre-Reinforced Plastic)**

6272: class_codes

The use of the W/n proximity operator searches for word pairs in which the pair’s second term occurs within a specific number of words after the first. In the above example reinforced must be no more than two words after the word glass. For example this will find glass reinforced or glass fibre reinforced or glass mat reinforced.

If you are specifically looking for a GRP with a polyester resin matrix then add ‘UNSATURATED POLYESTER’ but bear in mind that the vast majority of thermoset GRP’s are polyester resin based and the article will frequently not mention this fact and in these cases the term will not be indexed.

**CFRP (Carbon Fibre-Reinforced Plastic)**

6276: class_codes or cfrp or (carbon or graphite) adj fibre adj reinforced

I have previously mentioned the term ‘REINFORCED THERMOPLASTIC’ which will help very much in the retrieval of the relatively new reinforced engineering thermoplastics. If, however, you can identify the particular thermoplastic i.e. you want information on glass reinforced polycarbonate then use:

(43C12 and 6272): class_codes or (grp or glass adj reinforced) and (polycarbonate or ‘carbonate polymer’:index_terms)

Searching for Companies

Using the search field box Companies the following fields are searched simultaneously: Affiliations, Company.Names and Corporate.Editor.

Affiliations is the corporate body responsible for writing the paper (or the affiliation of the author). The Company.Names field is used when the article is discussing a particular company. The Corporate.Editor is the corporate body responsible for editing the publication e.g., the conference organisers.

Therefore for information on the various Dunlop groups search as:

dunlop: companies

This will also retrieve entries for DUNLOP as an Affiliation or Corporate Editor. If you specifically want to search for the affiliation:
Different Levels of Recall

It should be remembered that three people doing what appears to be the same search may be looking for very different types of output. For example when searching for extrusion of PVC, searcher 1 may want everything available so that he can do an extensive review or study or perhaps produce a bibliography on the subject, searcher 2 may want a few recent highly relevant English language papers to get some understanding of the subject and its present developments, while searcher 3 may just want a book with a chapter on the subject so that he can get some idea of the basic essentials.

Strategy 1
to find everything:

extrusion and (pvc or ‘polyvinyl chloride’:index_terms or ‘vinyl chloride polymer’:index_terms)

Strategy 2
Various approaches can be made to this. Both classification and title terms may be used to achieve the desired effect.

(i) (82* and 42c 382):class_codes and english:language

and print out the most recent papers.

(ii) (extrusion and pvc):title and english:language

and print out the most recent papers.

Strategy 3
To find a book chapter or conference paper on extrusion of PVC

(42c 382 and 82):class_codes and (“conference article” or “book chapter”):document_type

Adhesives Abstracts

Adhesives Abstracts was launched in 1987 as a file segment of the Polymer Library. The file segment covers all aspects of the business and technology of adhesives and sealants. The sub-file is updated every 2 weeks with around 100 records.

The abstracts are derived from journals, patents, books, conference proceedings, technical reports, standards and a unique collection of company brochures and data sheets.

Additional Adhesives Codes

Adhesive codes were added to records, which contain information on adhesives and sealants, from 1987 onwards. These are used to classify the records in similar ways to the Rapra Classification Codes except that they are more specifically for adhesives and sealants.

Hence searching on the following:

ad*:adhesive_codes
Will retrieve a set containing all records indexed or classified as having any reference to adhesives, bonding agents, caulks and sealants (since 1987).

The Adhesive codes for Adhesives records are 3 positions long, e.g.:

- **AHA** ADHESIVE TYPES
- **AHC** Adhesive Tapes
- **AHE** Anaerobic
- **AHG** Contact Adhesives
- **AHJ** Hot Melts
- **AHM** Latex or Emulsion Based
- **AHP** Pressure Sensitive
- **AHS** Solvent Based
- **AHW** Structural
- **AHY** Water Based

A full list can be found on the Polymer Library website or in the Classification Code Manual.

**Searching the Adhesives File Segment - Examples**

**Marine Applications**

Using the adhesive codes to search the adhesives file segment from 1987 in cases where you would otherwise have to include terms ADHESIVE, BONDING AGENT, SEALANT, etc.

```
ad*:adhesive_codes and (marine or ('63tr.sea' or 6n2):class_codes)
```

This retrieves 237 documents - an example of which is shown below.

