Searching for Polymer Information on STN®

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Overview of the Guide

Introduction

This guide is intended to facilitate the retrieval of polymer information in STN databases (or “files”). It is assumed that you are experienced in STN search and retrieval techniques.

For additional information about searching STN, refer to STN Support & Training pages at www.cas.org.

Structure of this guide

The Guide is structured as follows:

- **Chapter 1** provides an overview of polymer information available on STN and defines polymer terminology.
- **Chapter 2** describes registration, assignment of CAS Registry Numbers®, and content of polymer records in the CAS REGISTRY® database.
- **Chapter 3** describes search strategies for finding CAS Registry Numbers for polymers in REGISTRY.
- **Chapter 4** describes polymer subject indexing terms in the CA®/CAplus® database.
- **Chapter 5** provides an overview of polymer searching in non-CAS databases on STN.
Chapter 1
Overview of Polymer Information on STN

Introduction
Polymer information is found throughout STN in virtually every database. From the perspective of the polymer scientist, some databases will be of far greater interest than others, but relevant information on polymers and applications may be found almost anywhere in STN. This guide is aimed at assisting the polymer searcher in retrieving polymer information of interest from the most likely source databases.

Polymer information
Most papers dealing specifically with polymers are concerned about:
- Starting monomers
- Final polymer structure
- Post-treatment
- Polymer chemistry and properties
- Processing of polymers
- Polymer applications
- Polymer compositions and formulations
- Plastics manufacture and processing

Polymers in REGISTRY and CAplus
REGISTRY is the world’s largest and most current source of CAS Registry Numbers (CAS RNs) for polymers that can be used in other databases to locate literature references for specific polymers. In databases that do not contain CAS RNs, REGISTRY provides polymer names for use in your searches.

REGISTRY has:
- More than 1 million polymeric substance records
- Daily updating with new polymer entries
- A unique CAS RN for each polymer record

Most of these polymer records are linked to references in CAplus.
The polymer database cluster in STN consists of the databases with significant amounts of polymer information.

| POLYMERS | APOLLIT BABS CAPLUS CBNB CIN COMPENDEX DISSABS EMA IFIPAT NTIS PASCAL PROMT RAPRA SCISEARCH TEXTILETECH USPATFULL USPATOLD USPAT2 WPIDS WPIFV WPINDEX WSCA WTEXTILES Polymer Science Cluster |

The STN Database Summary Sheets for these databases may be viewed at [www.cas.org](http://www.cas.org).
A polymer is a naturally occurring or synthetic macromolecule formed by linking together smaller molecules (monomers). REGISTRY also identifies smaller “mers”, e.g., dimmers, trimers, tetramers. By definition, polymers contain 10 or more monomer units. The polymer terms and their definitions are shown in this table.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homopolymer</td>
<td>Polymer formed from a single monomer</td>
<td>Polytetrafluoroethylene MF = (C₂F₄)ₓ</td>
</tr>
<tr>
<td>Copolymer</td>
<td>Polymer formed from two or more monomers</td>
<td>Styrene, polymer with ethene MF = (C₈H₈.C₂H₄)ₓ</td>
</tr>
<tr>
<td>Addition (Vinyl) Polymer</td>
<td>Polymer formed through chain reaction in which one monomer is added to another</td>
<td>Styrene, polymer with ethene MF = (C₈H₈.C₂H₄)ₓ</td>
</tr>
<tr>
<td>Condensation Polymer</td>
<td>Polymer formed by loss of a simple molecule such as water</td>
<td>1,4-butandiol-phthalic acid copolymer MF = (C₈H₆O₄.C₄H₁₀O₂)ₓ</td>
</tr>
<tr>
<td>Structural Repeating Unit (SRU)</td>
<td>Smallest structural unit that can repeat in the polymer backbone</td>
<td>Poly(butylene phthalate) MF = (C₁₂H₁₂O₄)₁ₓ</td>
</tr>
<tr>
<td>Post-Treated Polymer</td>
<td>Polymer that is modified either partially or completely, after the basic polymer backbone has formed</td>
<td>Sulfonated polystyrene</td>
</tr>
<tr>
<td>Tactcity</td>
<td>The stereoregularity of the polymer</td>
<td></td>
</tr>
<tr>
<td>Block Polymer</td>
<td>Polymers where the monomers are arranged in blocks</td>
<td>-AAAA-BBBB- (A and B are monomers)</td>
</tr>
<tr>
<td>Alternating Polymer</td>
<td>Polymers where the monomers alternate regularly</td>
<td>-A-B-A-B-A-B-A-B-</td>
</tr>
<tr>
<td>Graft Polymers</td>
<td>Polymers where the main backbone has attached to it macromolecular side chains of a different set of monomers</td>
<td>B-B-B-</td>
</tr>
<tr>
<td>Polymer Blend</td>
<td>Homogeneous or heterogeneous physical mixture of two or more polymers</td>
<td></td>
</tr>
<tr>
<td>Composite</td>
<td>Systems including a polymer matrix and a dispersed phase</td>
<td>Glass-fiber reinforced polyester</td>
</tr>
<tr>
<td>Cross-linking Agents</td>
<td>Multifunctional materials providing cross-linking bridges in a polymer network</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 2
Polymers in REGISTRY

Overview

Introduction
This chapter provides information on polymer registration, assignment of CAS RNs, and content of records in REGISTRY.

Contents
This chapter contains the following sections:
- Overview of polymer registration by CAS
- Monomer-based registration
- Supplementary registration using structural repeating units
- Exceptions to monomer-based registration
- Polymers with specific tacticity
- Block, graft, and alternating copolymers
- Incompletely identified polymers
### Polymer Registration by CAS

| Polymer Class Identifiers | Substances that are registered as polymers have the entry POLYMER and PMS in the Class Identifier (CI) field. These are:  
|                          | • Polymeric substances with 11 or more repeating units  
|                          | • Oligomers with an unknown or fractional number of monomer units or with 10 or less monomer units, if the exact structure is unknown (e.g., 1-Hexene, trimer CAS RN 72607-62-6)  
| CN                      | 1-Hexene, trimer (CA INDEX NAME)  
| MF                      | (C6 H12)3  
| CI                      | PMS |

| CAS RN assignment       | Each record is identified by a unique CAS Registry Number based on the monomer(s) actually used to form the polymer. Additional CAS RNs may be assigned to structural repeating units (SRUs).  
|                         | Separate CAS RNs are not assigned for:  
|                         | • Head-to-tail or head-to-head polymers  
|                         | • Linear or branched polymers  
|                         | • Polymer blends  
|                         | • Most post-treated polymers  
|                         | The above information may often be found in the CAplus index entry with the polymer CAS RN.  
|                         | Post-treated polymers that do get their own CAS RN are:  
|                         | • Salts of polymers such as metal salts, amine salts, or hydrochlorides  
| RN                      | 1092479-21-4 REGISTRY  
| CN                      | 2-Propenoic acid, 2-methyl-, 2-(dimethylamino)ethyl ester, polymer with 2-methyloxirane, triblock, hydrochloride (CA INDEX NAME)  
|                         | • Polymer esters and polymer ethers  
| CN                      | 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with oxirane, ester with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), tetramethyl ether, diblock (CA INDEX NAME)  
|                         | • Addition compounds, e.g. quaternized polymers  
| CN                      | 2,5-Furandione, polymer with ethenylbenzene, 2-[(2-hydroxyethyl)amino]ethyl ester, alternating, ammonium salt, compd. with 2,2'-iminobis[ethanol] (CA INDEX NAME) |
REGISTRY records for polymers do not include:

- Other substances that participate in the polymerization process, e.g., chain initiators and polymerization catalysts
- Ratios between the monomers
- Number of repeating units in the polymer backbone
- Molecular weight of the polymer
- Presence or absence of end groups for monomer-based polymer records
Monomer-Based Registration

**Monomer definition**

The *primary* way a polymer is structured and registered in REGISTRY is based on the *monomers making up the polymer*. A monomer is any multifunctional substance that is incorporated into the polymer through polymerization or cross-linking.

![Diagram of monomer reaction](image)

**Definition of fields in the example record**

The principal parts of the monomer-based record are:

1. CAS RN for the polymer
2. Systematic CA Index name [(9CI) refers to the version of CA Index nomenclature used for the name (1972 rules).]
3. Molecular Formula: two component formulas separated by a period and enclosed in parentheses with an “x” subscript to indicate the polymer
4. Polymer Class Terms (PCTs)
5. Locator (LC) field: listing other STN databases where this polymer is indexed by its CAS RN
6. POLYLINK command: enabling the linking of related polymers
7. Each component (CM) monomer: displayed with its CAS RN, molecular formula, and structure
8. References in CA and CAplus
Example of a monomer-based polymer record

The CAS Registry Number is the database key for the REGISTRY record. CAS RNs are assigned to the polymer and to the monomers.

