

STN[®]

Polymer Information on STN[®]

A Quick Reference Guide

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Preface

This quick reference guide, Polymer Information on STN[®], provides an overview of most STN databases containing polymer information and shows annotated search examples in some databases. The examples highlight basic search techniques for obtaining chemical and chemical engineering information, patents, property data, regulatory information and business news. Search examples do not illustrate all of the options or databases on STN with polymer information.

Please contact your local STN Service Center for suggestions and help with specific search questions.

STN databases with polymer information

| Information | Databases |
|---|---|
| Polymer substance information | REGISTRY |
| Chemistry, chemical engineering, and materials research | APOLLIT, CA, CAPLUS, CEABA-VTB, COMPENDEX, INSPEC, METADEX, PIRA, PQSCITECH, RAPRA, TRIBO, WSCA |
| Patents | AUPATFULL, CA, CANPATFULL, CAPLUS, ENCOMPAT, EPFULL, FRANCEPAT, FRFULL, IFICDB, IFIPAT, IFIUDB, IFICDB, INPADOCDB, JAPIO, JPFULL, PATDD, PATDPA, PATDPAFULL, PCTFULL, RAPRA, RDISCLOSURE, USPAT2, USPATFULL, WPINDEX, WPIDS, WPIX |
| Business and news | CBNB, CIN |
| Regulatory information | CHEMLIST |
| Property data | APOLLIT, PQSCITECH, REAXYSFILE, REGISTRY |
| Biological, medical, and pharmaceutical research and applications | BIOSIS, BIOTECHABS, CABA, CAPLUS, CEABA-VTB, DDFB, DDFU, DRUGB, EMBAL, EMBASE, FSTA, IMSRESEARCH, IPA, MEDLINE, TOXCENTER, USAN |
| Chemical reactions | CASREACT, CHEMINFORMRX |
| Multidisciplinary technical databases | DISSABS, NTIS, PASCAL, SCISEARCH |

Overview of searching in CAS REGISTRY

In CAS REGISTRYSM you can search substance information for polymers and obtain the CAS Registry Number[®]. The L-number answer set from REGISTRY can be searched in any of the STN databases containing CAS Registry Numbers.

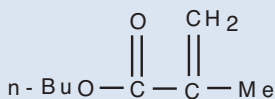
The primary representation of polymers in REGISTRY is based on the monomers making up the polymer. A monomer is anything that is incorporated in the polymeric backbone, including crosslinking agents.

Sample record

RN 29035-74-3 REGISTRY
CN 2-Propenoic acid, 2-methyl-, butyl ester, polymer with butyl 2-propenoate (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 2-Propenoic acid, butyl ester, polymer with butyl 2-methyl-2-propenoate (9CI)
CN Acrylic acid butyl ester, polymer with butyl methacrylate (8CI)
CN Acrylic acid, butyl ester, polymer with butyl methacrylate
CN Methacrylic acid, butyl ester, polymer with butyl acrylate (8CI)
OTHER NAMES:
CN Bioflex
CN Butyl acrylate-butyl methacrylate copolymer
CN Butyl acrylate-butyl methacrylate polymer
CN Butyl methacrylate-butyl acrylate copolymer
CN Elitan 40
CN N 560
MF (C8 H14 O2 . C7 H12 O2)x
CI PMS, COM
PCT Polyacrylic
LC STN Files: BIOSIS, CA, CAPLUS, CHEMLIST, CIN, IFICDB, IFIPAT, IFIUDB, PIRA, PROMT, TOXCENTER, USPATFULL

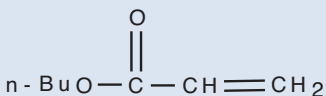
CM 1

CRN 141-32-2
CMF C7 H12 O2



CM 2

CRN 97-88-1
CMF C8 H14 O2



131 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
131 REFERENCES IN FILE CAPLUS (1907 TO DATE)

Each record is identified by a CAS Registry Number.

The Chemical Name (CN) field contains systematic, common, and trade names.

The primary structural representation of a copolymer consists of the monomers from which the copolymer was prepared.

REGISTRY search options

| Search Terms | Field Code | Example |
|---------------------------------------|------------------|---|
| CAS Registry Number for the polymer | /RN (or none) | S 29035-74-3/RN |
| CAS Registry Numbers for the monomers | /CRN | S 141-32-2/CRN AND 97-88-1/CRN |
| Chemical name | /CN | S BIOFLEX/CN S 2-PROPENOIC ACID, 2-METHYL-, BUTYL ESTER?/CN |
| Chemical name fragments | /BI (or none) | S 2 PROPENOIC ACID AND 2-METHYL |
| Molecular formula for the monomer | /BI (or none) | S C8H14O2 AND C7H12O2 |
| Complete molecular formula | /MF | S "(C8H14O2.C7H12O2)X"/MF |
| Class identifier | /CI | S PMS/CI |
| Polymer class term | /PCT | S POLYACRYLIC/PCT |
| Locator for the CAS Registry Number | /LC | S PROMT/LC |
| Structure | | S L1 (L1 is a structure built online with the STRUCTURE command or uploaded from STN Express® or STN® on the Web SM) |

The POLYLINK command is used to locate related REGISTRY records for condensation polymers that may be registered using either their monomers or structural repeating units (SRU).

=> **FILE ZREGISTRY**

=> **S NYLON 6/CN**

L1 1 NYLON 6/CN

=> **POLYLINK L1**

L2 25 POLYLINK L1

L2 contains the CAS Registry Number from L1, plus 24 additional monomer-based CAS Registry Numbers for Nylon 6.

Overview of searching in CAPLUS

CAPLUSSM includes indexed documents as well as the most recent references in the process of being indexed. Records include bibliographic information, abstracts and indexing. Indexing includes supplementary terms (keywords), index entries consisting of CAS Registry Numbers for specific polymers, subject headings, roles for specific polymers and polymer class headings, and text phrases.