- **Copyquest Order Number**: 705812  - **Update**: 199902
- **Title**: SELECTION OF ADHESIVES AND PRETREATMENTS FOR STRUCTURAL BONDING OF ALUMINIUM IN SHIPS
- **Abstract**: An experimental programme to screen adhesives and pretreatments suitable for structural bonding of aluminium in a marine environment is reported. Specimens are made from extruded 6xxx series aluminium. Three different surface pretreatments are used in the test programme. The adhesives used are acrylic, silicone and two-component epoxy adhesives. All the adhesives cure at room temperature. The main objective is to assess the performance of the selected adhesive systems in a marine environment. The Boeing wedge test is selected due to its high sensitivity to environmental effects and differences in surface preparation. The specimens are immersed in seawater at different temperatures. Crack growth and failure modes are compared and evaluated for different adhesives, pretreatments and water temperatures. 7 refs.
- **Language**: English
- **Authors**: Weitzenbock J R; Echtemeyer A T; Hayman B
- **Affiliations**: Det Norske Veritas - Corporate Editor - Institute of Materials
- **Publication Name**: Structural Adhesives in Engineering V. Conference proceedings - Citation: Bristol, 1st-3rd April 1998, p.256-61. 6A1
- **Locations**: NORWAY; SCANDINAVIA; WESTERN EUROPE
- **Index Terms**: ACRYLIC POLYMER; ADHESIVE; APPLICATION; COMPANIES; COMPANY; CRACK GROWTH; DATA; ELASTOMER; EPOXIDE RESIN; EPOXY RESIN; FAILURE; GRAPH; HEAT RESISTANCE; MARINE APPLICATION; MECHANICAL PROPERTIES; ORGANO SILICON POLYMER; ORGANO SILICONE POLYMER; ORGANO SILICON XANE POLYMER; PLASTIC; POLYEOXIDE; POLYOX; POLYSILICONE; POLYSILICONE XANE; POLYSILICON XANE; ROOM TEMPERATURE CURING; ROOM TEMPERATURE VULCANISING; RTV; RUBBER; SHIP; SILICON POLYMER; SILICON-CONTAINING POLYMER; SILICONE POLYMER; SURFACE TREATMENT; TECHNICAL; THERMAL STABILITY; THERMOPLASTIC; THERMOSET; VEHICLE SHELL; WATER RESISTANCE; WATER RESISTANT
- **Class Codes**: 6A1; 6N2; 9351  - **Adhesive Codes**: ADARG; ADALA; ADAUE
- **Non_Polymer_Terms**: ALUMINIUM; ALUMINUM; SEA WATER
Acrylic Pressure Sensitive Adhesives for Medical Applications.

Using the Adhesives Category Codes as a classification:

(adanc and adahp and adalp):adhesive_codes

This retrieves 20 highly relevant records one of which is shown below.

Title: ADHESIVE ALLOWS PAINLESS REMOVAL OF BANDAGES
Abstract: Smith & Nephew has developed a light-switchable, pressure-sensitive adhesive that enables a wound dressing to be removed without pain or trauma. The dressing is backed by two layers laminated together, one opaque and the other transparent to visible light. When the top opaque layer is peeled away, light deactivates the adhesive, allowing the dressing to be removed painlessly. The light-switchable adhesive is based on a Smith & Nephew commercial acrylic adhesive, with methacrylate as the crosslinking functional group.
Language: English
Authors: Freemantle M
Journal_Name: Chemical and Engineering News
ISSN: 0009-2347
Citation: 76, No.48, 30th Nov.1998, p.29
Company_Names: SMITH & NEPHEW GROUP
Locations: EUROPEAN COMMUNITY; EUROPEAN UNION; UK; WESTERN EUROPE
Index_Terms: ACRYLIC COPOLYMER; ADHESIVE STRENGTH; ADHESIVE TAPE; APPLICATION; AWARD; BANDAGE; COMPANIES; COMPANY; CROSSLINKING AGENT; CURING AGENT; DATA; DEACTIVATION; FUNCTIONAL GROUP; INITIATOR; LAMINATE; LIGHT EXPOSURE; MEDICAL APPLICATION; PHOTOSTARTER; PLASTIC; PRESSURE-SENSITIVE ADHESIVE; RING OPENING; RING-OPENING TAPE; THERMOPLASTIC; WOUND DRESSING
Class_Codes: 42C351; 6A72
Adhesive_Codes: ADAHC; ADAHP; ADALP; ADANC

Trade Name and Address Record Types

In addition to the record types for the abstract records there are also record types Trade Name Records and Address Records (for company Address records).

Searching for Trade Names

Selecting Trade name record from the drop down menu for the Record Types retrieves all the trade name records. An example is shown below.

Title: (Trade Name Record)
Abstract: Filament nylon yarn.
Language: English
Journal_Name: Official Gazette of the US Patents and Trademarks Office: Trademarks
Citation: 1223, No.1, 1st June 1999, p.13
Trade_Names: TACTEL DIABOLO
Company_Names: DU PONT DE NEMOURS E.I.,& CO.INC.
Index_Terms: FILAMENT; NYLON; POLYAMIDE; YARN
Class_Codes: 43C3; 62(14)

Note that the abstract gives brief information about the process or product with that trade name. Whilst normal Polymer Library records often have a trade name field, abstracts searched using the Trade Name file segment often provide more specific
details of the relevant use, application or properties of the the Trade Name(s). Hence, it depends on the kind of information that you need, whether to limit to Trade Name records.

