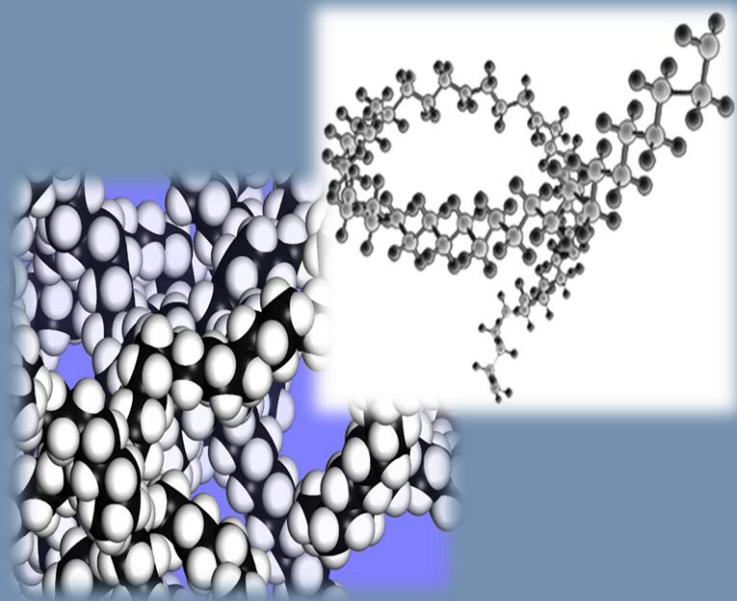


# Multi-file Polymer Searching



ICIC 2011, Barcelona

Ankit Biyani

- Introduction to Dolcera
- Polymer searching
- Databases
- Search Strategy
  - REGISTRY
  - CAPLUS
  - IFICDB
  - WPIX
- Final Results
- Summary
- Appendix

Dolcera is a **Knowledge Services & Tools** company based out of Silicon Valley, USA and Hyderabad, India

Current analyst team strength of about **120 employees with experts in engineering, chemistry, packaging, food technology, biotechnology, biochemistry** etc.

IT team of software experts working on tool development

Dolcera's Offerings include

- **Value added research services** in **IP**, technology and Market Research
- **World-class Web 2.0 technology platform** used by world's largest companies

## Dolcera – Expertise and Experience

People at Dolcera are highly qualified teams with vast experience in patent searching

- The Chemistry department is strengthened with such profiles:
- 3 PhDs in Organic chemistry with different specializations
- Post-Doc in medicinal chemistry
- Post-Doc in polymer chemistry
- 2 MScs in chemistry

A strong Biotechnology team with many MScs and a PhD

# Multi-file Searching of Polymers

## Polymer Databases for search in STN Platform

- REGISTRY
- CAPLUS
- IFICDB
- WPIX

Database	Type	Sources	Coverage
<b>REGISTRY</b>	Structure & Numeric	Patents & Non-Patents	1907-present
<b>CAPLUS</b>	Bibliographic	Patents & Non-Patents	1840-present
<b>IFICDB</b>	Bibliographic	US-Patents	1950-present
<b>WPIX</b>	Bibliographic	World Patents	1966-present (polymers)