RN 26352-63-6 REGISTRY
ED Entered STN: 16 Nov 1984
CN 1,2-Benzenedicarboxylic acid, polymer with 1,4-butanediol
   (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,4-Butanediol, polyester with phthalic acid (8CI)
CN 1,4-Butanediol, polymer with 1,2-benzenedicarboxylic acid
   (9CI)
CN Phthalic acid, polyester with 1,4-butanediol (8CI)
OTHER NAMES:
CN 1,4-Butanediol-phthalic acid copolymer
CN Poly(butylene phthalate)
MF (C₈H₆O₄ . C₄H₁₀O₂)x
CI PMS
PCT Polyester, Polyester formed
LC STN Files: CA, CAPLUS, CHEMLIST, IFICDB, IFIPAT,
   IFIUDB, TOXCENTER, USPAT2, USPATFULL USPATOLD
**RELATED POLYMERS AVAILABLE WITH POLYLINK**

CM 1
CRN 110-63-4
CMF C₄H₁₀O₂

HO — (CH₂)₄ — OH

CM 2
CRN 88-99-3
CMF C₈H₆O₄

CO₂H

CO₂H

57 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
57 REFERENCES IN FILE CAPLUS (1907 TO DATE)
The polyester formed by the acid and alcohol monomers shown can also be prepared from other sets of monomers. Each of these different sets of monomers receives a different CAS RN even though they all result in the same final polymer. Two examples (partial records) are shown below for:

- Diacid halide and diol
- Acid anhydride and diol

Other sets of monomers could have been used to prepare this polyester. Using the POLYLINK command identifies all such polymers that have been entered into REGISTRY.

---

**RN** 86889-85-2 REGISTRY  
**ED** Entered STN: 16 Nov 1984  
**CN** 1,2-Benzenedicarbonyl dichloride, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)  
**MF** (C₈ H₄ Cl₂ O₂ . C₄ H₁₀ O₂)x  

![Chemical structure](image1)

**RN** 32472-86-9 REGISTRY  
**ED** Entered STN: 16 Nov 1984  
**CN** 1,3-Isobenzofurandione, polymer with 1,4-butanediol (9CI) (CA INDEX NAME)  
**MF** (C₈ H₄ O₃ . C₄ H₁₀ O₂)x  

![Chemical structure](image2)
Supplementary Registration Using Structural Repeating Units

Rules

In addition to the monomer-based representations, an additional record with its own CAS RN is created in REGISTRY for the structural repeating unit (SRU) of the polymer in the following cases:

- **Condensation** polymers from 2 symmetrical monomers.

  \[ \text{HO}_2\text{C}--(\text{CH}_2)_4--\text{CO}_2\text{H} + \text{HO}--(\text{CH}_2)_3--\text{OH} \]

- Ring-opening polymerization if only one final structure is possible.

  Lactone $\rightarrow$ Polyester

- The author stresses the SRU and provides supporting evidence for its structure.

SRU entries are rarely made for addition polymers.

Assignment of CAS RNs

The SRU entry gets a different CAS RN than the monomer-based entries.

<table>
<thead>
<tr>
<th>RN</th>
<th>26499-89-8</th>
<th>REGISTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>Entered STN: 16 Nov 1984</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Poly(oxy carbonyl-1,2-phenylene carbonyloxy-1,4-butanediyl) (CA INDEX NAME)</td>
<td></td>
</tr>
<tr>
<td>OTHER CA INDEX NAMES:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Poly(oxy phthaloyloxytetramethylene) (8CI)</td>
<td></td>
</tr>
<tr>
<td>OTHER NAMES:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>1,4-Butanediol-phthalic acid copolymer, SRU</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>1,4-Butanediol-phthalic anhydride copolymer, sru</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>1,4-Butanediol-phthaloyl chloride copolymer, sru</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Phthalic anhydride-THF copolymer, SRU</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Poly(butylene phthalate), SRU</td>
<td></td>
</tr>
<tr>
<td>MF</td>
<td>(C12 H12 O4)n</td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>PMS</td>
<td></td>
</tr>
<tr>
<td>PCT</td>
<td>Polyester</td>
<td></td>
</tr>
<tr>
<td>LC</td>
<td>STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, TOXCENTER, USPAT2, USPATFULL, USPATOLD</td>
<td></td>
</tr>
</tbody>
</table>

**RELATED POLYMERS AVAILABLE WITH POLYLINK**

(Continued on the next page)
Appearance of SRU records

The SRU record has some differences from monomer-based records:
- Different CAS RN
- Repeating unit name
- Single component formula with “n” subscript instead of “x”
- Polymer backbone structure

End groups

Most SRUs do not have end groups specified as part of their structure. The remaining SRUs do have end groups. Separate CAS RNs are assigned for each case.

SRU without end groups

<table>
<thead>
<tr>
<th>RN</th>
<th>32291-26-2 REGISTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>Entered STN: 16 Nov 1984</td>
</tr>
<tr>
<td>CN</td>
<td>Poly[oxy]carbonyloxy-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenylene] (CA INDEX NAME)</td>
</tr>
<tr>
<td>OTHER CA INDEX NAMES:</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Poly[oxy]carbonyloxy-p-phenylene[trifluoro-1-(trifluoromethyl)ethylidene]-p-phenylene] (8CI)</td>
</tr>
<tr>
<td>OTHER NAMES:</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>1,1,1,3,3,3-Hexafluoro-2,2-bis(4-hydroxyphenyl)propane-phosgene copolymer, sru</td>
</tr>
<tr>
<td>CN</td>
<td>2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropene-phosgene copolymer, SRU</td>
</tr>
<tr>
<td>CN</td>
<td>4,4'-(Hexafluoroisopropyli)dicarbonil bis(chloroformate) homopolymer, sru</td>
</tr>
<tr>
<td>CN</td>
<td>Bisphenol AF polycarbonate sru</td>
</tr>
<tr>
<td>CN</td>
<td>Bisphenol AF-phosgene copolymer, SRU</td>
</tr>
<tr>
<td>CN</td>
<td>Bisphenol AF-trichloromethyl chloroformate copolymer, sru</td>
</tr>
<tr>
<td>CN</td>
<td>Carbonic acid-hexafluorobisphenol A copolymer, sru</td>
</tr>
<tr>
<td>DR</td>
<td>156147-43-2</td>
</tr>
<tr>
<td>MF</td>
<td>(C16 H8 F6 O3)n</td>
</tr>
</tbody>
</table>

(Continued on the next page)
CI  PMS
PCT Polycarbonate
LC STN Files: CA, CAPLUS, USPAT2, USPATFULL

**RELATED POLYMERs AVAILABLE WITH POLYLINK**

![Chemical structure of polyether]

**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

76 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
76 REFERENCES IN FILE CAPLUS (1907 TO DATE)

SRU with end groups

RN  31242-71-4  REGISTRY
ED  Entered STN:  16 Nov 1984
CN  Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyoxy-1,2-
    ethanediyl], .alpha.-hydro-.omega.-hydroxy- (9CI)
    (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN  Poly[oxy(dimethylsilylene)oxyethylenoxyethylene],
    .alpha.-hydro-.omega.-hydroxy- (8CI)
MF  (C6 H14 O3 Si)n H2 O
CI  PMS
PCT Polyether

![Chemical structure of polyether]
Exceptions to Monomer-Based Registration

**List of exceptions**

There are four exceptions to the monomer-based rule for registration:

- Five common polymers normally indexed only at their SRU
- Polymer structure too large\(^1\) or unknown
- Polymer identified only by a trade name
- Polymer indexed only as a concept,\(^2\) i.e., a controlled vocabulary index heading in the CA/CAplus database

**Very common polymers**

Certain very common polymers are indexed **only** at the SRU entry in CAplus unless they are prepared from non-standard monomers:

<table>
<thead>
<tr>
<th>Polymer</th>
<th>RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nylon 6</td>
<td>RN 25038-54-4</td>
</tr>
<tr>
<td>Nylon 66</td>
<td>RN 32131-17-2</td>
</tr>
<tr>
<td>PEG (polyethylene glycol)</td>
<td>RN 25322-68-3</td>
</tr>
<tr>
<td>PPG (polypropylene glycol)</td>
<td>RN 25322-69-4</td>
</tr>
<tr>
<td>PET (poly(ethylene terephthalate))</td>
<td>RN 25038-59-9</td>
</tr>
</tbody>
</table>

**Polymer too large or unknown**

If the structure of the polymer is too large or is not known, no structure is available in the REGISTRY record. One example is a copolymer with very many different monomer components.