For example, compare the following two records, which contain the trade name Portionator:

-Copyquest_Order_Number- 735656 -Update- 199915
-Title- INTRODUCTION TO R.F. BRIGHT ENTERPRISES LIMITED. SPECIALISTS IN THERMOSETTING RESINS, ANCILLARY PRODUCTS AND SERVICES IN THREE DIVISIONS
-Abstract- The activities are described of R.F. Bright Enterprises Ltd. Its main activities centre around thermosetting resins, in particular, epoxy resin systems. In addition to the resin systems, the company also supplies application equipment and ancillary products such as dispensers, meter-mix dispensers, dispense stations, curing cabinets and skin protection and cleaning products. Operating in three divisions, each specialises in its own field, details of which are given.
-Language- English
-Affiliations- Bright R.F.,Enterprises Ltd.
-Citation- Sevenoaks, c.1999, pp.21. 12 ins. 21/6/99.
-Trade_Names- CHEMSET; CUPRAN; ARRETL; TRAVABON; KRESTO; PORTION-AIRE; PORTIONATOR; UNIPRE; POLYMIXSI; COMPANY INFORMATION, Bright R.F.Enterprises
-Locations- EUROPEAN COMMUNITY; EUROPEAN UNION; UK; WESTERN EUROPE
-Index_Terms- CASTING; COMMERCIAL INFORMATION; COMPANIES; COMPANY; DATA; DISPENSING; ELASTOMER; EPOXIDE RESIN; EPOXY RESIN; EQUIPMENT; METERING; MIXING; MULTI-COMPONENT; PAINT; PAINTS; PLASTIC; POLYEPOXIDE; POLYURETHANE; PRODUCT ANNOUNCEMENT; PU; RUBBER; SKIN CARE; TABLES; TECHNICAL; THERMOSET
-Class_Codes- 06; 43E; 2813; 124
-Document_Type- Trade Literature -Record_Type- Abstract Record L30

-Copyquest_Order_Number- 735191 -Update- 199915
-Title- INTRODUCTION TO R.F. BRIGHT ENTERPRISES LIMITED. SPECIALISTS IN THERMOSETTING RESINS, ANCILLARY PRODUCTS AND SERVICES IN THREE DIVISIONS (Trade Name Record)
-Abstract- Meter/mix/dispense equipment for small shot, two component systems.
-Language- English
-Citation- Sevenoaks, c.1999, pp.21. 12 ins. 21/6/99.
-Trade_Names- PORTIONATOR
-Company_Names- BRIGHT R.F.,ENTERPRISES LTD.
-Index_Terms- DISPENSING; EQUIPMENT; METERING; MIXING
-Class_Codes- 124; 2813
-Document_Type- Trade Literature -Record_Type- Trade Name Record

The Trade Name records are indexed using a selection of the Rapra Classification codes (:class_codes).

Before update 199913 the following Rapra Classifications used were:

4 Materials
6A Adhesives, Coatings, Sealants, Encapsulants, Potting
Compounds
115 Software Programmes
2 Equipment
8 Processes
5 Ingredients, Additives, Processing Aids, Pigments
61 and 62 Semi-Finished Products, Sheet, Film, Foam, Extrusions, etc.
6 End-Use Applications

From update 199913 the full range of Rapra classifications were used.

Using a combination of Rapra Classification Codes and the record type Trade name...
record many queries can be searched. For example, to search for details of companies
selling or producing extruders:

\[
\text{extruder and 'trade name record':record_type and (2 or 282*):class_codes}
\]

This retrieves 536 records one of which is shown below.

-\text{Copyquest_Order_Number- 732820} \quad \text{-Update- 199914}
-\text{-Title- FTX TWIN-SCREW EXTRUDER (Trade Name Record)}
-\text{-Abstract- Twin screw extruder.}
-\text{-Language- English}
-\text{-Citation- Rochdale, c. 1999, pp.12. 11ins. 9/6/99.}
-\text{-Trade_Names- FTX -Company_Names- FARREL LTD.}
-\text{-Index_Terms- EXTRUDER; TWIN-SCREW EXTRUDER}
-\text{-Class_Codes- 2822}
-\text{-Document_Type- Trade Literature -Record_Type- Trade Name Record}

**Searching for Address Records**

Address records can be searched by selecting the record type Address record from the
drop down menu.

The file can easily be checked for the presence of an address record for a particular
company:

\[
\text{ausimont:company_name and 'address record':record_type}
\]

-\text{-Copyquest_Order_Number- 667826} \quad \text{-Update- 199807}
-\text{-Title- AUSIMONT UK LTD. (Address Record)}
-\text{-Address- Erico House, 93-9 Upper Richmond Rd., Putney, London, SW15 2TG, UK -Tel- 1817800399 -Fax- 1817802871}
-\text{-Company_Names- AUSIMONT UK LTD.}
-\text{-Locations- EUROPEAN COMMUNITY; EUROPEAN UNION; UK; WESTERN EUROPE}
-\text{-Record_Type- Address Record}

-\text{-Copyquest_Order_Number- 667834} \quad \text{-Update- 199807}
-\text{-Title- AUSIMONT USA INC. (Address Record)}
-\text{-Address- 10 Leonards Lane, Thorofare, N.J. 08086, USA -Tel- 6098538119 -Telex- e-mail:prodinfo@ausiusa.com -Fax- 6098536405}
-\text{-Company_Names- AUSIMONT USA INC.}
-\text{-Locations- USA}
-\text{-Record_Type- Address Record}

**Patent Information**

All new patent applications relevant to the rubber and plastics industries from the
European and US patent office were covered between January 1994 and December
2001. Adhesive patents are ongoing.

