TYPES OF PATENT SEARCHES

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New Delhi-110 024
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(vjindal.birac@nic.in)
1. Kinds of patent search

2. Key Concepts in searching
   • What do we search
   • The process of patent search

3. Creating & Refining Search Queries

4. Databases to retrieve the Technology Information
   • Patent database
   • Non-Patent Databases

6. How to use patent databases
Kinds of Patent Search

- Patentability Search
- Freedom-To-Operate Search
- Validity/Invalidity search
- State-of-the Art search
Why we Search?

To retrieve information which is required to answer specific questions
Patentability Search

• Is a given invention (claimed in a patent application) patentable?

Freedom-To-Operate Search

• Do patent rights exist on which a given product risks infringing?

Validity/Invalidity Search

• Is a given patent valid?

State-of-the-Art Search

• Which technologies exist in a given field of technology?
• Who is active in a given field of technology?
Patentability Search

Also known as *Novelty Search*

Done to identify patents and non-patent literature

Recommended to be done before writing and filing the patent specification, and therefore,

Sometimes called a pre-application search
Novelty

An invention shall not be considered new if it forms part of a prior art.

Prior Art

Everything which has been made available to the public anywhere in the world, before the filing date or the priority date of the application claiming the invention
A clearance search which concentrates on uncovering enforceable patents that may act as “roadblocks” to commercialization of a product or service.

Guide product design decisions.

Identify patents that may need to be licensed.
State-of-the-Art Search

Search is executed in order to determine existing solutions and potential competitors within a given technological field.

The search includes not only patent documents but also non-patent literature.

Plan R&D activities more efficiently.

Decide whether to enter a market.

Determine which areas are not sufficiently covered by existing players.
Validity/Invalidity Search

The purpose of a validity (or invalidity) search is to find prior art so that a patent can be declared invalid.

Prior art search done after a patent issues.

Done by an entity infringing or potentially infringing the patent, or it might be done by a patent owner.
Concepts in Searching

What we search

Any Relevant Information
- In any type and part of document
- From any place
- From any time period

Technology Information
- Patent
- Scientific and Technical information
Scientific and technical information

- **Scholarly publications:**
  - Handbooks, textbooks, encyclopaedias, journals, dissertations, conference proceedings, technical reports

- **Industry/trade publications:**
  - Industry reviews, disclosure publications

- **Newspapers**

- **Websites**
  - Technology blogs, researchers’ websites
Process of Patent Search

Purpose of search

Scope of search

Selection of keywords

Preparation of search queries

Searching and Reviewing

Data Extraction
Creating and Refining Search Queries

1. Truncation or Wildcard operators

These type of operators stand for an unspecified number of characters in a queries

<table>
<thead>
<tr>
<th>Wildcard</th>
<th>Meaning</th>
<th>Use in Patent collections</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>? (Question Mark)</td>
<td>Represent to exactly one character</td>
<td>Left, right, and internal use supported</td>
<td>“t?re” will pick up “tyre” and “tire”</td>
</tr>
<tr>
<td>* (Asterisk)</td>
<td>Represent to unlimited number of characters</td>
<td>Left and/or right, internal</td>
<td>“File*” will pick up file or files etc.</td>
</tr>
</tbody>
</table>
2. Proximity operators

Proximity operators search:

- Based on the distance by number of terms separating two keywords, and
- Also find words in the same paragraph

<table>
<thead>
<tr>
<th>Operators</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAME</td>
<td>Terms must be in the same paragraph, in any order</td>
<td>Flame SAME Resistant</td>
</tr>
<tr>
<td>ADJ</td>
<td>Terms should be next to each other and in the same order</td>
<td>Flame ADJ Resistant</td>
</tr>
<tr>
<td>NEAR</td>
<td>Terms should be next to each other and in any order</td>
<td>Flame NEAR Resistant</td>
</tr>
</tbody>
</table>
Flame retardant thermoplastic poly:pivalolactone compsn. contains ammonium poly:phosphate for heat resistant, impact resistant mouldings

Original Title
Flame retardant poly:pivalolactone compositions

Assignee/Applicant
Standardized: ETHYL CORP
Original: Ethyl Corporation, Richmond, VA, US

Inventor

Publication Date (Kind Code)
1979-03-20 (A)