RN 153699-89-9 REGISTRY
ED Entered STN: 18 Mar 1994
CN 1,3-Benzenedicarboxylic acid, polymer with 1,4-benzenedicarboxylic acid, Burnock D 750, 1,4-butanediol, 2-butyl-2-ethyl-1,3-propanediol, butyl 2-methyl-2-propenoate, 1,4-dihydroxy-2-butanesulfonic acid monosodium salt, 1,6-diisocyanatohexane, 1,3-diisocyanatomethylbenzene, 2-(dimethylamino)ethyl 2-methyl-2-propenoate, 2,2-dimethyl-1,3-propanediol, 1,2-ethanediol, ethenylbenzene, 2-ethylhexyl 2-methyl-2-propenoate, hexanediolic acid, 2-hydroxyethyl 2-methyl-2-propenoate, methyl 2-methyl-2-propenoate, 2-methyl-2-[1-oxo-2-propenyl]amino]-1-propanesulfonic acid monosodium salt and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:
CN 1,2-Ethanediol, polymer contg. (9CI)
MF Unspecified
CI PMS, MAN
PCT Manual registration
SR CA
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

---

\(^1\) These may be indexed in terms of the monomers, but there is no monomer structure.

\(^2\) Beginning in 1994, there are far fewer such cases.
If the polymer is only identified by a trade name with no known structure or a partially known structure, no monomer-based registration can be created. The polymer gets a “manual registration.” (Note the MF and PCT.)

<table>
<thead>
<tr>
<th>RN</th>
<th>1048665-85-5</th>
<th>REGISTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>Entered STN:</td>
<td>11 Sep 2008</td>
</tr>
<tr>
<td>CN</td>
<td>Biocycle 2000-0</td>
<td>(CA INDEX NAME)</td>
</tr>
<tr>
<td>ENTE</td>
<td>A hydroxybutyric acid polymer (PHB Industries)</td>
<td></td>
</tr>
<tr>
<td>MF</td>
<td>Unspecified</td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>PMS, MAN</td>
<td></td>
</tr>
<tr>
<td>PCT</td>
<td>Manual registration</td>
<td></td>
</tr>
<tr>
<td>SR</td>
<td>CA</td>
<td></td>
</tr>
<tr>
<td>LC</td>
<td>STN Files: CA, CAPLUS</td>
<td></td>
</tr>
</tbody>
</table>

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

The editing note (ENTE) indicates all CAS knows about Biocycle 2000-0.

In some cases, the polymer may be indexed in CA/CAplus only as a subject indexing term and not as a substance with a CAS RN.

For example, certain rubbers (prior to 1987) and fibers (prior to 1992) were indexed only at a subject heading in CAplus. No CAS RNs were used. Since that time, CAS RNs for many, but not all, of the rubber and fiber index entries back to 1967 have been added.

A comprehensive search strategy may not be easily devised by the novice polymer searcher, so consulting an experienced polymer searcher is advisable.

The CA Lexicon in CAplus alerts searchers to existing and previous indexing policies.

=> E POLYESTER FIBERS+HNTE,NOTE/CT
E1 75982 --> Polyester fibers/CT
    HNTE Valid heading during volume 76 (1972) to present.
    NOTE Fibers from all polyesters and polythioesters are indexed here.

********** END **********
Polymers with Specific Tacticity

Tacticity definitions

Tacticity is the stereoregularity of the substituent groups on the polymer backbone. Each form gets a separate CAS RN.

Isotactic example

Isotactic (all substituents on same side of backbone):

```
\begin{center}
\includegraphics[width=0.7\textwidth]{isotactic.png}
\end{center}
```

RN   55929-71-0  REGISTRY
ED   Entered STN:  16 Nov 1984
CN   1-Hexene, polymer with 1-propene, isotactic  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   1-Propene, polymer with 1-hexene, isotactic (9CI)
OTHER NAMES:
CN   1-Hexene-propylene isotactic copolymer
CN   Isotactic 1-hexene-propene copolymer
CN   Isotactic 1-hexene-propylene copolymer
CN   Isotactic propylene-1-hexene polymer
CN   Propylene-1-hexene isotactic copolymer
MF   (C₆ H₁₂ . C₃ H₆)x
CI   PMS
PCT Polyolefin
LC   STN Files:  CA, CAPLUS, CHEMLIST, IFICDB, IFIPAT, IFIUDB, USPATFULL

CM   1
CRN   592-41-6
CMF  C₆ H₁₂

H₂C—CH—Bu-n
CM   2
CRN   115-07-1
CMF  C₃ H₆
H₃C—CH—CH₂

**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

26 REFERENCES IN FILE CA (1907 TO DATE)
26 REFERENCES IN FILE CAPLUS (1907 TO DATE)
Syndiotactic (alternating arrangement of substituents):

RN  133006-21-0  REGISTRY
ED  Entered STN:  05 Apr 1991
CN  1-Hexene, polymer with 1-propene, syndiotactic  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN  1-Propene, polymer with 1-hexene, syndiotactic (9CI)
OTHER NAMES:
CN  1-Hexene-propylene copolymer, syndiotactic
CN  1-Hexene-propylene syndiotactic copolymer
CN  Syndiotactic 1-hexene-propylene copolymer
MF  (C6 H12 . C3 H6)x
CI  PMS
PCT  Polyolefin
SR  CA
LC  STN Files:  CA, CAPLUS, USPATFULL

CM  1

CRN  592-41-6
CMF  C6 H12

H2C—CH—Bu-n

CM  2

CRN  115-07-1
CMF  C3 H6

H3C—CH—CH2

10 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
10 REFERENCES IN FILE CAPLUS (1907 TO DATE)
Atactic example

Atactic (irregular or unknown arrangement of substituents; if no tacticity is specified, atactic is assumed):

RN   25895-44-7 REGISTRY
ED   Entered STN:  16 Nov 1984
CN   1-Hexene, polymer with 1-propene  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   1-Hexene, polymer with propene (8CI)
CN   1-Propene, polymer with 1-hexene (9CI)
CN   Propene, polymer with 1-hexene (8CI)
OTHER NAMES:
CN   1-Hexene-propene copolymer
CN   1-Hexene-propene polymer
CN   1-Hexene-propylene copolymer
CN   1-Hexene-propylene polymer
CN   Eastoflex D 127
CN   Propene-1-hexene copolymer
CN   Propylene-1-hexene copolymer
CN   TX 1771-131
MF   (C6 H12 . C3 H6)x
CI   PMS, COM
PCT Polyolefin
LC   STN Files:   CA, CAPLUS, CASREACT, CHEMLIST, IFICDB,
IFIPAT, IFIPAT,
TOXCENTER, USPAT2, USPATFULL, USPATOLD
CM   1

CRN   592-41-6
CMF  C6 H12
H2C—CH—Bu—n
CM   2

CRN   115-07-1
CMF  C3 H6
H3C—CH—CH2

**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

294 REFERENCES IN FILE CA (1907 TO DATE)
18 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
294 REFERENCES IN FILE CAPLUS (1907 TO DATE)
There are other stereoregular terms associated with polymers, e.g., threo-diisotactic, meso-diisotactic, erythro-diisotactic, racemo-diisotactic, threo-disyndiotactic, meso-disyndiotactic, erythro-disyndiotactic, and racemo-disyndiotactic. Polymers with these tacticities also receive separate CAS RNs.
### Block, Graft, and Alternating Copolymers

**Assignment of CAS RNs**

Block polymers in records from 1982 to the present receive their own CAS RNs and are identified with a more precise, searchable chemical name segment: diblock, triblock, tetrablock, or pentablock.

<table>
<thead>
<tr>
<th>RN</th>
<th>850562-36-6</th>
<th>REGISTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>Entered STN: 17 May 2005</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>1-Hexene, polymer with 1-propene, triblock (CA INDEX NAME)</td>
<td></td>
</tr>
<tr>
<td>OTHER NAMES:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>1-Hexene-propylene triblock copolymer</td>
<td></td>
</tr>
<tr>
<td>MF</td>
<td>(C6 H12 . C3 H6)x</td>
<td></td>
</tr>
<tr>
<td>CI</td>
<td>PMS</td>
<td></td>
</tr>
<tr>
<td>PCT</td>
<td>Polyolefin</td>
<td></td>
</tr>
<tr>
<td>SR</td>
<td>CA</td>
<td></td>
</tr>
<tr>
<td>LC</td>
<td>STN Files: CA, CAPLUS, USPATFULL</td>
<td></td>
</tr>
</tbody>
</table>

| CM     | 1 |
| CRN    | 592-41-6 |
| CMF    | C6 H12 |

**Formula:**

\[
\begin{align*}
\text{H}_2\text{C} & \text{CH} - \text{Bu-n} \\
\text{CM} & 2 \\
\text{CRN} & 115-07-1 \\
\text{CMF} & \text{C3 H6} \\
\text{H}_3\text{C} & \text{CH} = \text{CH}_2
\end{align*}
\]

2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)
Indexing at plain polymer

Prior to 1987, block, graft, and alternating copolymers were indexed at the CAS RN for the “plain” polymer with terms such as “block” or “graft” in the modifying phrase following the CAS RN in CAplus. Records from 1967 to 1986 are being enhanced with the addition of block CAS RNs.