**Searching for Patent Information**

In general, patents can be searched for by using **PATENT:DOCUMENT_TYPE**. An example
of a patent record is shown below.

-\text{-Copyquest_Order_Number- 735059} \quad \text{-Update- 199915}
**Title:** CONDUCTIVE EPOXY ADHESIVE

**Abstract:** An electrically-conductive epoxy resin is disclosed having stable joint resistance over extended operating times and high impact strength where the resin is based on a silver flake-filled polymeric reaction product of a liquid bisphenol A having very low hydrolysable chlorine content and suitable polypropylene oxide-based primary amine curing agents.

**Language:** English

**Authors:** Basheer R A; Zwolinski M S

**Assignee:** General Motors Corp.

**Address:** Detroit, Mich., USA

**Patent Number:** US 5891367 A

The patent information provided includes Inventor (Authors), Patent Assignee (Affiliations), Corporate Address (Address), Patent Number, Designated States, Application Data, Priority Data and International Patent Classification (IPC).

For example, to search for patents with a particular classification:
In a method for bonding a foam-fabric composite to a moulded foam core, particularly suitable for use as an automotive cushion assembly, specific advantageous polymeric MDI-based foams are used to achieve consistently excellent bond strength. In the method, a foam layer is flame-laminated to a fabric layer. Then the foam-fabric laminate and an air-impervious adhesive film are placed over a mould surface, and the adhesive is drawn against the foam of the foam-fabric laminate and the fabric layer is urged against the mould surface by applied vacuum. The foam core pad is placed adjacent to the adhesive film. The film is heated and diffused into the foam pad and into the foam of the foam-fabric laminate, respectively, and allowed to cure. The foam layer laminated to the fabric is formed as the reaction product of a polyether polyol or a graft polyether polyol with from about 30 to about 60 parts by weight of an MDI or a polymeric MDI/TDI blended isocyanate or mixtures thereof, from about 1.5 to 3.0 parts by weight water as blowing agent, from about 0.05 to about 0.20 parts by weight tin catalyst, from about 0.15 to 0.90 parts by weight amine catalyst and from about 0.5 to about 1.5 parts by weight silicone surfactant, wherein all amounts are based on 100 parts by weight polyol.
Search Examples

“Ozone Friendly” Replacements for Chlorofluorocarbons

In the following example we first search for the expression “ozone friendly” in the text, using the proximity operator on the basic index.

\textbf{ozone adj friendly}

This results in 115 references. To obtain considerably more references we then combine the terms

\textbf{(cfc or chlorofluorocarbon) and (replacement or substitute)}

The system will automatically truncate terms to allow for plurals in each case. This results in 1715 references and 1770 when combined with the first search.

\textbf{((cfc or chlorofluorocarbon) and (replacement or substitute)) or ozone adj friendly}

Acquired Immune Deficiency Syndrome (AIDS)

Searching on ‘acquired immune deficiency syndrome’ retrieves 56 references when
searching in the basic index. There are many more references to AIDS (1739 references) but of course many of these refer to other subjects, e.g. processing aids or buoyancy aids. Combining AIDS with the terms DISEASE or VIRUS will eliminate most of these potential false drops, although a number of relevant items may be lost as well.

\((\text{aids# and (disease or virus)}) \text{ or } \text{acquired immune deficiency syndrome}\)
If information added to the database before the end of 1987 is also required, or more general information which mentions hot melts, then it is necessary to search for the expression HOT adj MELT and ADHESIVE in the text. This then results in 6036 references.

**Commercial Information on Mergers and Takeovers**

To search for any companies within the Hoechst group we can simply search for the single word HOECHST in the companies field (or in :COMPANY_NAME). This can then be limited to any records which refer specifically to mergers. By displaying two of the resulting records in the full format we can also see a number of other useful index terms which can be used when searching for particular types of commercial information.
This small article explains how Clariant's bid for specialty company Laporte may have been scuppered by Hoechst's merger plans with Rhone-Poulenc, but those plans could bring other bidders to the fore. Brief details of the situation are provided.

Takeovers by Freudenberg

To search for information on takeovers in relation to the Freudenberg group simply search for the single word FREUDENBERG in the company names field and combine this with the word TAKEOVER.

Freudenberg:company_name and takeover

Freudenberg-NOK buys gasket unit

Freudenberg-NOK G.P. has acquired the transmission gasket kit operation of Aftermarket Technology Corp.'s RPM unit, it is announced. As part of the deal, RPM will become a distributor of Freudenberg-NOK's TransTec brand of gaskets sets and overhaul kits. Brief details are given of Freudenberg-NOK's acquisition of RPM and the reorganisation of its General Industry Division.
Commercial Information Limited by Time

It may sometimes be useful to find out what a particular company was doing at a particular time, and in this case we can combine the company name and the term COMMERCIAL INFORMATION with a publication year.

btr:company_name and 'commercial information':index_terms and 1999:publication_year

Title: SIEBE TO BUY SEAL GIANT BTR PLC

Abstract: Siebe plc, a major global player in the automation and controls industry is to offer almost 7 billion dollars in a stock exchange to gain control of British conglomerate and automotive sealing giant BTR plc. This article supplies details of the agreement and the factors underpinning the deal. The new company, BTR Siebe expects to garner more than 10% of the global market in automation and controls and will have about 14.5 billion US dollars in annual sales.