Sample record

AN 1995:610528 CAPLUS Full-text
DN 123:11251
ED Entered STN: 15 Jun 1995
TI Manufacture of printed circuit boards with moisture-resistant and dielectric treatments
IN Obara, Masakatsu; Oomori, Eiji
PA Hitachi Chemical Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H05K003-28
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---------------|------|----------|-----------------|----------|
| | ----- | ---- | ----- | ----- | ----- |
| PI | JP 06268357 | A2 | 19940922 | JP 1993-51983 | 19930312 |
| PRAI | JP 1993-51983 | | 19930312 | | |

AB The title process consists of applying alkyl (meth)acrylate (co)polymer with glass transition temp. 0-80° (e.g., Bu acrylate-Bu methacrylate copolymer), drying or hardening, applying polyurethane comps. (e.g., blend of Millionate MTL and Polybd R 45HT), and curing.

ST moisture resistance printed circuit board; dielec printed circuit board; alkyl acrylate copolymer coated printed circuit; polyurethane coated printed circuit board

IT Electric insulators and Dielectrics
Water-resistant materials
(manuf. of printed circuit boards with moisture-resistant and dielec. treatments)

IT Urethane polymers, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(manuf. of printed circuit boards with moisture-resistant and dielec. treatments)

IT Rubber, butadiene, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(hydroxy-terminated, polymer with MDI; manuf. of printed circuit boards with moisture-resistant and dielec. treatments)

Indexing includes polymer class headings (e.g., Urethane), polymers, roles (e.g., PRP (Properties)) and text phrases.

- IT Electric circuits
(printed, boards, manuf. of printed circuit boards with moisture-resistant and dielec. treatments)
- IT 29035-74-3, Butyl acrylate-butyl methacrylate copolymer 61089-52-9D, Millionate MTL, polymer with polyols
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (manuf. of printed circuit boards with moisture-resistant and dielec. treatments)
- IT 9003-17-2
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (rubber, hydroxy-terminated, polymer with MDI; manuf. of printed circuit boards with moisture-resistant and dielec. treatments)

CAS Registry Numbers are used for indexing of specific polymers. Roles (e.g., USES) are also assigned.

CAplus search options

In addition to bibliographic information, you can use the following types of terms in your polymer searches in CAplus.

| Search Terms | Field Code | Example |
|---|------------------|---|
| CAS Registry Numbers for specific polymers | /BI (or none) | S 29035-74-3 |
| CAS Registry Numbers with roles | /BI, /RL | S 29035-74-3/USES,PRP S 29035-74-3 (L) (USES OR PRP)/RL |
| Index headings | /CT | S URETHANE POLYMERS/CT |
| Index headings for classes of polymers with roles | /CT, /RL | S URETHANE POLYMERS/CT (L) USES/RL |
| Words in the Basic Index | /BI (or none) | S ?ACRYLATE? (S) ?POLYMER? S CIRCUIT BOARD# AND POLYMER# |

In addition, L-number answer sets from REGISTRY may be searched in CAplus (see examples on pages 10, 15, 17, and 18).

Searching polymer chemical names in REGISTRY

When you have a name for a specific substance, search it in REGISTRY to obtain its CAS Registry Number and other names, if available. Each substance is identified by the CA index name. In addition, other chemical names and trade names from the chemical literature may be included. All substance names are searched in the Chemical Name (/CN) field.

Use CApus to access references indexed with the CAS Registry Number for the substance, as well as the most recent references that have not yet been indexed.

Find recent references to the biosynthetic preparation of poly(3-hydroxybutyrate)

=> FILE REGISTRY

=> E POLY(3-HYDROXYBUTYRATE)/CN 6

| | | |
|----|---|--|
| E1 | 1 | POLY(3-HYDROXYALKANOIC ACID) SYNTHASE 2 (PSEUDOMONAS AERUGIN OSA STRAIN PAO1 GENE PHAC2)/CN |
| E2 | 1 | POLY(3-HYDROXYBUTYL VINYL ETHER)/CN |
| E3 | 1 | --> POLY(3-HYDROXYBUTYRATE)/CN |
| E4 | 1 | POLY(3-HYDROXYBUTYRATE) DEPOLYMERASE/ CN |
| E5 | 1 | POLY(3-HYDROXYBUTYRATE) DEPOLYMERASE (ALCALIGENES FAECALIS STRAIN AE122 CLONE PPD181/PPD3107 GENE PHAZ PRECURSOR)/CN |
| E6 | 1 | POLY(3-HYDROXYBUTYRATE), SRU/CN |

=> S E3

L1 1 "POLY(3-HYDROXYBUTYRATE)"/CN

Enter REGISTRY.

EXPAND on the name in the /CN field. Include punctuation, as needed.

Search the E-number from the EXPAND list.

=> D

Display the REGISTRY record to verify substance information.

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN

RN 26063-00-3 REGISTRY

CN Butanoic acid, 3-hydroxy-, homopolymer (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Butyric acid, 3-hydroxy-, polyesters (8CI)

OTHER NAMES:

CN (\pm)-3-Hydroxybutanoic acid homopolymer

CN b-Hydroxybutanoic acid homopolymer

CN b-Hydroxybutyric acid homopolymer

CN b-Hydroxybutyric acid polymer

CN 3-Hydroxybutyric acid homopolymer

CN 3-Hydroxybutyric acid polymer

CN Biopol GO 4

CN Poly(b-hydroxybutyric acid)

CN Poly(3-hydroxybutyrate)

CN Poly(3-hydroxybutyric acid)

CN Poly(DL-b-hydroxybutyric acid)

CN Poly(hydroxybutyrate)