Block polymer search strategy

A search of the three block polymer CAS RNs in CAplus for the 1-hexene 1-propene copolymer yields 12 retrievals.

=> $S \ (181961-64-8 \ OR \ 755025-68-4 \ OR \ 850562-36-6)$

L4 12 $S \ (181961-64-8 \ OR \ 755025-68-4 \ OR \ 850562-36-6)$

Coincidentally, a search of the “plain” copolymer CAS RN with the block terms also retrieves 12 hits.

L8 12 $S \ 25895-44-7 \ (L) \ (BLOCK \ OR \ DIBLOCK \ OR \ TRIBLOCK)$

The two searches combined gives 21 hits.

=> $S \ L4 \ or \ L8$

L9 21 L4 OR L8
Incompletely Identified Polymers

For some polymers, some of the monomers are specific structures while others may be incomplete or have unknown structures. Two types of cases are illustrated:

- Incompletely described substances
- EPDM (ethylene-propylene-diene monomer) polymers

IDS polymers

There are many incompletely described substances (IDS) in REGISTRY. Some are also polymers.

RN 69778-08-1  REGISTRY
ED Entered STN: 16 Nov 1984
CN Poly(oxy-1,2-ethanediyl), α-naphthalenyl-ω-hydroxy- (CA INDEX NAME)
OTHER NAMES:
CN Newcol B 13
CN Newcol NN 15
CN Newcol NS 20
CN Polyethylene glycol mononaphthyl ether
CN Polyethylene oxide mononaphthyl ether
DR 83856-15-9
MF (C2 H4 O)n C10 H8 O
CI IDS, PMS, COM
PCT Polyether
LC STN Files: CA, CAPLUS, USPAT2, USPATFULL

In this polymer, the location of the naphthalenyl attachment is unknown.

114 REFERENCES IN FILE CA (1907 TO DATE)
5 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
115 REFERENCES IN FILE CAPLUS (1907 TO DATE)
EDPM rubber is an index heading in CAplus.

**EPDM polymers that are rubbers**

<table>
<thead>
<tr>
<th>IT</th>
<th>EPDM rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>RL:</td>
<td>POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)</td>
</tr>
<tr>
<td></td>
<td>(fire-, heat-, and voltage-resistant halogen-free polyolefin compns. for elec. wire jackets)</td>
</tr>
</tbody>
</table>

The Lexicon entry shows the current policy:

<table>
<thead>
<tr>
<th>E8</th>
<th>9212 --&gt; EPDM rubber/CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNTE Valid heading during volume 126 (1997) to present.</td>
<td></td>
</tr>
<tr>
<td>NOTE Ethylene-propylene-nonconjugated diene copolymer.</td>
<td></td>
</tr>
</tbody>
</table>

**Diene monomer known**

When the diene monomer is specified, an entry is made both at the copolymer RN and the index heading.

<table>
<thead>
<tr>
<th>IT</th>
<th>25034-77-9, Ethylene-methylenenorbornene-propene copolymer</th>
</tr>
</thead>
<tbody>
<tr>
<td>RL:</td>
<td>PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)</td>
</tr>
<tr>
<td></td>
<td>(rubber; producing bales of EPDM rubbers with low levels of dusting agent from pellets)</td>
</tr>
<tr>
<td>IT</td>
<td>EPDM rubber</td>
</tr>
<tr>
<td>RL:</td>
<td>PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)</td>
</tr>
<tr>
<td></td>
<td>(ethylene-methylenenorbornene-propene, Vistalon 5600, Vistalon 7000; producing bales of EPDM rubbers with low levels of dusting agent from pellets)</td>
</tr>
</tbody>
</table>

**EPDM with no CAS RN**

EPDM (pre-1997) is indexed with no CAS RN when the diene was unknown.

<table>
<thead>
<tr>
<th>IT</th>
<th>Synthetic rubber, uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>RL:</td>
<td>MOA (Modifier or additive use); USES (Uses)</td>
</tr>
<tr>
<td></td>
<td>(EPDM, fracture and morphol. of polypropylene/EPDM blends)</td>
</tr>
</tbody>
</table>
Since 1997, EPDM rubber with the diene unknown is indexed in CAplus at the CAS RNs for the known monomers with “D” and/or “DP” appended to the CAS RN to indicate derivatives. (Non-specific derivatives do not get a separate CAS RN in REGISTRY.)

**IT** 74-85-1D, Ethylene, polymers with propylene and dienes
115-07-1D, Propylene, polymers with ethylene and dienes
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
   (rubber; fire-, heat-, and voltage-resistant halogen-free polyolefin compns. for elec. wire jackets)

**IT** EPDM rubber
Polyolefins
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
   (fire-, heat-, and voltage-resistant halogen-free polyolefin compns. for elec. wire jackets)
Chapter 3
Search Strategies in REGISTRY

Overview

Introduction
Begin your polymer search in REGISTRY. Once the polymers of interest have been found, the L-number(s) may then be crossed into CAplus to retrieve the relevant references. Append the L-number by /D to search for non-specific derivatives.

Types of searches
REGISTRY offers a number of alternatives for polymer searching. The following are discussed in this chapter:
• Name searching
• Component CAS RN searching
• POLYLINK to find all related condensation polymers
• Polymer Class Term searching
• Structure searching
Name Searching

Overview of name searching

Search in the Basic Index, Chemical Name (/CN), or the Chemical Name Segment (/CNS) fields. Search for:
- Monomer names
- Polymer names
- Trade names

Monomer name search

This approach is useful when you know the monomer name(s). Use EXPAND to verify search terms prior to searching. Use (L) proximity to link the monomer names. Use both ?POLY?/CNS and PMS/CI to limit the search to polymers.

=> S STYRENE (L) ACRYLIC ACID AND (?POLY?/CNS OR PMS/CI)
L5 8997 STYRENE (L) ACRYLIC ACID AND (?POLY?/CNS OR PMS/CI)

Polymer name search

Use hyphens to separate the monomer names (preferably in alphabetic order) in the polymer and EXPAND in the /CN field, and then search E3 if it is present.

=> E ACRYLIC ACID-METHYL METHACRYLATE-STYRENE COPOLYMER/CN 5
E1 1 ACRYLIC ACID-METHYL METHACRYLATE-STYRENE BLOCK COPOLYMER/CN
E2 1 ACRYLIC ACID-METHYL METHACRYLATE-STYRENE BLOCK GRAFT COPOLYMER/CN
E3 1 --> ACRYLIC ACID-METHYL METHACRYLATE-STYRENE COPOLYMER/CN
E4 1 ACRYLIC ACID-METHYL METHACRYLATE-STYRENE COPOLYMER
   2-(DIMETHYLAMINO)ETHANOL SALT/CN
E5 1 ACRYLIC ACID-METHYL METHACRYLATE-STYRENE COPOLYMER CALCIUM AND SODIUM SALT/CN

=> S E3

Polymer names may also begin with “Poly”. Again, verify name with EXPAND in the /CN field.

=> S POLYETHYLENE/CN
L1 1 POLYETHYLENE/CN

=> S "POLY (HEXAFLUORO-1,3-BUTADIENE)"/CN
L3 1 "POLY (HEXAFLUORO-1,3-BUTADIENE)"/CN
Trade name search

When searching a trade name, be sure to look for variations in spelling and punctuation.

=> S SARA SL 159/CN
L3 1 SARA SL 159/CN

Be alert to ambiguous trade names or acronyms, e.g., PET.

Component CAS Registry Number Searching

Component CAS RN search

Search the CAS RN for each monomer in the Component Registry Number (CRN) field. Link multiple CAS RNs using AND operators. Specify the number of components in the /NC numeric field.

=> S 95-13-6/CRN AND 80-62-6/CRN AND NC>2
L1 15 95-13-6/CRN AND 80-62-6/CRN AND NC>2

POLYLINK Command

POLYLINK

The same polymer may be created from several different sets of monomers. In a monomer-based registration, each set of monomers will have a separate CAS RN. In addition, condensation polymers, e.g., polyamides, polycarbonates, may be registered and indexed on the basis of their SRUs. Comprehensive searching requires finding all such registrations.

With the POLYLINK command, you can retrieve the CAS RNs for the monomer-based and structural repeating unit representations for a given condensation polymer or a set of polymers.

POLYLINK may be used on:
- An individual CAS Registry Number
- Any REGISTRY answer set, an E-number list, or an ANALYZE list of CAS Registry Numbers
For example, the polymer formed between 1,4-butanediol and terephthalic acid may also be formed in various ways. If you know the CAS RN for one of the records (26062-94-2 in this example), you can easily find all related CAS RNs.

=> POLYLINK 26062-94-2

L2 17 POLYLINK 26062-94-2

There are 16 different monomer-based registrations and one SRU registration covering this polymer.