Authors: Boyd J

Journal_Name: European Rubber Journal -ISSN- 0260-5317 -Citation- 181, No.1, Jan.1999, p.5

Companies: SIEBE PLC; BTR PLC

Locations: EUROPEAN COMMUNITY; EUROPEAN UNION; UK; USA; WESTERN EUROPE

Index_Terms: ACQUISITION; APPLICATION; AUTOMATION; AUTOMOTIVE APPLICATION; BUSINESS STRATEGY; COMMERCIAL INFORMATION; COMPANIES; COMPANY; CONTROL EQUIPMENT; DIVESTMENT; ECONOMIC INFORMATION; ELASTOMER; MARKET SHARE; MERGER; PLANNING; PLASTIC; PURCHASE; RUBBER; SALE; SALES; SEAL; STOCK EXCHANGE; TAKEOVER; THERMOPLASTIC; THERMOSET

Class_Codes: 06; 28(21)

Title: BTR SIEBE FOCUS MAY NOT COVER AUTO UNITS

Abstract: BTR Siebe intends to focus its business on automation and controls, generating speculation about the future of the firm's automotive operations, BTR Sealing Systems and BTR Anti-Vibration Systems. More than 75% of BTR Siebe's business is controls and automation-based. Products include advanced computer systems for automating industrial plants and electronic devices used in domestic and commercial appliances. The company is to change its name to Invensys.

Authors: Begin S

Journal_Name: Rubber and Plastics News -ISSN- 0300-6123 -Citation- 28, No.19, 19th April 1999, p.9

Locations: EUROPEAN COMMUNITY; EUROPEAN UNION; UK; WESTERN EUROPE

Index_Terms: APPLICATION; AUTOMATION; AUTOMOTIVE APPLICATION; COMMERCIAL INFORMATION; COMPANIES; COMPANY; CONTROL EQUIPMENT; DAMPING; DATA; DIVESTMENT; ELASTOMER; MERGER; RUBBER; SEALING; SHORT ITEM; VIBRATION DAMPING

Class_Codes: 06; 28(21); 6N1

Title: Regulations and Legislation on the Migration of Additives from PVC used in Food-Contact Applications

The simplest way of finding information on this subject is to combine the classification code for PVC with the terms FOOD and MIGRATION and REGULATION or LEGISLATION. This results in 36 references. It will probably not however include any papers which discuss...
migration from all materials used in food-contact applications.

42C382: class codes and food and migration and (regulation or legislation)

-Copyquest_Order_Number- 732462 -Update- 199914
-Abstract- A review is presented of the findings of a study of PVC as a packaging material undertaken by a committee of experts set up by the Spanish Ministry of the Environment. It was concluded that PVC does not pose a threat to health or the environment, that it complies with requirements for specific packaging applications, and that PVC packaging waste can be easily recycled and safely incinerated.

-Language- Spanish
-Journal_Name- Plast' 21 -ISSN- 1131-7515 -Citation- Special Issue, Oct.1998, p.146-7
-Company_Names- SPAIN,MINISTRY OF THE ENVIRONMENT
-Locations- EUROPEAN COMMUNITY; EUROPEAN UNION; SPAIN; WESTERN EUROPE
-Index_Terms- ADDITIVE; AIR PERMEABILITY; ANIMAL TESTING; BAG; BOTTLE; BOTTLES; CARCINOGENICITY; CHEMICAL MODIFICATION; CHEMICAL RECYCLING; CLOSURE; COLOURANT; COLOURANT; DATA; EFFLUENT TREATMENT; EMISSION; ENERGY RECOVERY; ENVIRONMENT; ENVIRONMENTAL PROTECTION; FILM; FILMS; FOOD PACKAGING; FOOD-CONTACT APPLICATION; GASIFICATION; HEALTH; HEALTH HAZARD; HISTOLOGY; HYDROGENATION; INCINERATION; INSTITUTION; INTEGRATED WASTE MANAGEMENT; LANDFILL; LAW; LEGISLATION; LIGHT RESISTANCE; MECHANICAL RECYCLING; MICRO WAVABLE; MIGRATION; MIXED PLASTICS; MIXED WASTE; MUNICIPAL WASTE; PACKAGING; PACKAGING; PACKAGING; PACKAGING WASTE; PERMEABILITY; PLASTIC; PLASTICISER; PLASTICIZER; POLLUTION; POLYVINYL CHLORIDE; POWDER; PVC; PYROLYSIS; RECLAIM; RECYCLABILITY; RECYCLING; SCRAP; SOLID WASTE; STABILISER; STABILIZER; TECHNICAL; TEST; TESTING; THERMOPLASTIC; TOXICITY; WASTE; WASTE DISPOSAL; WASTE MANAGEMENT
-Class_Codes- 122; 1(10); 42C382; 6P; 8(13); 92; 921
-Non_Polymer_Terms- BIS(2-ETHYLHEXYL) PHthalate; CALCIUM; DICHLOROETHANE; DIETHYLHEXYL PHthalate; DIOXIN; FURAN; MINERAL WATER; MONOMER; OIL; OILS; OLIVE OIL; TIN; VCM; VINYL CHLORIDE; ZINC
-Document_Type- Journal Article -Record_Type- Abstract Record