CN Poly-b-hydroxybutyrate

DR 61728-68-5

MF (C4 H8 O3)x

CI PMS, COM

PCT Polyester, Polyester formed

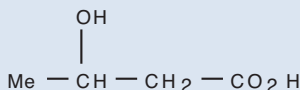
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOSIS, BIOTECHNO, CA, CABA, CAPLUS, CHEMCATS, CIN, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MSDS-OHS, NAPRALERT, PIRA, TOXCENTER, USPAT2, USPATFULL

RELATED POLYMERS AVAILABLE WITH POLYLINK

CM 1

CRN 300-85-6

CMF C4 H8 O3



2574 REFERENCES IN FILE CA (1907 TO DATE)

36 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

2579 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> **POLYLINK**
ENTER (L1), L# OR ? :L1

L2 7 POLYLINK L1

=> **D IN 1-7**

L2 ANSWER 1 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
IN Oxirane, methyl-, polymer with carbon monoxide, alternating
(9CI)

L2 ANSWER 2 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
IN Butanoic acid, 3-hydroxy-, phenyl ester, homopolymer (9CI)

L2 ANSWER 3 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
IN Butanoic acid, 3-hydroxy-, methyl ester, homopolymer (9CI)

L2 ANSWER 4 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
IN Butanoic acid, 3-hydroxy-, ethyl ester, homopolymer (9CI)

L2 ANSWER 5 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
IN 2-Oxetanone, 4-methyl-, homopolymer (9CI)

L2 ANSWER 6 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
IN Poly[oxy(1-methyl-3-oxo-1,3-propanediyl)] (9CI)

L2 ANSWER 7 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
IN Butanoic acid, 3-hydroxy-, homopolymer (9CI)

=> **FILE CAPLUS**

=> **S (L2/BPN OR L2/BMF) AND PY>2000**

L3 135 (L2/BPN OR L2/BMF) AND PY>2000

=> **D 1-2 TI HITRN**

L3 ANSWER 1 OF 135 CAPLUS COPYRIGHT 2004 ACS on STN
TI Biodegradable polymer manufacture with recombinant self-lysis
microorganism

IT **26063-00-3P**, Polyhydroxybutyrate 26744-04-7P
RL: **BPN (Biosynthetic preparation)**; BIOL (Biological study);
PREP (Preparation)
(biodegradable polymer manuf. with recombinant self-lysis
microorganism)

L3 ANSWER 2 OF 135 CAPLUS COPYRIGHT 2004 ACS on STN
TI Production of polyhydroxyalkanoates from food wastes using a
two stage fermentation process

IT **26063-00-3P**, Poly(3-hydroxybutyrate)
RL: **BMF (Bioindustrial manufacture)**; BIOL (Biological
study);
PREP (Preparation)
(prodn. of polyhydroxyalkanoates from food wastes using two
stage fermn. process)

Use POLYLINK to find additional
CAS Registry Numbers for the
polymer.

Additional answers include
monomer-based registrations
(e.g., answer 7) and structure
repeating unit (SRU)-based
registrations (e.g., answer 6).

Enter CAPLUS.

Search the REGISTRY L-number
(L2) to find all references indexed
with the CAS Registry Number
for the substance. Append L2
with a slash and a role code for
a precise search on biosynthetic
preparation (BPN) or bio-
industrial manufacture (BMF)
of the substance. Restrict
answers to a range of
publication years.

Display answers in the HITRN
format to see the hit CAS Registry
Number, the Role Indexing (RL)
and the text phrase.

=> **S (POLYHYDROXYLBUTYR? OR POLY(S)HYDROXYBUTYR?) AND NONINDEXED/FS**

L4 142 (POLYHYDROXYLBUTYR? OR POLY(S)HYDROXYBUTYR?) AND NONINDEXED/FS

=> **D ALL**

L1 ANSWER 1 OF 142 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2004:132320 CAPLUS [Full-text](#)

ED Entered STN: 18 Feb 2004

TI In vitro enzymatic synthesis of **poly-(β)-hydroxybutyric acid**

AU Burns, Kristi; Lane, Jennifer; Thompson, Jeremy; Lubarsky, Michael; May, Sheldon

CS School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, USA

SO Abstracts, 55th Southeast Regional Meeting of the American Chemical Society, Atlanta, GA, United States, November 16-19, 2003 (2003), 177 Publisher: American Chemical Society, Washington, D. C.

CODEN: 69EUCH

D Conference; Meeting Abstract

LA English

AB **Poly-(β)-hydroxybutyric acid (PHB)** is a biodegradable, thermoplastic, stereoregular, biopolyester produced as a carbon storage source by certain bacteria challenged by nutrient limitation. While production of PHB for industrial applications is generally accomplished via large-scale ferms., in vitro enzymic synthesis have the potential to afford considerable advantages over bacterial systems such as increasing the flexibility of alternate substrates leading to the synthesis of novel chiral polymers. Reported herein, is the in vitro enzymic synthesis of PHB, utilizing the three-enzyme pathway from the bacteria *Ralstonia eutrophus*. An efficient HPLC method was developed for baseline-separated detection of CoASH, acetyl-CoA, acetoacetyl-CoA, and β -hydroxybutyryl-CoA within 33 min. Using this HPLC methodol. and by sequentially adding each enzyme, reaction time courses were generated to clearly illustrate each step in the three-enzyme pathway for PHB synthesis, and to determine the stoichiometric relationships between the CoA-containing metabolites. The deficiency of the metabolite acetoacetyl-CoA was explored through HPLC spiking expts. Furthermore, we report the first metabolic model developed specifically for analyzing in vitro enzymic PHB synthesis. These tools facilitate an appreciation for the interactions between the kinetics and thermodyn. that govern each of the reactions during PHB synthesis.

Extend the search to recent references that have not yet been completely indexed. Search names or name fragments for the substance in the non-indexed File Segment (FS).

Searching CAS Registry Numbers for monomers in REGISTRY

In REGISTRY, each polymer is identified by its own CAS Registry Number in the RN field. Each monomer making up a polymer has its own record and is identified by its own CAS Registry Number in the CRN field. When you know the specific monomers used to prepare a polymer, you can search the CAS Registry Numbers for the monomers in the Component Registry Number (/CRN) field to locate polymers formed from those specific monomers.