=> D SCAN CN

L2 17 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN 1,4-Benzenedicarboxylic acid, bis(4-hydroxybutyl) ester, polymer with 1,4-benzenedicarboxyl dichloride (9CI)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1): 16

L5 17 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN 1,4-Benzenedicarboxylic acid, bis(4-hydroxybutyl) ester, homopolymer (9CI)

• • •

L5 17 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN 1,4-Benzenedicarboxylic acid, dicesium salt, polymer with 1,4-dibromobutane (9CI)

L5 17 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN 1,4-Benzenedicarboxylic acid, bis(2-hydroxyethyl) ester, polymer with 1,4-butanediol (9CI)

L5 17 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN 1,4-Benzenedicarboxylic acid, polymer with 1,4-butanediol and 1,4-dimethyl 1,4-benzenedicarboxylate

L5 17 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN 1,4-Benzenedicarboxylic acid, 1,4-dimethyl ester, polymer with 1,4-butanediol

L5 17 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN Poly(oxy-1,4-butanediyoxycarbonyl-1,4-phenylenecarbonyl)
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT

ALL ANSWERS HAVE BEEN SCANNED
Polymer Class Terms

Polymer Class Terms (PCTs) categorize the various polymers in REGISTRY into 42 classes. For many categories, there is also a FORMED subcategory where the linkage is formed as part of the polymerization. PCTs are assigned to all polymers except oligomers (dimers, trimers, tetramers, etc.) and coordination compound polymers that would only receive the class POLYOTHER or one of the MANUAL class terms. If the classification for a polymer is uncertain, it receives the class POLYOTHER.

Polymer class terms are assigned algorithmically. Each term represents the structural characteristics of the polymer backbone and reflects:
- The types of linkages formed in the polymerization process
- Linkages already present within the monomer backbone
- Linkages present in structural repeating unit (SRU) backbones

If, when assigning the polymer class terms, the system identifies that a linkage for a certain class was formed during the polymerization process, a second polymer class term with the word FORMED added is indexed. When you search a class term without the word FORMED, you also retrieve the FORMED polymers. FORMED terms are present for all classes except resins, addition polymers, double stranded polymers, and polynucleotides.

<table>
<thead>
<tr>
<th>PCT list</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMINO RESIN</td>
</tr>
<tr>
<td>CHLOROPOLYMER</td>
</tr>
<tr>
<td>DOUBLE STRAND</td>
</tr>
<tr>
<td>EPOXY RESIN</td>
</tr>
<tr>
<td>FLUOROPOLYMER</td>
</tr>
<tr>
<td>MANUAL COMPONENT</td>
</tr>
<tr>
<td>MANUAL REGISTRATION</td>
</tr>
<tr>
<td>PHENOLIC RESIN</td>
</tr>
<tr>
<td>POLYACETYLENE</td>
</tr>
<tr>
<td>POLYACRYLIC</td>
</tr>
<tr>
<td>POLYAMIC ACID</td>
</tr>
<tr>
<td>POLYAMIC ACID FORMED</td>
</tr>
<tr>
<td>POLYAMIDE</td>
</tr>
<tr>
<td>POLYAMIDE FORMED</td>
</tr>
<tr>
<td>POLYAMINE</td>
</tr>
<tr>
<td>POLYAMINE FORMED</td>
</tr>
<tr>
<td>POLYAMIDE FORMED</td>
</tr>
<tr>
<td>POLYAMIDE FORMED</td>
</tr>
<tr>
<td>POLYAMIDE FORMED</td>
</tr>
<tr>
<td>POLYAMIDE FORMED</td>
</tr>
<tr>
<td>POLYBENZIMIDAZOLE</td>
</tr>
<tr>
<td>POLYBENZIMIDAZOLE FORMED</td>
</tr>
<tr>
<td>POLYBENZOKZOAZOLE</td>
</tr>
<tr>
<td>POLYBENZOXAZOLE FORMED</td>
</tr>
</tbody>
</table>
Combine the PCT term(s) with other search terms using AND/NOT operators.

**PCT and name term:**

=> S POLYPROPYLENE/CNS AND POLYETHER/PCT AND POLYSULFONE/PCT

| L4 | 11 | POLYPROPYLENE/CNS AND POLYETHER/PCT AND POLYSULFONE/PCT |

=> D 6

L4 ANSWER 6 OF 11 REGISTRY COPYRIGHT 2009 ACS on STN
RN 865188-03-0 REGISTRY
ED Entered STN: 13 Oct 2005
CN 1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with \(-\alpha\).-hydro-.\(-\omega\).-hydroxyopoly{oxy(methyl-1,2-ethanediyl)}], 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane and 4,4'-sulfonylbis[benzenamine] (9CI) (CA INDEX NAME)

**OTHER NAMES:**

CN 4,4'-Diaminodiphenyl sulfone-isophorone diisocyanate-polypropylene glycol-trimethylolpropane copolymer

MF (C12 H18 N2 O2. C12 H12 N2 O2 S . C6 H14 O3 . (C3 H6 O)n H2 O)x

CI PMS

**PCT** Polyether, Polysulfone, Polyurea, Polyurea formed, Polyurethane, Polyurethane formed

**SR** CA

**LC** STN Files: CA, CAPLUS

CM 1

CRN 25322-69-4
CMF (C3 H6 O)n H2 O
CCI IDS, PMS

\[
\text{HO} - \left(\text{C}_3\text{H}_6\right) - \text{O} - \left(\text{C}_3\text{H}_6\right) - \text{H}
\]

CM 2

CRN 4098-71-9
CMF C12 H18 N2 O2

(Continued on next page)
PCT and CAS RN:

=> S 80-05-7/CRN AND POLYETHER FORMED/PCT AND POLYURETHANE/PCT
30727 80-05-7/CRN
87468 POLYETHER FORMED/PCT
83716 POLYURETHANE/PCT
L1 299 80-05-7/CRN AND POLYETHER FORMED/PCT AND POLYURETHANE/PCT

=> D SCAN

L1 299 ANSWERS REGISTRY COPYRIGHT 2009 ACS on STN
IN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 1,1'-methylenebis[4-isocyanatobenzene], methyloxirane and oxirane, block (9CI)
MF (C15 H16 O2 . C15 H10 N2 O2 . C3 H6 O . C2 H4 O)x
CI PMS
PCT as a subset for structure searching

PCT searches provide excellent answer sets for use in subset structure searches. For example, find polyureas containing fluorine where the polyurea is formed during the polymerization.

=> S POLYUREA FORMED/PCT
L1  20503 POLYUREA FORMED/PCT
L2  STRUCTURE UPLOADED

=> S L2 SUB=L1 FUL
FULL SUBSET SEARCH INITIATED 08:09:38
FULL SUBSET SCREEN SEARCH COMPLETED - 664 TO ITERATE
100.0% PROCESSED  664 ITERATIONS     68 ANSWERS
SEARCH TIME: 00.00.01
L3  68 SEA SUB=L1 SSS FUL L2

=> D

L3  ANSWER 1 OF 68  REGISTRY COPYRIGHT 2009 ACS on STN
RN  1133960-69-6  REGISTRY
ED  Entered STN: 13 Apr 2009
CN  Urea, N,N'-9H-fluorene-2,7-diylbis[N'-(3-aminopropyl)-, polymer with N,N'-bis(5-isocyanato-3-pyridinyl)urea (CA INDEX NAME)
MF  (C21 H28 N6 O2 . C13 H8 N6 O3)x
CI  PMS
PCT  Polyurea, Polyurea formed
SR  CA
LC  STN Files:  CA, CAPLUS

**RELATED POLYMERS AVAILABLE WITH POLYLINK**

<= CM

CRN  1133960-68-5
CMF  C21 H28 N6 O2

(Continued on next page)
CM 2
CRN 1133960-65-2
CMF C13 H8 N6 O3

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
Structure Searching

Structure searching for monomers in polymers is no different than other structure searching. To limit the search to polymers only, polymer screens (filters) may be added. This may be done with the SCREEN command online or using the structure drawing tools in STN Express® or STN® on the WebSM.