DWPI Accession / Update
1979-27723B / 197914

Application Number / Date
Record 12 of 16159
<table>
<thead>
<tr>
<th>Publication Number</th>
<th>Inventor</th>
<th>Assignee/Applicant</th>
<th>Publication Date</th>
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<tr>
<td>CA1055549A1</td>
<td>ZUPANCIC HEINZ-ULRICH</td>
<td>TEXACO AG</td>
<td>1979-06-12</td>
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<tr>
<td>Title: PROCESS FOR THE PRODUCTION OF <strong>FLAME-RESISTANT</strong> PHENOLIC RESIN FOAM PLASTICS</td>
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<tr>
<td>CA2375581C</td>
<td>ZUCCARINI ANTHONY MARK</td>
<td>ZUCCARINI ANTHONY MARK</td>
<td>2004-07-27</td>
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<tr>
<td>Title: METHOD AND APPARATUS FOR BAKING FOODS IN A BARBECUE GRILL</td>
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<td></td>
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</tr>
<tr>
<td>RU2024560C1</td>
<td>ZUBKOVA NINA S</td>
<td>MO G TEKSTILNAYA AKADEMIYA IM</td>
<td>1994-12-15</td>
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<tr>
<td>Title: <strong>FLAME RESISTANT</strong> POLYMERIC COMPOSITION</td>
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<tr>
<td>CN101115349A</td>
<td>ZOU Ming-ren</td>
<td>NANYA PLASTICS CORP</td>
<td>2008-01-30</td>
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<tr>
<td>Title: Polybutadiene thermosetting resin printed circuit carrier plate composition and method for making the same</td>
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<tr>
<td>US4154330A</td>
<td>ZORZI PAUL A.</td>
<td>ETHYL CORP</td>
<td>1979-03-20</td>
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<tr>
<td>Title: Flame retardant poly(vinylalactone) compositions</td>
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</tr>
<tr>
<td>US4113669A</td>
<td>ZONDLER HELMUT</td>
<td>CIBA GEIGY CORP</td>
<td>1978-09-12</td>
</tr>
</tbody>
</table>
Flame-resistant foamed phenolic resins are prep'd. by (a) mixing a phenol-formaldehyde resin condensed under alkaline conditions with (I) a blowing agent, e.g. pentane or methylene chloride, and (II) a curing agent consisting of a mixt. of 8-12 vol. esp. 10% aromatic sulphonic acid, 18-22 esp. 20 vol.% ethylene glycol and 68-72 esp. 70 vol.% 85% phosphoric acid, and (b) foaming/curing under hot or cold conditions. In addn. to a good resistance to free flames, also posses a good mechanical strength. The sulphonic acid is pref. 60% phenolsulphonic acid. The phenolic resin soln. contains 75% solids, and 15-40 esp. 25-30 vol.% (II), based on soln.

Flame-resistant foam plastics are prepared by mixing with an aqueous alkaline condensed phenol-formaldehyde resin solution an expanding agent such as hexane and an acidic curing agent after which the mixture is foamed and permitted to cure. Useful acidic curing agents, comprise mixtures of a strong inorganic or organic acid, a glycol and phosphoric acid.
<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Inventor(s)</th>
<th>assignee</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE3271894D1</td>
<td>ZOLLNER ROBERT DR</td>
<td>BAYER AG</td>
<td>PROCESS FOR THE PREPARATION OF FLAME-RESISTANT AND COLD-RESISTANT POLYURETHANE FOAMS AND USE THEREOF</td>
</tr>
<tr>
<td>EP588003B1</td>
<td>Zobrist Konrad (Colasit AG)</td>
<td>WAGNER INT</td>
<td>Spraying booth</td>
</tr>
<tr>
<td>JP0438366S2</td>
<td>-</td>
<td>BAYER AG</td>
<td>A flame-resistant polycarbonate / ABS plastic molding material</td>
</tr>
<tr>
<td>TW1304428B1</td>
<td>MICHAEL ZOBEL</td>
<td>BAYER AG</td>
<td>Flame-resistant polycarbonate compositions having increased chemical resistance</td>
</tr>
<tr>
<td>EP12143808B1</td>
<td>ZOBEL Michael</td>
<td>BAYER MATERIALSCIENCE AG</td>
<td>FLAME-RESISTANT POLYCARBONATE BLENDS</td>
</tr>
<tr>
<td>EP10951008B1</td>
<td>ECKEL Thomas</td>
<td>BAYER AG</td>
<td>FLAME RESISTANT POLYCARBONATE/ABS PLASTIC MOLDING MATERIALS</td>
</tr>
</tbody>
</table>

Displaying 1 - 500 of 10348
3. Boolean Operators

Major Boolean operators are AND, NOT, and OR which can be used in all collections.