Find literature on the polymeric compositions of ethylene, propylene, and dicyclopentadiene

=> **FILE REGISTRY**

=> **S ETHYLENE/CN**

L1 1 ETHYLENE/CN

=> **D RN**

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS
RN 74-85-1 REGISTRY

=> **S PROPYLENE/CN**

L2 1 PROPYLENE/CN

=> **D RN**

L2 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS
RN 115-07-1 REGISTRY

=> **S DICYCLOPENTADIENE/CN**

L3 1 DICYCLOPENTADIENE/CN

=> **D RN**

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS
RN 77-73-6 REGISTRY

=> **S 74-85-1/CRN AND 115-07-1/CRN AND 77-73-6/CRN**

L4 184 74-85-1/CRN AND 115-07-1/CRN AND 77-73-6/CRN

Enter REGISTRY.

Search the name of each monomer in the Chemical Name (/CN) field.

Display the CAS Registry Number (RN) for each monomer.

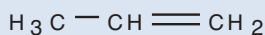
Search the CAS Registry Number for each monomer in the Component Registry Number (/CRN) field.

=> **D L4**

L4 ANSWER 1 OF 184 REGISTRY COPYRIGHT 2004 ACS
RN 438625-13-9 REGISTRY
CN 2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester, polymer with ethene, 1-propene and 3a,4,7,7a-tetrahydro-4,7-methano-1H-indene (9CI) (CA INDEX NAME)
MF (C10 H14 O4 . C10 H12 . C3 H6 . C2 H4)x
CI PMS
PCT Polyacrylic, Polyolefin, Polyother
SR CA
LC STN Files: CA, CAPLUS

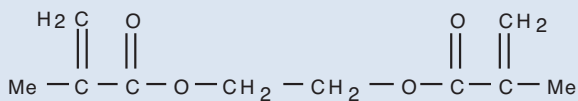
CM 1

CRN 115-07-1
CMF C3 H6



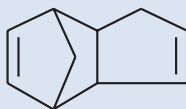
CM 2

CRN 97-90-5
CMF C10 H14 O4



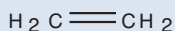
CM 3

CRN 77-73-6
CMF C10 H12



CM 4

CRN 74-85-1
CMF C2 H4



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

Display substance information. Answers are copolymers formed from the specific monomers searched. Other monomers may also be included. Each monomer is identified by its own CAS Registry Number (CRN), the Component Molecular Formula (CMF) and its structure. Because the number of components was not specified, answers include copolymers of three or more monomers.

Searching polymer class terms in REGISTRY

You can easily search for broad classes of polymers by using polymer class terms in REGISTRY. Polymer class terms are assigned to polymers in REGISTRY by analyzing the types of linkages in the polymer backbone. You can search polymer class terms in the /PCT field of REGISTRY.

The following polymer class terms are available:

| | |
|--------------------------|-------------------------|
| Amino resin | Polyhydrazide formed |
| Chloropolymer | Polyimide |
| Double strand | Polyimide formed |
| Epoxy resin | Polyionene |
| Fluoropolymer | Polyionene formed |
| Manual component | Polyisocyanurate |
| Manual registration | Polyisocyanurate formed |
| Other | Polyketone |
| Phenolic resin | Polyketone formed |
| Polyacetylene | Polynucleotide |
| Polyacrylic | Polyolefin |
| Polyamic acid | Polyother |
| Polyamic acid formed | Polyother only |
| Polyamide | Polyphenyl |
| Polyamide formed | Polyphenyl formed |
| Polyamine | Polyphosphazene |
| Polyamine formed | Polyphosphazene formed |
| Polyanhydride | Polyquinoxaline |
| Polyanhydride formed | Polyquinoxaline formed |
| Polyazomethine | Polystyrene |
| Polyazomethine formed | Polysulfide |
| Polybenzimidazole | Polysulfide formed |
| Polybenzimidazole formed | Polysulfonamide |
| Polybenzoxazole | Polysulfonamide formed |
| Polybenzoxazole formed | Polysulfone |
| Polycarbodiimide | Polysulfone formed |
| Polycarbodiimide formed | Polythioester |
| Polycarbonate | Polythioester formed |
| Polycarbonate formed | Polythioether |
| Polycyanurate | Polythioether formed |
| Polycyanurate formed | Polyurea |
| Polyester | Polyurea formed |
| Polyester formed | Polyurethane |
| Polyether | Polyurethane formed |
| Polyether formed | Polyvinyl |
| Polyhydrazide | |

Find references to liquid crystalline polyazomethines

=> **FILE REGISTRY**

=> **S POLYAZOMETHINE/PCT**

L1 5602 POLYAZOMETHINE/PCT

=> **FILE CAPLUS**

=> **S L1 (S) LIQ? CRYST?**

L2 183 L1 (S) LIQ? CRYST?

=> **DTI HITRN 8**

L2 ANSWER 8 OF 183 CAPLUS COPYRIGHT 2004 ACS on STN

TI Thermal and morphological properties of main chain liquid crystalline polymers

IT **106781-48-0 133518-11-3**

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP

(Physical process); PROC (Process)

(thermal and morphol. properties of main chain **liq. cryst.** polymers)

=> **S (?POLYAZOMETHIN? OR POLY(A)AZOMETHIN? OR AZOMETHIN? ?POLYMER?) (S) LIQ? CRYST?**

L3 145 (?POLYAZOMETHIN? OR POLY(A)AZOMETHIN? OR AZOMETHIN? ?POLYMER?) (S) LIQ? CRYST?