Polymer screens

The polymer screens are:

- 2043 Any polymer with a structure or a manual CAS RN
- 2067 Homopolymer or copolymer (non-SRU)
- 2068 Any SRU
- 2069 SRU with end groups
- 2070 SRU without end groups

Copolymer search strategy

The search strategy for structure searching for a copolymer is:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Draw a separate fragment for each monomer (probably not more than four).</td>
</tr>
</tbody>
</table>
| 2    | Use the SCREEN command for the polymer screen (non-SRU).  
|      | => SCR 2067 L1 |
| 3    | Upload each fragment into a REGISTRY session.  
|      | => Uploading ... L2 STRUCTURE/uploaded  
|      | => Uploading ... L3 STRUCTURE/uploaded ... |
| 4    | Run a SAMPLE SEARCH.  
|      | => S (L2 AND L3) AND L1 |
| 5    | Review answers. |
| 6    | Run FULL search.  
|      | => S L4 FUL  
|      | FULL SEARCH INITIATED 13:02:46  
|      | FULL SCREEN SEARCH COMPLETED - 144 TO ITERATE  
|      | 100.0% PROCESSED 144 ITERATIONS 34 ANSWERS  
|      | SEARCH TIME: 00.00.01  
<p>|      | L5 34 SEA SSS FUL (L1 AND L2) AND L3 |</p>
<table>
<thead>
<tr>
<th>7</th>
<th>Display answers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>=&gt;</td>
<td>d</td>
</tr>
</tbody>
</table>

**L5** ANSWER 1 OF 34 REGISTRY COPYRIGHT 2009 ACS on STN

**RN** 1146851-81-1 REGISTRY

**ED** Entered STN: 14 May 2009

**CN** INDEX NAME NOT YET ASSIGNED

**MF** 
(C18 H19 O5 P . C5 H8 O2 . C4 H6 O2 . (C3 H6 O)n C18 H26 O2)x

**CI** PMS

**PCT** Polyacrylic, Polyether

**SR** CA

**LC** STN Files: CA, CPPLUS

---

**CM** 2

**CRN** 24619-51-0

**CMF** C18 H19 O5 P

\[
\begin{align*}
\text{PhO} & - \text{O-CH}_2 - \text{CH}_2 - \text{O-} & \text{C} - \text{C} - \text{Me} \\
\text{C} & \text{H}_2 - \text{O} & \text{Me} - \text{C} - \text{O-Me}
\end{align*}
\]

**CM** 3

**CRN** 80-62-6

**CMF** C5 H8 O2

---
The search strategy for structure searching for a SRU without end groups is (SAMPLE search omitted):

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Draw the SRU.</td>
</tr>
<tr>
<td><img src="image1" alt="Diagram" /></td>
<td>The “Id” dummy nodes are necessary to show the SRU end points. This example is for an SRU without end groups.</td>
</tr>
<tr>
<td>2</td>
<td>Retrieve structure matches for the SRU without end groups (screen 2070).</td>
</tr>
<tr>
<td></td>
<td><strong>RELATED POLYMERS AVAILABLE WITH POLYLINK</strong></td>
</tr>
<tr>
<td><img src="image2" alt="Diagram" /></td>
<td><strong>RELATED POLYMERS AVAILABLE WITH POLYLINK</strong></td>
</tr>
</tbody>
</table>

1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
Use POLYLINK to retrieve related monomer-based polymer registrations.

=> POLYLINK  1007089-63-5

L8 2 POLYLINK 1007089-63-5

=> D 2

L8 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2009 ACS on STN
RN 1007089-62-4 REGISTRY
ED Entered STN: 07 Mar 2008
CN 1,6-Hexanediol, 2,2,3,3,4,4,5,5-octafluoro-, polymer with 2,5-bis(2,3,4,5,6-pentafluorophenyl)-1,3,4-oxadiazole (CA INDEX NAME)
MF (C14 F10 N2 O . C6 H6 F8 O2)x
CI PMS
FCT Polyether, Polyether formed
SR CA
LC STN Files: CA, CAPLUS

**RELATED POLYMERS AVAILABLE WITH POLYLINK**

CM 1

CRN 16184-59-1
CMF C14 F10 N2 O

CM 2

CRN 355-74-8
CMF C6 H6 F8 O2

HO—CH2—(CF2)4—CH2—OH

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)
The search strategy for structure searching for a SRU with end groups is (SAMPLE search omitted):

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Draw the SRU with the end groups attached.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Diagram of SRU with end groups" /></td>
</tr>
<tr>
<td></td>
<td>STN will identify the “O-CH2-CH2” repeating group.</td>
</tr>
<tr>
<td>2</td>
<td>Retrieve the matches for the SRU with the specified end groups using the query and screen 2069.</td>
</tr>
<tr>
<td></td>
<td>[=&gt; \text{ SCR 2069} ]</td>
</tr>
<tr>
<td></td>
<td>L1 SCREEN CREATED</td>
</tr>
<tr>
<td></td>
<td>L2 STRUCTURE UPLOADED</td>
</tr>
<tr>
<td></td>
<td>[=&gt; \text{ S L2 AND L1 FULL} ]</td>
</tr>
<tr>
<td></td>
<td>FULL SEARCH INITIATED 08:23:57</td>
</tr>
<tr>
<td></td>
<td>FULL SCREEN SEARCH COMPLETED – 23371 TO ITERATE</td>
</tr>
<tr>
<td></td>
<td>100.0% PROCESSED 23371 ITERATIONS 4777 ANSWERS</td>
</tr>
<tr>
<td></td>
<td>SEARCH TIME: 00.00.01</td>
</tr>
<tr>
<td></td>
<td>L3 4777 SEA SSS FUL L2 AND L1</td>
</tr>
<tr>
<td>3</td>
<td>Display answers.</td>
</tr>
<tr>
<td></td>
<td>RN 26915-72-0 REGISTRY</td>
</tr>
<tr>
<td></td>
<td>ED Entered STN: 16 Nov 1984</td>
</tr>
<tr>
<td></td>
<td>CN Poly(oxy-1,2-ethanediyl), .alpha.- (2-methyl-1-oxo-2-propen-1-yl)-.omega.-methoxy- (CA INDEX NAME)</td>
</tr>
<tr>
<td></td>
<td>OTHER CA INDEX NAMES:</td>
</tr>
<tr>
<td></td>
<td>CN Glycols, polyethylene, monomethacrylate, methyl ether (8CI)</td>
</tr>
<tr>
<td></td>
<td>CN Methacrylic acid, ester with polyethylene glycol methyl ether (8CI)</td>
</tr>
<tr>
<td></td>
<td>OTHER NAMES:</td>
</tr>
<tr>
<td></td>
<td>CN Bisomer 350</td>
</tr>
<tr>
<td></td>
<td>CN Bisomer MPEG 1000MA</td>
</tr>
<tr>
<td></td>
<td>CN Bisomer MPEG 350MA</td>
</tr>
<tr>
<td></td>
<td>CN Bisomer MPEG 550MA</td>
</tr>
<tr>
<td></td>
<td>CN Bisomer S 10W</td>
</tr>
<tr>
<td></td>
<td>CN Bisomer S 20W</td>
</tr>
<tr>
<td></td>
<td>CN Bisomer S 7W</td>
</tr>
<tr>
<td></td>
<td>CN Blemmer PME 1000</td>
</tr>
<tr>
<td></td>
<td>CN Blemmer PME 150</td>
</tr>
<tr>
<td></td>
<td>CN Blemmer PME 200</td>
</tr>
<tr>
<td>CN</td>
<td>Blemmer PME 400</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>CN</td>
<td>Blemmer PME 4000</td>
</tr>
<tr>
<td>CN</td>
<td>Blemmer PME 450</td>
</tr>
<tr>
<td>CN</td>
<td>Blemmer PME 550</td>
</tr>
<tr>
<td>...</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>NK Ester M 230G</td>
</tr>
</tbody>
</table>

ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY

| MF     | (C2H4O)nC5H8O2                          |
| CI     | PMS, COM                                |
| PCT    | Polyether                               |
| LC     | STN Files: AGRICOLA, BIOSIS, CA, CAPLUS, CASREACT, CHEMCATS, CHEMLIST, CSHEM, IFICDB, IFIPAT, IFIUDB, TOXCENTER, USPAT2, USPATFULL, USPATOLD |
| Other Sources: NDSL**, TSCA**             |
|       | (**Enter CHEMLIST File for up-to-date regulatory information) |

**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

823 REFERENCES IN FILE CA (1907 TO DATE)
275 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
826 REFERENCES IN FILE CAPLUS (1907 TO DATE)
Chapter 4

Using Polymer Subject Indexing Terms

Introduction

Polymers are indexed in CAplus as CAS Registry Numbers and by using Controlled vocabulary (/CT) index entries for specific polymers or for polymer classes.

Chapter 3 discussed search strategies for finding CAS RNs in REGISTRY that you can then crossover as an L-number to CAplus.

This chapter focuses on using polymer subject indexing terms in CAplus.

Finding Controlled Terms (CTs)

Policies for the assignment of Controlled Vocabulary (CT) indexing terms can change over time. The CA Lexicon in the /CT field of CA/CAplus can alert you to present and past indexing policies.

Use the EXPAND command in the usual way as well as with the CA Lexicon thesaurus in the /CT field. Enter HELP LEXICON in at an arrow prompt (=>) in CAplus for further details.