<table>
<thead>
<tr>
<th>Operators</th>
<th>Meaning</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>Two term must exist</td>
<td>Nylon AND rayon</td>
</tr>
<tr>
<td>(to narrow down a search by combining search terms)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Any one term or two terms must exist</td>
<td>Nylon OR rayon</td>
</tr>
<tr>
<td>(to increase the chances of finding results)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOT</td>
<td>A term following “NOT” must be excluded</td>
<td>Nylon NOT rayon</td>
</tr>
<tr>
<td>(to exclude irrelevant patents from a search)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Databases to retrieve the Technology information

Free Patent databases

- US Patent and TradeMark Office (USPTO)
  URL: www.uspto.gov

- Espacenet
  URL: www.ep.espacenet.com

- WIPO (World Intellectual Property Organization)
  URL: http://patentscope.wipo.int/search/en/search.jsf

- Patent Lens
  URL: http://www.patentlens.net/patentlens/quick.html

- Freepatents online
  URL: www.freepatentsonline.com
USPTO PATENT FULL-TEXT AND IMAGE DATABASE

Data current through November 13, 2012.

Query [Help]

Term 1: in Field 1: All Fields
AND

Term 2: in Field 2: All Fields

Select years [Help]
1975 to present [full-text]

Search  Reset

Patents from 1790 through 1975 are searchable only by Issue Date, Patent Number, and Current US Classification.

When searching for specific numbers in the Patent Number field, patent numbers must be seven characters in length, excluding commas, which are optional.
Data current through November 13, 2012.

Terms and Fields:

- **Term 1**:
  - **in Field 1**: [All Fields] dropdown menu
  - Options: All Fields, Title, Abstract, Issue Date, Patent Number, Application Date, Application Serial Number, Application Type, Assignee Name, Assignee City, Assignee State, Assignee Country, International Classification, Current US Classification, Primary Examiner, Assistant Examiner, Inventor Name, Inventor City, Inventor State, Inventor Country

- **Term 2**:
  - **in Field 2**: [All Fields] dropdown menu

Select years

- **[Help]**

1976 to present [full-text]

When searching for specific names, they are searchable only by Issue Date, Patent Number, and Current US Classification.

For Patent Number field, patent numbers must be seven characters in length, excluding commas, which are optional.
USPTO Patent Full-Text and Image Database

Data current through November 13, 2012.

Query [Help]

Examples:
ttl/(tennis and (racquet or racket))
isd/1/8/2002 and motorcycle
in/newmar-julie

Select Years [Help]
1975 to present [full-text]

Search Grid

Patents from 1790 through 1975 are searchable only by Issue Date, Patent Number, and Current US Classification.
When searching for specific numbers in the Patent Number field, patent numbers must be seven characters in length, excluding commas, which are optional.

<table>
<thead>
<tr>
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<th>Field Name</th>
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<th>Field Name</th>
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<tr>
<td>PN</td>
<td>Patent Number</td>
<td>IN</td>
<td>Inventor Name</td>
</tr>
<tr>
<td>ISD</td>
<td>Issue Date</td>
<td>IC</td>
<td>Inventor City</td>
</tr>
<tr>
<td>TTL</td>
<td>Title</td>
<td>IS</td>
<td>Inventor State</td>
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<tr>
<td>ABST</td>
<td>Abstract</td>
<td>ICN</td>
<td>Inventor Country</td>
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<tr>
<td>ACLM</td>
<td>Claim(s)</td>
<td>LREP</td>
<td>Attorney or Agent</td>
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<tr>
<td>SPEC</td>
<td>Description/Specification</td>
<td>AN</td>
<td>Assignee Name</td>
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<tr>
<td>CCL</td>
<td>Current US Classification</td>
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<td>ICL</td>
<td>International Classification</td>
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<td>APN</td>
<td>Application Serial Number</td>
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</table>
USPTO PATENT FULL-TEXT AND IMAGE DATABASE

Data current through November 13, 2012.

Search for the patent numbers you are searching for in the box below.

Search [Help]

Patent numbers must be seven characters in length, excluding commas, which are optional. Examples:

Utility -- 5,146,634 6923014 0000001
Design -- D339,456 D321987 D000152
Plant -- PP08,901 PP07514 PP00003
Reissue -- RE33,312 RE12345 RE00007
Defensive Publication -- T109,201 TB50019 T100001
Statutory Invention Registration -- H001,523 H001234 H000001
Re-examination -- RX12
Additional Improvement -- A100,002 A100003 A100007
Number Search

1. Database

Select the patent database in which you wish to search:

Database: EA - espacenet

2. Enter Number

Enter either accession, application, publication or priority number with country code prefix

Number: E.g. EP1322146

SEARCH  CLEAR
Number Search

1. Database

Select the patent database in which you wish to search:

- [ ] Database:
  - EA - esp@cenet
  - EP - esp@cenet
  - Worldwide
  - WIPO - esp@cenet

2. Enter Number

Enter either accession, application, publication or priority number with country code prefix

- [ ] Numbers: e.g. EP1322146

[SEARCH] [CLEAR]
### 1. Database

Select the patent database in which you wish to search:

Database: **EA - esp@cenet**

### 2. Search terms

Enter keywords in English:

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<th>Keyword(s) in title (in English)</th>
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<td>Application number:</td>
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<tr>
<td>Priority number:</td>
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<tr>
<td>Publication date:</td>
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<tr>
<td>Applicant(s):</td>
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<tr>
<td>Inventor(s):</td>
<td>e.g. Siemens</td>
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<tr>
<td>European Classification (ECLA):</td>
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<tr>
<td>International Patent Classification (IPC):</td>
<td>e.g. H02M7/637 H03K17/687</td>
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</table>

[SEARCH] [CLEAR]
Coverage Details: Coverage details for the patent database can be found [here](https://www.freepatentsonline.com/).

Note that most fields support Phrase (ABST/*cardboard box*), Proximity (ABST/*cardboard box~5*), Wildcard (ABST/*card*), and Leading Wildcard (ABST/*ectmy*) queries. Some fields support range queries and math operations. Only basic examples are provided below. See the [syntax guide](https://www.freepatentsonline.com/syntax_guide.html) for advanced syntax details.

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<thead>
<tr>
<th>Field Abbr.</th>
<th>Field Name</th>
<th>Type</th>
<th>Syntax Example and Comments</th>
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<td>ABST/&quot;titanium steel&quot;</td>
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<td>AC/&quot;New York&quot;</td>
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</table>
Enter your search here

**Number Fields**

- **Document Number**
  - (e.g. 6123456 | EP1659867) [coverage details](#)
- **Application Number**
  - (e.g. 229911 | EP2000945211) [?](#)

**Common Fields**

- **All**
  - (e.g. Metal) [?](#)
- **Title**
  - (e.g. "metal detector") [?](#)
- **Abstract**
  - (e.g. television) [?](#)
- **Claim(s)**
  - (e.g. system) [?](#)
- **Description/Specification**
  - (e.g. "hand-held telephone") [?](#)

**Date Fields**

- **Filing Date**
  - to [mm/dd/yyyy] [?](#)
- **Publication Date**
  - to [mm/dd/yyyy] [?](#)
- **Foreign Priority**
  - (e.g. 07/25/2002) [?](#)

**Classification**
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<tr>
<td>International Classification</td>
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<table>
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<tr>
<td>Inventor Country</td>
<td>(e.g. JP) country codes</td>
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<tr>
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</tr>
<tr>
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<td>(e.g. New York)</td>
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<tr>
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<tr>
<td>Primary Examiner</td>
<td>(e.g. Jones David)</td>
</tr>
<tr>
<td>Assistant Examiner</td>
<td>(e.g. Mathew Feng)</td>
</tr>
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</table>
For Chemical structure searches

- PubChem
- ChemSpider

For Sequence search

- Patent Lens
- PubMed
Sequence Search Facility

Important Information

This utility is provided by CAMBIA's Patent Lens Sequence Project. It uses NCBI's BLAST software to search sequences that are specifically listed in U.S. patents and published patent applications. Sequence data was last updated on 21 May 2010.

Program, Database & Sequence

Program: blastn  Use MegaBlast

Database: US Applications

Enter sequence below in FASTA format

Or load it from disk

Set subsequence: From To

Search  More Options  Reset
Search

1. **Input your structure** (choose a, b or c)
   - a. Upload a structure file (MOL, SDF, CDX) or image file (PNG, JPG, GIF).
   - b. Convert to structure using a Name, SMILES, inChI or ChemSpider ID.
   - c. Click the image to draw out the structure yourself.

2. **Edit molecule**

   **Search Options**
   - Exact Match
   - All Tautomers
Paid Patent Databases

- Thomson Innovation
  URL: https://www.thomsoninnovation.com/login

- Questel Orbit
  URL: www.orbit.com

- STN
  URL: http://www.stn-international.de/index.php?id=123
STN - the choice of patent experts

STN is an online database service that provides global access to published research, journal literature, patents, structures, sequences, properties, and other data.

With STN, find precisely the patent and sci-tech information needed to make business-critical decisions:

- Assess risk for future research endeavors
- Defend corporate/organizational intellectual property
- Track competitive intelligence for existing products and those under development
- Access patent expiration and extension information
- Support strategic business planning

STN is operated jointly by CAS and FIZ Karlsruhe worldwide and is represented in Japan by JAIIL.

It's not easy being green

Did you know that more than 20 eco-unfriendly processing steps go into a traditional pair of pre-washed jeans? During the last decade, many denim manufacturers have begun changing the environmental hazards of their processing by recycling their wastes and greening their production steps. With STN®8, we will investigate some of the new green trends in denim manufacturing.
Non-Patent Databases

Google scholar

Scirus

DeLCON
Thank You