=> **S L2 OR L3**

L4 241 L2 OR L3

=> **D HIT 1**

L4 ANSWER 1 OF 241 CAPLUS COPYRIGHT 2004 ACS on STN

IT INDEXING IN PROGRESS

IT Elongation at break

Glass transition temperature

Liquid crystals, polymeric

Polymer morphology

Tensile strength

Thermal stability

(structural modifications and fiber processing of hydroxy-functionalized mesogenic **polyazomethines**)

Enter REGISTRY.

Search the polymer class term in the /PCT field.

Enter CAPLUS.

Search the REGISTRY L-number in CAPLUS. Use the (S) proximity operator to restrict terms to the same index entry.

Use the HITRN format to view only the hit CAS Registry Numbers for the indexed substances and their index entries.

Expand the substance search by searching text terms for the class of compounds in the Basic Index. Use left truncation (e.g., ?POLYMER) to retrieve all prefixed terms (e.g., COPOLYMER). Use the (S) proximity operator to restrict terms to the same sentence, the title or the same index entry.

Searching structures in REGISTRY

Most polymers in REGISTRY have structures that you can search using complete structures or structure fragments.

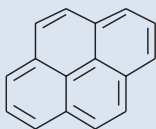
You can conduct a structure search on the whole CAS REGISTRY or on a subset of REGISTRY. Polymer class terms are especially useful in defining a subset for polymer searches.

Find references to polyesters containing a pyrene structural fragment

=> FILE REGISTRY

=>

Uploading C:\Program Files\stnexp\Queries\pyrene.str



L1 STRUCTURE UPLOADED

=> S L1 SAM SSS

SAMPLE SEARCH INITIATED

SAMPLE SCREEN SEARCH COMPLETED - 9351 TO ITERATE
10.7% PROCESSED 1000 ITERATIONS 50 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED ITERATIONS: 181228 TO 192812
PROJECTED ANSWERS: 19719 TO 23669

L2 50 SEA SSS SAM L1

=> S POLYESTER/PCT

L3 169860 POLYESTER/PCT

=> S L1 SUBSET=L3 SAM SSS

SAMPLE SUBSET SEARCH INITIATED

SAMPLE SUBSET SCREEN SEARCH COMPLETED - 35 TO
ITERATE

100.0% PROCESSED 35 ITERATIONS 7 ANSWERS
SEARCH TIME: 00.00.01

PROJECTIONS (WITHIN SPECIFIED SUBSET): ONLINE
COMPLETE

PROJECTED ITERATIONS (WITHIN SPECIFIED SUBSET):
346 TO 1054

PROJECTED ANSWERS (WITHIN SPECIFIED SUBSET):
7 TO 298

L4 7 SEA SUB=L3 SSS SAM L1

Enter REGISTRY.

Create the structure online with the STRUCTURE command or upload the structure created offline with STN Express or STN on the Web.

Conduct a sample (SAM) substructure (SSS) search on the structure (L1).

Create an L-number answer set to define a subset of REGISTRY with the polymer class term of polyester.

Conduct a sample structure search on the subset defined by the L-number answer set for polyesters (L3).

=> **S L1 SUBSET=L3 SSS FULL**

FULL SUBSET SEARCH INITIATED

FULL SUBSET SCREEN SEARCH COMPLETED - 577 TO ITERATE

100.0% PROCESSED 577 ITERATIONS 76 ANSWERS

SEARCH TIME: 00.00.01

L5 76 SEA SUB=L3 SSS FUL L1

=> **POLYLINK L5**

L6 83 POLYLINK L5

=> **FILE CAPLUS**

=> **S L6**

L7 66 L6

=> **D 10 BIB HITSTR**

L7 ANSWER 10 OF 66 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:638317 CAPLUS [Full-text](#)

DN 137:170013

TI Making telechelic oligomers, and making block copolymers

IN Gagne, Michel R.; Korn, Michael R.

PA USA

SO U.S. Pat. Appl. Publ., 20 pp., Division of U. S. Ser. No. 234,
622, abandoned. CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

| | | | | | |
|----|---------------|----|----------|----------------|----------|
| PI | US 2002115793 | A1 | 20020822 | US 2001-965939 | 20010927 |
|----|---------------|----|----------|----------------|----------|

| | | | | | |
|------|----------------|---|----------|--|--|
| PRAI | US 1998-72078P | P | 19980121 | | |
|------|----------------|---|----------|--|--|

| | | | | | |
|--|----------------|----|----------|--|--|
| | US 1999-234622 | B3 | 19990121 | | |
|--|----------------|----|----------|--|--|

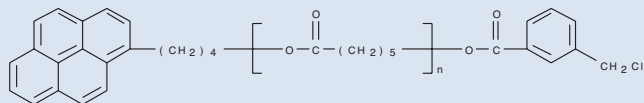
OS MARPAT 137:170013

IT 243844-77-1P

RL: IMF (Industrial manufacture); PREP (Preparation)
(intermediate; caprolactone ring-opening for manuf. of
telechelic oligomer intermediate and block copolymers)

RN **243844-77-1** CAPLUS

CN Poly[oxy(1-oxo-1,6-hexanediy)]_n, a-[4-(1-pyrenyl)butyl]-w-[[3-(chloromethyl)benzoyl]oxy]- (9Cl) (CA INDEX NAME)



Conduct a full search on the subset.

Conduct a POLYLINK search.

Enter CAplus and search the L-number answer set from REGISTRY (L6).

Use the BIB HITSTR format to view the bibliographic information and the index entry with the structure diagram and the index name for the hit CAS Registry Number.

Searching for patents on a polymer

When searching for patents on a specific polymer, you can take advantage of in-depth indexing of specific compounds with CAS Registry Numbers in CAS databases. Additionally, the TRANSFER command lets you easily extend the search to find related patents in other patent databases. With TRANSFER you can extract patent and application numbers from the CAPLUS answer set and automatically search them in other databases. Patent documents with the same patent numbers can then be removed as duplicates.