=> E RUBBER, BUTADIENE-STYRENE/CT

<table>
<thead>
<tr>
<th>E#</th>
<th>FREQUENCY</th>
<th>AT</th>
<th>TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>--</td>
<td>---------</td>
<td>--</td>
<td>----</td>
</tr>
<tr>
<td>●●●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E3</td>
<td>107</td>
<td>2</td>
<td>---&gt; RUBBER, BUTADIENE-STYRENE/CT</td>
</tr>
<tr>
<td>E4</td>
<td>0</td>
<td>2</td>
<td>RUBBER, BUTADIENE-STYRENE (L) (ANILINOPHENYL)METHACRYL AMIDE- AND (PHENYLTHIOETHYL)VINYLBENZENE-GRAFTED/CT</td>
</tr>
<tr>
<td>E5</td>
<td>0</td>
<td>2</td>
<td>RUBBER, BUTADIENE-STYRENE (L) ACRYLIC-GRAFTED/CT</td>
</tr>
<tr>
<td>E6</td>
<td>0</td>
<td>2</td>
<td>RUBBER, BUTADIENE-STYRENE (L) AMINE-TERMINATED/CT</td>
</tr>
<tr>
<td>E7</td>
<td>0</td>
<td>2</td>
<td>RUBBER, BUTADIENE-STYRENE (L) BLOCK/CT</td>
</tr>
<tr>
<td>●●●</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The presence of the “AT” column indicates that the terms are in the CA Lexicon. The number of terms connected with the (L) operator should prompt us to search the /CT using truncation.

(continued on next page)

---

3 When searching using the CA Lexicon, it is recommended that the searches be done in the HCAPLUS database, which does not use search term pricing. In CAplus OR ZCAplus, Lexicon searches may become quite costly.
The CA Lexicon shows current and past indexing practice.

We can search on the current term and use the thesaurus to bring in other related terms in the search as well.

Combine the two searches for the total result.
Additional answers may be found using the CAS RN for the known butadiene-styrene copolymer or its non-specific derivatives.

=> S 9003-55-8 (L)RUBBER
REGistry INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L6  49911 L5
L7  37152 L6 (L)RUBBER

=> S L7 NOT L4
L8  574 L7 NOT L4

=> D HIT

L8  ANSWER 1 OF 574 CAPLUS COPYRIGHT 2009 ACS on STN
IT  9003-55-8D, Butadiene-styrene copolymer, acrylic modified
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(rubber; bottles having coatings contg. Interference pigments with unique and high-quality appearance)

Further answers may be obtained by considering specific derivatives of the butadiene-styrene copolymer.

=> FIL REG

=> S (BUTADIENE STYRENE COPOLYMER) AND 2/NC
L9  31 (BUTADIENE STYRENE COPOLYMER) AND 2/NC

=> FIL HCAPLUS

=> S L9(L)RUBBER
L10  47091 L8(L)RUBBER

=> S L10 NOT (L4 OR L7)
L11  661 L10 NOT (L4 OR L7)
Polymer class
index terms

Many index terms for polymer classes may be used in the /CT field.

IT   Polyureas
Polyurethanes  
RL: IMF (Industrial manufacture); POF (Polymer in
formulation); PREP (Preparation); USES (Uses)  
(manuf. of polyurea- or polyurethane-alumina
nanocomposites)

Searching for
rubbers

Elastomers or rubbers are characterized by their ability to stretch or contract rapidly. Elastomers are obtained from natural sources and by synthetic means. A Controlled Term entry is made for the rubber regardless whether a CAS RN is also used.

Indexing for
rubbers

Rubber indexing policy:

E6 188181  -->  Rubber/CT  
HNTE Valid heading during volume 1 (1907) to present.  
NOTE Studies on elastomers or rubber of
unknown origin are indexed here. Studies on
elastomers or rubber of natural origin are
indexed at Natural rubber or its narrower
terms. Studies on elastomers or rubber of
synthetic origin are indexed at Synthetic
rubber or its narrower terms.

E7      6     OLD  Elastomers/CT
Rubber in the CA Lexicon

A search of “rubber” using the CA Lexicon terms retrieves many hits in CAplus.

=> S RUBBER+NT/CT
L1 282106 RUBBER+NT/CT (32 TERMS)

=> D HIT 1000
L1 ANSWER 1000 OF 282106 HCAPLUS COPYRIGHT 2006 ACS on STN IT Silicone rubber, uses
RL: DEV (Device component use); USES (Uses)
(XE 15 751, elastic layer; heating device using flexible film with elastic layer and releasing layer for electrophotog. app.)

Searching RUBBER/CW yields additional rubber retrievals, but not everything the CA Lexicon terms found.

=> S RUBBER/CW
L2 285279 RUBBER/CW

=> S L2 NOT L1
L3 8876 L2 NOT L1

=> D HIT 2000
L3 ANSWER 2000 OF 8876 HCAPLUS COPYRIGHT 2006 ACS on STN IT Rubber, substitute and synthetic
(from cyclopentadiene, 2,5-dimethyl-1,5-hexadiene, isoprene and 2-methyl-1-butene, O3-resistant rapid-curing)

The term “rubbers” also appears in the controlled indexing.

=> S RUBBERS/CW
L4 87880 RUBBERS/CW

=> D 3000 HIT
L4 ANSWER 3000 OF 87880 HCAPLUS COPYRIGHT 2006 ACS on STN IT Extrusion apparatus for plastics and rubbers
(sizing core; sizing cores blowing cooling air for plastic pipe extrusion with smooth inner walls)
IT Extrusion of plastics and rubbers
Pipes and Tubes
(sizing cores blowing cooling air for plastic pipe extrusion with smooth inner walls)
Generic searches for rubbers may be approached in several ways as the following examples illustrate.

Search the Basic Index (with plurals set on):

=> S RUBBER
    350607 RUBBER
    145635 RUBBERS
L1    424822 RUBBER
     (RUBBER OR RUBBERS)

The Controlled Words or the Lexicon provide more controlled results (index heading words only):

=> S RUBBER?/CW
L2    361203 RUBBER/CW

=> S RUBBER+PFT,NT/CT
L3    278856 RUBBER+PFT,NT/CT  (48 TERMS)

The Controlled Term index entry itself still provides a large number of answers ranging in time from 1907 to the present.

=> S RUBBER/CT
L4    187652 RUBBER/CT  (1 TERM)

Many of the common uses and applications of rubbers are indexed at the use. Often a separate index entry is made for the rubber.

IT Gloves
    (manufg. method for injection molded rubber gloves
     with low cost and improved phys. property)
IT Natural rubber
    Synthetic rubber
    RL: PEP (Physical, engineering or chemical process); PYP
    (Physical process); TEM (Technical or engineered material
    use); PROC (Process); USES (Uses)
    (manufg. method for injection molded rubber gloves
     with low cost and improved phys. property)

In other cases, no rubber term is indexed.

IT Tires
    (treads, isoprene rubber compns. for, for low heat
     buildup and roll resistance and high skid resistance)
Chapter 5
Polymer Searching in non-CAS Databases

Introduction
Almost every STN database includes some polymer information. More than 20 databases have over 100,000 hits on the term POLYMER? in the Basic Index. In addition to standard search techniques, STN provides some special features to facilitate polymer searching:

- POLYMERS database cluster
- INDEX command
- CAS RN crossover
- SELECT NAME and ANALYZE NAME

POLYMERS database cluster
The polymer science database cluster consists of:

```bash
=> D CLU POLYMERS
CLUSTER NAME  CLUSTER DEFINITION
----------------- --------------------------------------------
POLYMERS        APOLLIT BABS CAPLUS CBNB CIN COMPENDEX
                DISSABS EMA IFIPAT NTIS PASCAL PROMT
                RAPRA SCISEARCH TEXTILETECH USPATFULL
                USPATOLD USPAT2 WPIDS WPIFV WPINDEX WSCA
                WTEXTILES
Polymer Science Cluster
```

You may use the cluster with the FILE command or with STNINDEX.

SET CLUSTER
Users may create customized polymer database clusters using the SET CLUSTER command. Enter SET CLUSTER at an arrow prompt (=>) followed by the name of the cluster you want to create. Cluster names must:

1. Begin with a period (.)
2. Have 2-16 characters
3. Contain only letters A-Z, numbers (0-9), and periods (.)

You will be prompted to define the cluster. Enter one or more valid database names, user-defined clusters, system-defined clusters, or combinations of these. Separate the names with a space or a comma. The defined cluster is then saved permanently on your login ID.

```bash
=> SET CLUSTER
ENTER CLUSTER NAME OR (?): .MYCLUSTER
ENTER LIST OF FILE NAMES OR (?): CAPLUS BIOSIS
MORE FILES, (NONE), OR ?:.
CLUSTER '.MYCLUSTER' DEFINED AS 'CAPLUS, BIOSIS'
SET COMMAND COMPLETED
```
INDEX

The INDEX command may be used with the POLYMERS cluster or other clusters or databases to create a multifile search environment for the purpose of trying out possible search strategies.

=> INDEX POLYMERS
INDEX 'APOLLIT, BABS, CAPLUS, CBNB, CIN, COMPENDEX, DISSABS, EMA, IFIPAT, NTIS, PASCAL, PROMT, RAPRA, SCISEARCH, TEXTILETECH, USPATFULL, USPATOLD, USPAT2, WPIDS, WPIFV, WPINDEX, WSCA, WTTEXTILES'
22 FILES IN THE FILE LIST IN STNINDEX

=> S POLYURETHANE?
   ● ● ●
L2 QUE POLYURETHANE?