-Copyquest_Order_Number- 683810 -Update- 199817
-Abstract- An overview is presented of the issues and tasks facing a producer of raw polymers for the food contact sector in the late 1990s and beyond, with emphasis on PVC. Details of the requirements of a supplier to the food contact sector are given. The underpinning of the legislative requirements in the EC by Directive 90/128/EEC and European Union Synoptic Document 7 is described, and some mention is made of its subsequent amendments. Details of testing requirements are included, as are some of the perplexities of existing legislation and also the difficulties involved in assuring customers of compliance to certain regulations. Regulations in use in the USA are also outlined. 4 refs.

-Language- English
-Authors- Howick C -Affiliations- European Vinyls Corp.(UK) Ltd. -Corporate_Editor- Rapra Technology Ltd.; Plastics & Rubber Weekly; European Plastics News
-Publication_Name- Polymer Testing '96. Conference proceedings -Citation- Shawbury, 5th-6th Sept.1996, paper 5. 57
-Locations- EUROPEAN COMMUNITY; EUROPEAN UNION; UK; WESTERN EUROPE
-Index_Terms- COMPANIES; COMPANY; DATA; FOOD-CONTACT APPLICATION; GRAPH; HEALTH HAZARD; LAW; LEGISLATION; MIGRATION; PLASTIC; POLYVINYL CHLORIDE; PVC; RECLAIM; RECYCLING; REGULATION; SCRAP POLYMER; TABLES; TECHNICAL; THERMOPLASTIC
-Class_Codes- 1832; 6P; 42C382
-Document_Type- Conference Paper -Record_Type- Abstract Record

-Copyquest_Order_Number- 611167 -Update- 199702
-Abstract- The harmonisation of plastics for food-contact regulations within Europe is essential to ensure that technical hurdles of no benefit to public health form no artificial barriers to trade between EU countries. It is believed that the developing European regulatory process on this
Toxicity of Dioctyl Phthalate

If we want to obtain a good conference paper or book chapter on the toxicity of dioctyl phthalate, one of the major materials in PVC, we can search for these terms in the basic index, and then combine this with the relevant document type.

**Toxicity and 'dioctyl phthalate' and ('conference paper' or 'book chapter'):document_type**

**Copyquest Order Number: 725100**
**Update: 199910**

**Title: THE FUTURE OF DOP UNDER TECHNICAL, DEMOGRAPHIC AND REGULATORY CONSIDERATIONS**

**Abstract:** DOP is the world’s leading plasticiser, due to its price-performance relationship. It is usually offered below DINP/DIDP prices in the worldmarket and has well-balanced properties in comparison to alternatives like DINP, DIDP and linear plasticisers. The properties of DINP, DIDP and linear plasticisers are not as evenly balanced as DOP with respect to their lower plasticising effects. On the other hand, DINP, DIDP and the linear plasticisers are less volatile than DOP. DOP is even more dominant over DINP and DIDP in those countries where the standard of living is relatively low compared to highly developed economies. Consumption in Europe is stagnant whereas the consumption of DINP/DIDP has increased until 1993. After 1993, partial substitution of DOP by DINP/DIDP ended with the result that DOP is still the prevailing plasticiser due to limited availability of C9/C10 alcohols and a successful scientific battle about toxicity. In the USA, DOP has been widely substituted by DINP/DIDP and is only used to a minor extent. The development of DOP consumption was linked to marketing campaigns by Esson for DINP/DIDP which was based on toxicology studies made by Exxon. These studies are still disputed and DOP is expected to regain some of its lost market share.

**Language: English**

**Authors: Bruch A**
**Affiliations: Hoechst AG**
**Corporate Editor: FITT SpA**

**Locations: EUROPEAN COMMUNITY; EUROPEAN UNION; GERMANY; WESTERN EUROPE**

**Index Terms:** ADDITIVE; COMPANIES; COMPANY; CONSUMPTION; DATA; ECONOMIC INFORMATION; ENVIRONMENT; FOOD CONTACT APPLICATION; FOOD; HAZARD; LAW; LEGISLATION; MIGRATION; PLASTIC; REGULATION; TABLES; TEST; THERMOPLASTIC

**Class Codes:** 53P

**Document Type:** Conference Paper - Record Type: Abstract Record

©2003 Rapra Technology Ltd.
environmental compartments, landfalls and sewage sludge do not pose a danger to the
environment. The possible health effects are discussed and it is concluded that the current use
patterns for phthalates pose no significant health risk to humans. 58 refs.