Find patents on the preparation of a biodegradable polymer known as Biopol

=> **FILE REGISTRY**

=> **S BIOPOL/CN**

L1 1 BIOPOL/CN

=> **D SCAN**

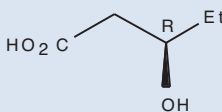
L1 1 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN
IN Pentanoic acid, 3-hydroxy-, (3R)-, polymer with (3R)-3-
hydroxybutanoic acid, isotactic (9CI)

MF (C5 H10 O3 . C4 H8 O3)x

CI PMS, COM

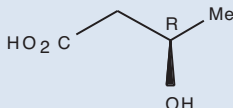
CM 1

Absolute stereochemistry.



CM 2

Absolute stereochemistry.



ALL ANSWERS HAVE BEEN SCANNED

=> **FILE CAPLUS; S L1/PREP AND PATENT/DT**

L2 19 L1/PREP AND PATENT/DT

Enter REGISTRY.

Search the trade name in the Chemical Name (/CN) field to find the CAS Registry Number for Biopol.

SCAN the answer to verify substance information.

Enter CAPLUS.

Search the L-number answer set from REGISTRY (L1) to find all documents indexed with the CAS Registry Number for Biopol. Append the L-number with /PREP to restrict answers to those on the preparation of Biopol. Restrict answers to patent documents (PATENT/DT).

=> **FILE WPINDEX USPATFULL**

=> **TRANSFER**

ENTER L# (L2) OR ?:**L2**

ENTER ANSWER NUMBERS, RANGES (1-), OR ?:**1-**

ENTER DISPLAY FIELDS (TI) OR ?:**PN, APPS**

L3 TRANSFER L2 1- PN, APPS : 205 TERMS

L4 34 FILE WPINDEX

L5 24 FILE USPATFULL

TOTAL FOR ALL FILES

L6 58 L3

=> **SET DUPORDER FILE**

SET COMMAND COMPLETED

=> **DUP REM L2 L6**

L7 54 DUP REM L2 L6 (23 DUPLICATES REMOVED)

ANSWERS '1-18' FROM FILE CAPLUS

ANSWERS '19-33' FROM FILE WPINDEX

ANSWERS '34-54' FROM FILE USPATFULL

=> **D 20**

L7 ANSWER 20 OF 54 WPINDEX COPYRIGHT 2004 THOMSON
DERWENT on STN DUPLICATE 8

AN 2001-440121 [47] WPINDEX Full-text

CR 1998-086981 [08]; 1999-526207 [44]; 1999-570778 [48]; 2000-
542240 [49]

DNC C2001-132901

TI New plant extracts comprising polyhydroxyalkanoate polymer,
e.g. polyhydroxybutyrate, having a single mode molecular weight
distribution, for producing biodegradable molded materials, films,
coatings and in drug release applications.

DC A23 A82 A92 B07 C06 D16 G02

IN ASRAR, J; MITSKY, T A; SHAH, D T

PA (MONS) MONSANTO CO

CYC 1

PI US 6228623 B1 20010508 (200147)* 97p C12P007-02 <--

ADT US 6228623 B1 **CIP of US 1996-614877 19960303 , CIP of US
1996-628039 19960404 , CIP of US 1996-673388 19960628 ,
Div ex US 1997-912205 19970815 , US 1999-440400
19991115**

FDT US 6228623 B1 CIP of US 5942660, CIP of US 5958745, CIP
of US 5959179, Div ex US 6091002

PRAI **US 1997-912205 19970815 ; US 1996-614877 19960303 ;
US 1996-628039 19960404 ; US 1996-673388 19960628 ;
US 1999-440400 19991115**

IC ICM C12P007-02

ICS C12P007-04; C12P007-18; C12P007-62

Enter other patent databases.

Enter TRANSFER and answer
the prompts.

The following steps are
automatically performed
by TRANSFER:

- Patent and application numbers
are selected from each answer
in the CAplus answer set
- Extracted numbers are
searched in the other patent
databases
- An L-number answer set is
created for each file and for
the total set

Enter SET DUPORDER FILE
to group answers together in
database order.

Remove patent duplicates with
DUP REM.

Display answers.

Searching for patents on a class of polymers

When searching for patents on classes of polymers, you can use database-specific indexing terms. For example, CAS Registry Numbers, as well as subject indexing terms for classes of polymers, are available in CAS databases. In some patent databases (e.g., WPIDS) access to special indexing is available only to subscribers.

You can also conduct searches on classes of polymers by using terms in the Basic Index of each database.

What companies have the greatest number of patents issued since 2003 on photographic or optical applications of polyimides?

=> **FILE CAPLUS WPINDEX**

=> **S (POLYIMIDE? OR POLY (A) IMIDE? OR IMIDE? POLYMER?) (S) (OPTIC? OR PHOTO?) AND P/DT AND PY.B>2002**

L1 314 FILE CAPLUS
L2 251 FILE WPINDEX

TOTAL FOR ALL FILES

L3 565 (POLYIMIDE? OR POLY (A) IMIDE? OR IMIDE? POLYMER?) (S) (OPTIC? OR PHOTO?) AND P/DT AND PY.B>2002

=> **SET DUPORDER FILE**

SET COMMAND COMPLETED

=> **DUP REM L3**

L4 484 DUP REM L3 (81 DUPLICATES REMOVED)
ANSWERS '1-314' FROM FILE CAPLUS
ANSWERS '315-484' FROM FILE WPINDEX

=> **ANALYZE L4**

ENTER ANSWER NUMBER OR RANGE (1-):1-
ENTER DISPLAY CODE (FILEDEFAULT) OR ?:PA
L5 ANALYZE L4 1- PA : 409 TERMS

Enter the patent databases in which you want to search.

Enter the search terms. Restrict answers to recent patent documents.

An L-number answer set is created for each database and the total set.

Remove duplicates.

Enter ANALYZE and answer the prompts.