=> D RANK
F1 227289 USPATFULL
F2 179086 CAPLUS
F3 152321 WPIDS
F4 152321 WPINDEX
F5  69717  IFIPAT
   ● ● ●

=> FIL F1 F2 F4:S L2
FILES 'USPATFULL, CAPLUS, WPINDEX' ENTERED AT ...
ALL COPYRIGHTS AND RESTRICTIONS APPLY. SEE HELP USAGETERMS FOR DETAILS.

3 FILES IN THE FILE LIST
L3 227189 FILE USPATFULL
L4 179086 FILE CAPLUS
L5 152321 FILE WPINDEX
TOTAL FOR ALL FILES
L6 558596 L2

=> D HIT 1 FROM EACH
L6 ANSWER 1 OF 516000 USPATFULL on STN
SUMM U.S. Pat. No. 4,623,579 (Quon, Nov. 18, 1986), incorporated herein by reference, discloses a decorative composite article, which may be longitudinally slit to form a yarn product, which has a combined phosphorescent and fluorescent decorative appearance. The composite article includes paired outer layers of a thermoplastic resin between which is disposed a decorative layer comprising a composition including a colorant component having a phosphorescent colorant and a fluorescent colorant, and a resin binder material. The fluorescent colorant is present in an amount by weight that is up to an amount equal to that of the phosphorescent colorant. The present binder material may be selected from polyester, polyurethane and acrylic polymers and copolymers, with a mixture of butadiene-acrylonitrile rubber and polyurethane composition being preferred.

(Continued on the next page)
The composite article is prepared by coating two resin films with the composition, followed by contacting the films with each other on their coated surfaces and applying heat and pressure to bond them together to form the decorative composite article.

This paper presents a method for sepg. viscothermal and scattering losses in ultrasonic characterization of porous media. This method is based on variations of the static pressure of the satg. fluid. Exptl. Results were already presented in previous papers and the losses sepn. was verified exptl. The aim of this paper is to present an analytic justification of this losses sepn. in the case of this exptl. method and to show that it is possible to est. acoustic parameters without the knowledge of scattering characteristics. The std. scattering length is used to renormalize speed and transmission through the porous medium, described as an equiv. fluid. Under certain assumptions corresponding to a weak scattering regime, it is shown how viscothermal and scattering losses can be sepd. easily without knowing scattering characteristics. Application of this model is presented in the case of weak scattering in a polyurethane foam and in the limit case of stronger scattering in a glass beads sample.

Fitness egg for performing finger exercises, is elliptical sphere filled with smooth, light density polyurethane rubber foam

The major polymer databases in addition to CA/CAplus that have CAS RN are:

- CBNB, CIN, PROMT
- IFIPAT, IFICDB, IFIUDB
- USPATFULL, USPAT2
CAS RN crossover

Follow these steps for crossover of CAS RNs from REGISTRY to another database:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create an answer set in REGISTRY.</td>
</tr>
</tbody>
</table>
| 2    | Limit answer set to relevant CAS RNs.  

=> S POLYAMIDE/PCT RAN=870967-04-7,  
L1 2511 POLYAMIDE/PCT |
| 3    | Enter target database(s).  

=> FIL USPATALL  
FILES 'USPATFULL, USPAT2' ENTERED AT ...  
ALL COPYRIGHTS AND RESTRICTIONS APPLY. SEE HELP  
USAGETERMS FOR DETAILS.  
2 FILES IN THE FILE LIST |
| 4    | Search the REGISTRY L-number.  

=> S L1 AND 2009/PY  
TOTAL FOR ALL FILES  
L4 101 L1 AND 2009/PY |

Note: Verify crossover fees prior to using CAS RN crossover.

SELECT NAME

Searching for polymers in databases that do not contain CAS RN requires the use of polymer names. The SELECT NAME feature allows you to extract polymer names from a polymer search in REGISTRY and use them as search terms in other databases.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Create a polymer answer set in REGISTRY.  

=> S ACRYLONITRILE (L) CHLOROETHYLENE AND PMS/CI AND  
2/NC AND 1/CL  
L1 3 ACRYLONITRILE (L) CHLOROETHYLENE AND PMS/CI  
AND 2/NC AND 1/CL  

=> D IN 1-3  
L1 ANSWER 1 OF 3 REGISTRY COPYRIGHT 2009 ACS on  
STN  
IN 2-Propenenitrile, polymer with 1-bromo-1- 
chloroethene (9CI)  

(Continued on the next page)
2 Use SELECT NAME to create an E-number list.

=> SEL NAME L1 3
E1 THROUGH E19 ASSIGNED

3 Use DISPLAY SEL to see the extracted names and E-numbers.

=> D SEL
E1 1 ACROPOR AN 200/BI
E2 1 ACROPOR AN 450/BI
E3 1 ACROPOR AN/BI
E4 1 ACROPOR ANH/BI
E5 1 ACROPOR WA/BI
E6 1 ACROPOR/BI
E7 1 ACROPOR/BI
E8 1 ACRYLONITRILE-VINYL CHLORIDE COPOLYMER/BI
E9 1 ACRYLONITRILE-VINYL CHLORIDE POLYMER/BI
E10 1 AMICON XM 300/BI
E11 1 DIAFLO XM 300/BI
E12 1 DYNEL NYGL/BI
E13 1 DYNEL/BI
E14 1 KANEKALON/BI
E15 1 METRICEL DM 450/BI
E16 1 PM 6545/BI
E17 1 SKHN 6/BI
E18 1 VINYL CHLORIDE-ACRYLONITRILE COPOLYMER/BI
E19 1 VINYON N/BI

4 Enter the target database(s).

=> FIL APOLLIT COMPENDEX INPADOCDB INSPEC NTIS RAPRA SCISEARCH WPINDEX WTEXTILES
FILES 'APOLLIT, COMPENDEX, INPADOCDB, INSPEC, NTIS, RAPRA, SCISEARCH, WPINDEX, WTEXTILES' ENTERED AT ...
ALL COPYRIGHTS AND RESTRICTIONS APPLY. SEE HELP USAGETERMS FOR DETAILS.
9 FILES IN THE FILE LIST

5 Search the E-numbers.

=> S E1-E19
L3 46 FILE APOLLIT
L4 14 FILE COMPENDEX
L5 16 FILE INPADOC
L6 6 FILE INSPEC
L7 10 FILE NTIS
L8 28 FILE RAPRA
L9 7 FILE SCISEARCH

(Continued on the next page)
ANALYZE NAME

ANALYZE NAME works similarly to SELECT NAME (above), but creates an L-number with the extracted terms instead of an E-number table.

=> S ACRYLONITRILE (L) CHLOROETHYLENE AND PMS/C1 AND 2/NC AND 1/CL
L1 3 ACRYLONITRILE (L) CHLOROETHYLENE AND PMS/C1 AND 2/NC AND 1/CL

=> D IN 1-3
L1 ANSWER 1 OF 3 REGISTRY COPYRIGHT 2006 ACS on STN
IN 2-Propenenitrile, polymer with 1-bromo-1-chloroethene (9CI)
L1 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2006 ACS on STN
IN 2-Propenenitrile, 2-methyl-, polymer with chloroethene (9CI)
L1 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2006 ACS on STN
IN 2-Propenenitrile, polymer with chloroethene (9CI)

=> ANALYZE NAME L1 3
L2 ANALYZE L1 3 NAME : 19 TERMS

=> D L2
★ ★ ★

=> FIL POLYMERS -CASRNS -WPIDS
FILES 'APOLLIT, BABS, COMPENDEX, DISSABS, EMA, NTIS, PASCAL, RAPRA, SCISEARCH, TEXTILETECH, WPIFV, WPINDEX, WSCA, WTEXTILES' ENTERED AT ...
14 FILES IN THE FILE LIST

=> S L2/BI
TOTAL FOR ALL FILES
L3 362 L2/BI
In North America

CAS
CAS North America
P.O. Box 3012
Columbus, Ohio 43210-0012 U.S.A.

CAS Customer Care:
Phone: 800-753-4227 (North America)
       614-447-3700 (worldwide)
Fax:   614-447-3751
E-mail: help@cas.org
Internet: www.cas.org

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E-mail: helpdesk@fiz-karlsruhe.de
Internet: www.stn-international.de

In Japan

JAICI (Japan Association for International Chemical Information)
STN Japan
Nakai Building
6-25-4 Honkomagome, Bunkyo-ku
Tokyo 113-0012, Japan
Phone: +81-3-5978-3601 (Technical Service)
       +81-3-5978-3621 (Customer Service)
Fax:   +81-3-5978-3600
Email: support@jaici.or.jp (Technical Service)
       customer@jaici.or.jp (Customer Service)
Internet: www.jaici.or.jp