-Language- English
-Authors- Cadogan D F -Affiliations- European Council for Plasticisers and Intermediates -
Corporate_Editor- Institute of Materials
-Publication_Name- PVC '96. Conference proceedings -Citation- Brighton, 23rd-25th April 1996,
p.63-73, 42C382
-Locations- BELGIUM; EUROPEAN COMMUNITY; EUROPEAN UNION; WESTERN EUROPE
-Index_Terms- ENVIRONMENT; FLEXIBILITY; FLEXIBLE; HEALTH HAZARD; INSTITUTION; MECHANICAL
PROPERTIES; PLASTIC; PLASTICISER; POLYVINYL CHLORIDE; PVC; THERMONICAL; THERMOPLASTIC; TOXICITY
-Record_Type- Abstract Record

Carbon Fibre Composites in Aerospace Applications

The classification code 6276: class_codes will find highly relevant references to carbon
fibre reinforced materials, and this can simply be combined with the term AEROSPACE in
the basic index.

6276: class_codes and aerospace

-Copyquest_Order_Number- 725995  -Update- 199911
-Title- CHEAPER, FASTER AEROSPACE COMPOSITES
-Abstract- Cranfield University has developed a process to convert low cost carbon fibres into a
very high quality tape at a cost of only 21 pounds sterling per kg. The new machine is expected to
achieve a net laminating rate of at least 40kg per hour by the project's completion. The project has
focused on the cost effective manufacture of composite components for the aerospace industry.
-Language- English
-Journal_Name- Reinforced Plastics -ISSN- 0034-3617 -Citation- 43, No.3, March 1999, p.25
-Company_Names- CRANFIELD, UNIVERSITY
-Locations- EUROPEAN COMMUNITY; EUROPEAN UNION; UK; WESTERN EUROPE
-Index_Terms- AEROSPACE APPLICATION; AILERONS; AIRCRAFT WING; APPLICATION; AUTOMATION;
CARBON FIBRE-REINFORCED PLASTIC; CFRP; COMPANIES; COMPANY; COMPOSITE; COST; DATA;
FIBER; FIBER DISTRIBUTION; FIBRE; FIBRE DISTRIBUTION; FIBRE-REINFORCED PLASTIC; LAMINATION; LAY-
UP; MACHINE; MACHINERY; PLASTIC; PREPREG; PRODUCTION COST; PRODUCTION RATE;
REINFORCED PLASTIC; REINFORCED PLASTICS; SHORT ITEM; TAPE; WING FLAP
-Class_Codes- 6276; 288; 6N3
-Document_Type- Journal Article -Record_Type- Abstract Record

-Copyquest_Order_Number- 713115  -Update- 199906
-Title- X-33 SPACE PLANE DELAYED DUE TO COMPOSITES LAMINATE GLITCH
-Abstract- The first flight of the X-33, prototype for the next US space plane, will be delayed by four
to seven months due to a problem with one of its two liquid hydrogen fuel tanks fabricated with
advanced composites. The inner wall or lobe skin of one of the composite fuel tanks debonded
during an autoclave bonding cycle at 350°. The tank segments were built by Alliant Techsystems
from graphite and epoxy composites.
-Language- English
-Journal_Name- Advanced Materials & Composites News -ISSN- 0734-7146 -Citation- 21, No.3, 1st
-Company_Names- ALLIANT TECHSYSTEMS INC.
-Locations- USA
-Index_Terms- ADVANCED COMPOSITE; AEROSPACE APPLICATION; APPLICATION; AUTOCLAVE;
CARBON FIBRE-REINFORCED PLASTIC; COMpanIES; COMPANY; COMPOSITE; CONTRACT; CURING;
DATA; DEBONDING; EPOXIDE RESIN; EPOXY RESIN; FUEL TANK; GRAPHITE FIBER-REINFORCED
PLASTIC; GRAPHITE FIBRE-REINFORCED PLASTIC; INVESTMENT; LINING; PLASTIC; POLYEPOXIDE;
The anticipated downturn in commercial aircraft is causing advanced composite makers to look to non-aerospace applications, such as sporting goods, satellite materials, electronics and telecommunications, to help level the cyclicality of aerospace applications. Cytec became the largest US producer of both composite prepregs and aerospace adhesives last year with its purchase of Fiberite’s prepreg business. The US prepreg tape market is estimated at 1.4bn US dollars and is growing at between 7 and 9%.