=> **D TOP20**

L5 ANALYZE L4 1- PA : 409 TERMS

Display the 20 most frequently occurring terms.

| TERM # | # OCC | # DOC | % DOC PA | |
|--------|-------|-------|----------|---|
| 1 | 17 | 17 | 3.51 | NITTO DENKO CORP JAPAN |
| 2 | 14 | 14 | 2.89 | HITACHI CHEMICAL DU PONT MICRO SYSTEM CO LTD JAPAN |
| 3 | 13 | 13 | 2.69 | TORAY INDUSTRIES INC JAPAN |
| 4 | 12 | 12 | 2.48 | MITSUI CHEMICALS INC JAPAN |
| 5 | 11 | 11 | 2.27 | KANEGAFUCHI CHEMICAL INDUSTRY CO LTD JAPAN |
| 6 | 10 | 10 | 2.07 | KYOCERA CHEMICAL CORP JAPAN |
| 7 | 10 | 10 | 2.07 | USA |
| 8 | 8 | 8 | 1.65 | PHOTON X INC USA |
| 9 | 7 | 7 | 1.45 | CENTRAL GLASS CO LTD JAPAN |
| 10 | 7 | 7 | 1.45 | SUMITOMO BAKELITE CO LTD JAPAN |
| 11 | 6 | 6 | 1.24 | HITACHI CHEMICAL CO LTD JAPAN |
| 12 | 5 | 5 | 1.03 | ASAHI KASEI CORPORATION JAPAN |
| 13 | 5 | 5 | 1.03 | CYTEC TECHNOLOGY CORP |
| 14 | 5 | 5 | 1.03 | INT BUSINESS MACHINES CORP |
| 15 | 5 | 5 | 1.03 | JAPAN |
| 16 | 5 | 5 | 1.03 | RICOH CO LTD JAPAN |
| 17 | 5 | 5 | 1.03 | SAMSUNG ELECTRONICS CO LTD |
| 18 | 5 | 5 | 1.03 | SEIKO EPSON CORP |
| 19 | 5 | 5 | 1.03 | TOPPAN PRINTING CO LTD JAPAN |
| 20 | 5 | 5 | 1.03 | TOYOBO CO LTD JAPAN |

Searching for business news on a polymer

When searching for business news on specific polymers, use trade names and other names, as well as CAS Registry Numbers, when available.

Find information on commercial applications of Biopol

=> FILE CBNB CIN

=> S 80181-31-3 OR BIOPOL

L1 194 FILE CBNB

L2 48 FILE CIN

TOTAL FOR ALL FILES

L3 242 80181-31-3 OR BIOPOL

=> D KWIC 17

L3 ANSWER 17 OF 242 CBNB COPYRIGHT 2013 EI on STN
AB. . . 1,3-propanediol (PDO) being produced by DuPont for polymerisation with purified terephthalic acid. Metabolix now owns the technology for production of **Biopol**, the commercially available PHA polymer. Initially, Cargill Dow is aiming to produce materials for the packaging and fibres sectors. The. . .
RN 26100-51-6; 504-63-2; **80181-31-3**

Enter the business databases in which you want to search.

Search any names as well as the CAS Registry Number for the polymer. An L-number answer set is created for each database and the total set.

Display answers in the KWIC format to see hit terms in context, i.e., 20 words on either side.

Searching for business news on a class of polymers

Searches for business news on a class of polymers can be done in the Basic Index of the business databases on STN. Use the proximity operators for precision. Use a cluster of databases with the INDEX command to find which databases contain information on your topic, before searching in the databases.

Provide an overview of recent business news on the flexible plastics produced with metallocene catalyst technology

```
=> SET CLUSTER
ENTER CLUSTER NAME OR (?):POLYNEWS
ENTER LIST OF FILE NAMES OR (?):CBNB CIN PQSCITECH
MORE FILES, (NONE) OR ?:NONE
CLUSTER '.POLYNEWS' DEFINED AS 'CBNB, CIN PQSCITECH'
SET COMMAND COMPLETED

=> INDEX .POLYNEWS

=> S METALLOCENE# (S) (POLYMER# OR PLASTIC#) AND
PY>2002
  256 FILE CBNB
   19 FILE CIN
  310 FILE PQSCITECH

  3 FILES HAVE ONE OR MORE ANSWERS,  3 FILES SEARCHED
  IN STNINDEX

L1 QUE METALLOCENE# (S)(POLYMER# OR PLASTIC#)AND
  PY>2002

=> FILE HITS

=> S L1
L2   310 FILE PQSCITECH
L3   256 FILE CBNB
L4   19 FILE CIN

TOTAL FOR ALL FILES
L5   585 L1

=> D L2 HIT 2-3
```

Define a customized cluster of databases that you want to use.

Enter INDEX followed by the cluster name.

Enter your search statement. Each database in the index list is scanned. If the database contains answers, the number of answers is displayed with the database name. A query L-number is created.

Enter the databases in which answers (HITS) are found.

Search the INDEX query (L1). An L-number answer set is created for each database and the total set. L-numbers for the databases are sorted in the order of hit frequency.

Display answers from any L-number answer set created.

L2 ANSWER 2 OF 310 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.

PD **11 Dec 2012**

TI Nano-linked **metallocene** catalyst compositions and their **polymer** products

L2 ANSWER 3 OF 310 PQSCITECH COPYRIGHT 2013 ProQuest LCC on STN.

AB Copolymerizations of ethylene and -olefins (1-hexene and 1-octene) using a supported catalyst derived from the activation of a zirconocene aluminohydride complex with PMAO and MMAO are reported. The supported (nBu-Cp2ZrH3AlH2)/SiO2/MMAO system was evaluated by high-throughput techniques, in order to find approaches to the optimal copolymerization conditions. The polymerization reactions were carried out in a parallel polymerization reactors system (PPR) by Symyx Technologies, Inc. The screening of the activity of the supported system and the molecular weight (MW) of the **polymers** and copolymers obtained in the PPR, allowed us to optimize copolymerization conditions, like hydrogen (H2) addition to control MW and molecular weight

⋮

and MW, and low comonomer incorporation (from 0.3 to 1.3 mol-%, determined by ¹³C NMR). However, the crystallinity (Xc), thermal properties (Tc and Tm) and densities of the polyethylenes obtained with the supported (nBu-Cp2ZrH3AlH2)/SiO2/MMAO system, were significantly modified, approaching those of **metallocene** linear low-density polyethylenes (mLLDPE).