Authors: Tullo A

Journal Name: Chemical Marketing Reporter -ISSN- 0090-0907 -Citation- 254, No.8, 24th Aug.1998, p.FR22/4
 Locations: USA

Index Terms: ACQUISITION; ADHESIVE; ADVANCED COMPOSITE; AEROPLANE; AEROSPACE APPLICATION; AIRCRAFT; APPLICATION; ARAMID FIBER; ARAMID FIBRE; BISMALEIMIDE POLYMER; BISMALEIMIDE RESIN; BUILDING APPLICATION; CAPACITY; CAR; CARBON FIBRE-REINFORCED PLASTIC; CFRP; COMPANIES; COMPANY; COMPOSITE; CONSUMPTION; COST; DATA; DEMAND; EARNINGS; ECONOMIC INFORMATION; ELECTRONIC APPLICATION; EPOXIDE RESIN; EPOXY RESIN; FIBRE-REINFORCED PLASTIC; GLASS FIBRE-REINFORCED PLASTIC; GROWTH RATE; GRP; LICENCE; MARKET SHARE; MILITARY APPLICATION; PHENO LIC RESIN; PLANT EXPANSION; PLASTIC; POLYEPOXIDE; PREPREG; PRICE; PRINTED CIRCUIT BOARD; PRODUCTION; PRODUCTION CAPACITY; PRODUCTION COST; REINFORCED PLASTIC; REINFORCED PLASTICS; SALE; SALES; SATELLITE; SPORTS CAR; SPORTS EQUIPMENT; SPORTS GOODS; STATISTICS; TAKEOVER; THERMOSET; WINDMILL

©2003 Rapra Technology Ltd.
The melt strength and thermoforming characteristics of HDPE are improved significantly without any adverse effects on extrusion conditions by lightly crosslinking the resin using low levels of organic peroxides or electron beam radiation.

Poloso A

COMPATIBILIZATION OF POLYSTYRENE AND LOW DENSITY POLYETHYLENE BLENDS BY TWO-STEP CROSSLINKING PROCESS

Polyethylene (PE) was partially crosslinked by the addition of dicumyl peroxide at 165°C, then melt-blended with polystyrene (PS) and then finally a styrene-butadiene-styrene block (SBS) copolymer was added to the melt, resulting in a compatibilised blend of PS and PE. In the final mixing step, residual free radicals in PE reacted with SBS, and the resulting crosslinking between PE and SBS significantly improved the mechanical properties of the blends. Scanning electron microscopy showed that the interfacial adhesion was significantly increased, although the domain sizes were not significantly changed compared with the non-crosslinked system. The PE particles were fully encapsulated by a thin SBS layer. It was concluded that this method could be applied to other blend systems which contain at least one component and a compatibiliser which are crosslinkable. 25 refs.

Zhi Wang; Chi-Ming Chan; Shui Han Zhu; Jiarui Shen

Hong Kong, University of Science & Technology; South China University of Science & Technology

Polymer 39, No.26, 1998, p.6801-6

PS 666; LDPE 2F4B; SBS 791

Standards on Rubber to Metal Adhesion

To search for standards use the document type STANDARD. To limit this to those concerned with rubber to metal adhesion, combine this with the basic index words RUBBER, ADHESION and METAL.

rubber and adhesion and metal and standard:document_type

BS 903:PART A21:1989. METHODS OF TESTING VULCANISED RUBBER. PART A21. DETERMINATION OF RUBBER TO METAL BOND STRENGTH

Two methods for determining the adhesion strength of rubber to metal bonds.

BS 903:PTA37(1987). METHODS OF TESTING VULCANIZED RUBBER - DETERMINATION OF ADHESION TO AND CORROSION OF METALS


Searching for Companies who Supply Polyethylene

Searching for polyethylene in the basic index and combining this with the file segment for trade name records and the classification for materials will give the desired companies.

(polyethylene or pe) and ‘trade name record’:record_type and (4 or
Modified amorphous polypropylene which can be used in the modification of polyethylene, in particular as a cling additive to PE films.
Document Delivery

Copyright-Cleared documents from the Polymer Library

· Virtually every item that can be seen on the Polymer Library database can be ordered from our document delivery department – that’s over 2.1 million pages of original literature!

· A growing number of items (over 9000) can be downloaded instantly onto a PC in pdf format, from publishers such as SPE, Kluwer, Institute of Physics Publishing and Rapra itself.

· Other documents are photocopied and can be sent via e-mail, fax or first class post – whichever is most convenient for you.

· We aim, and usually achieve, an order turnaround of less than 24 hours, although many documents are despatched within just hours of receipt of the order.

The cost of ordering a paper from us depends upon the document ordered and whether you have a Polymer Library Account. If you do have an account you will make a saving of 30% on the processing fee.

Rapra Technology Ltd. has been granted a Transactional Document Delivery Licence from the Copyright Licensing Agency (CLA) so that we may provide commercial copies in accordance with the new EU Copyright Directive. Hence, we will also charge customers a copyright fee. This fee will be forwarded to the CLA who will in turn forward it to the copyright owners.

Documents can be ordered securely online. After viewing an abstract please click the ‘Order’ button at the top of the page. You will be informed about our handling fee plus copyright fee for that particular document and you can either present your Polymer Library account details or make a credit card payment if you decide to proceed with the order.

If you prefer, you may get in contact with us directly:

Document Delivery Department
Polymer Library
Rapra Technology Limited,
Shawbury, Shrewsbury, Shropshire SY4 4NR, UK
Telephone: +44 (0)1939 252456
Fax: +44(0)1939 251118
E-mail: documents@rapra.net

© 2003 Rapra Technology Ltd.