PD **Oct 2009**

=> D L3 HIT 1

L3 ANSWER 1 OF 256 CBNB COPYRIGHT 2013 EI on STN

PD **20121126**

AB US-based Tribute Energy Inc has been named as the first non-exclusive distributor of LG Chem Ltd's Lucene brand polyolefin elastomer in North America. The Lucene elastomer is produced using the Korean company's proprietary **metallocene** catalyst in solution process. Advantages of the rubber include excellent impact and elastic properties, and lower heat-sealing temperature compared with similar polyolefin elastomers. The Lucene polyolefin elastomer will be offers in various grades and types, with key applications in the automotive, film and footwear sectors. Original Source: Rubber and **Plastics** News, <http://www.rubbernews.com/>, Copyright Crain Communications Inc 2012.

=> D L4 HIT 1

L4 ANSWER 1 OF 19 CIN COPYRIGHT 2013 ACS on STN

TI Mitsui Chem's prime **polymer** expanding Singapore **metallocene** LLDPE business

SO PetroChem. News, **19-26 Nov. 2012** (20121126), 50(47-48), p. 3. ISSN: 0031-6342; CODEN: PNEEAI.

AB Mitsui Chemical's wholly-owned Prime **Polymer** Co. subsidiary is expanding its **metallocene** business operations with the creation of a sales company and expanded production facilities for its Evolvee **metallocene** linear low-density polyethylene (LLDPE) in Singapore. The new company, with a capital of \$115million, will build a 300,000-t/y LLDPE plant on Jurong Island, Singapore.

Searching for regulatory information

CHEMLIST® (Regulated Chemicals Listing) contains information about chemical substances listed on national and international chemical inventories and regulatory lists. Chemical and trade names are searched in the Chemical Name (/CN) field.

I have a trade name Alathon 704 for a polymer. What is its chemical composition? Is it listed on any inventory?

=> FILE CHEMLIST

=> S ALATHON 704/CN

L1 1 ALATHON 704/CN

=> D

L1 ANSWER 1 of 1 CHEMLIST COPYRIGHT (C) 2004 ACS on STN

AN 15411 CHEMLIST

RN 9010-86-0

CN 2-Propenoic acid, ethyl ester, polymer with ethene (TSCA, DSL, ENCS, AICS, PICCS)

:
:

Acrylic acid ethyl ester, polymer with ethylene

Alathon 704

Bakelite DFDA 5182

:
:

F AUSTRALIA: AICS; CANADA: DSL; JAPAN: ENCS; KOREA: ECL; PHILIPPINES: PICCS; USA: TSCA

CBI Public

RLN ENCS No.: 6-19X

ECL Serial No.: KE-29512

INV On TSCA Inventory

January 2003 Inventory Tape.

EPA Flags:

XU Exempt from Update Rule

On DSL

Supplement to Canada Gazette, Part I, January 26, 1991.

On ENCS

Unlisted chemical name. For ENCS chemical class or category name, refer to ENCS No. 6-19.

On AICS

Australian Inventory of Chemical Substances, June 1996 Ed.

On ECL

Korean Existing Chemicals List, January 1997.

On PICCS

Philippines Inventory of Chemicals and Chemical Substances, 2000.

FA RN CAS Registry Number

RLN Regulatory List Number

INV Inventory Status

Enter CHEMLIST.

Search the trade name in the /CN field.

Enter D to display the record in the default format, which includes substance identification (up to 50 names), inventory status (INV), a list of available fields (FA), and fields containing hit terms.

For more information

| To find information on: | Refer to: |
|---|--|
| STN database content and search and display options | STN Database Summary Sheets at: http://www.cas.org/products/stn/dbss or enter HELP DIRECTORY at an arrow prompt in the database for a list of online help messages. |
| STN commands, such as ANALYZE, TRANSFER | STN quick reference cards and guides provide step-by-step procedures and examples for features and commands: http://www.cas.org/training/stn/commands-qrc |
| CAS REGISTRY: Finding CAS Registry Numbers | Searching for CAS Registry Number information can be found in the CAS REGISTRY section: http://www.cas.org/training/stn/database-specific |
| CAS roles | CAS Roles in CA/CAPLUS Quick Reference Card can be found on: http://www.cas.org/training/stn/commands-qrc |
| Patent searching on STN | For more information on patent-specific topics view the quick reference cards on: http://www.cas.org/training/stn/commands-qrc |
| Polymer searching on STN, including POLYLINK | For additional information on polymer searching, view the searching for polymers section of Substance and Sequence Searching on STN Training at: http://www.cas.org/training/stn/substance |

STN Contact Information

CAS Customer Center:

Phone: 1-800-753-4227 (North America)
+1-614-447-3700 (outside North America)
Fax: +1-614-447-3751
Email: help@cas.org
Internet: www.cas.org/

In Europe for STN:

Contact FIZ Karlsruhe

Phone: +49-7247-808-555
Fax: +49-7247-808-259
Email: helpdesk@fiz-karlsruhe.de
Internet: www.stn-international.com

In Japan for STN:

Contact JAICI (Japan Association for International Chemical Information)

Phone: +81-3-5978-3601
(Technical Service)
+81-3-5978-3621
(Customer Service)
Fax: +81-3-5978-3600
Email: www.jaici.or.jp/inquiry.html
(Customer and Technical Service)
Internet: www.jaici.or.jp

CAS2750-0213
February 2013