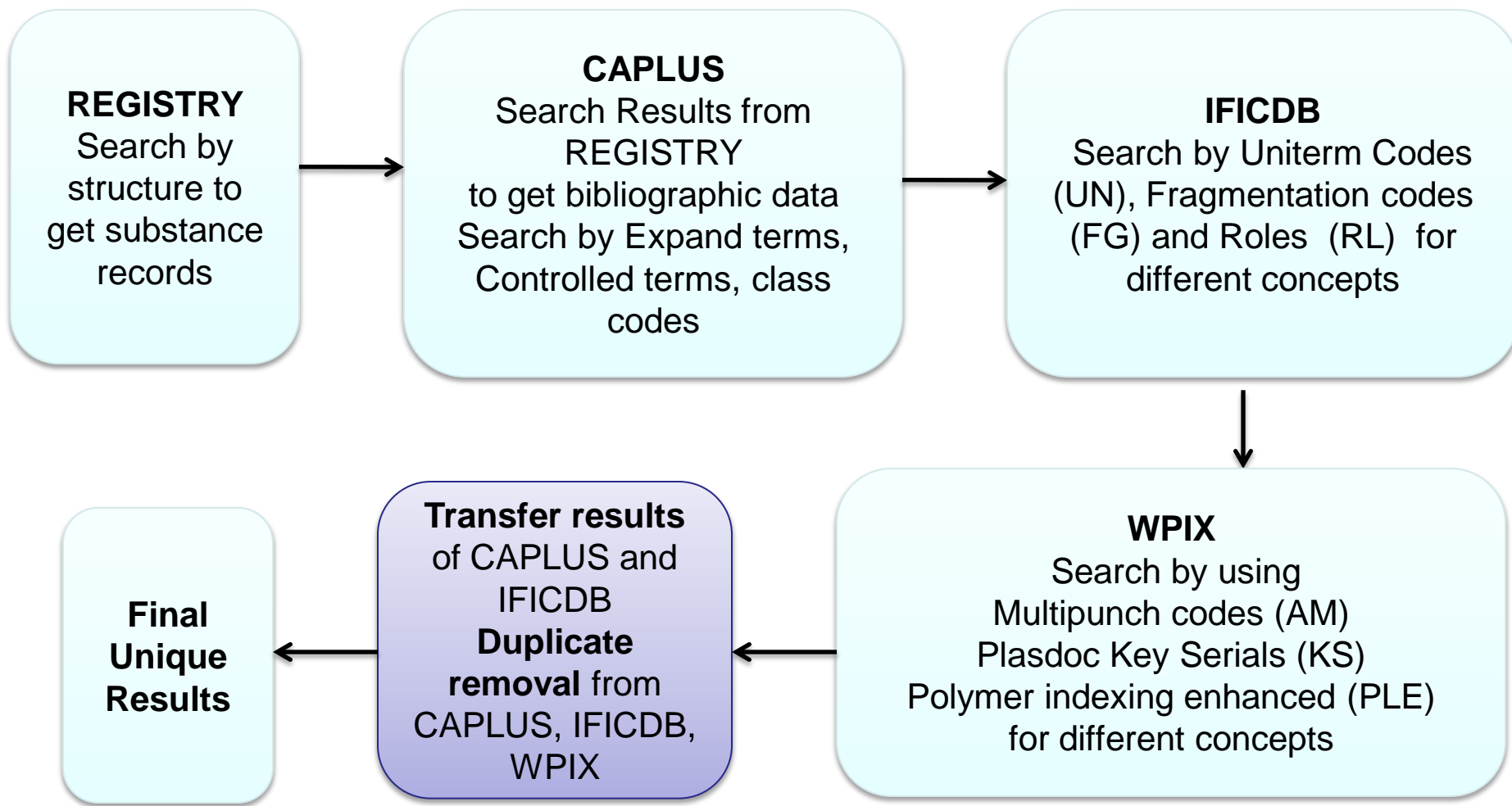
Determine the search question  
Identify the relevant databases

Build an initial search query  
(Structure Search + keywords + attribute index codes)

Conduct a sample search (In case of Structure search)  
Evaluate answers (by D Scan)

Conduct full search in each database  
Conduct combination search (To get final unique results)

Display answer(s)

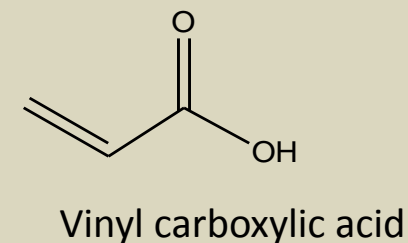
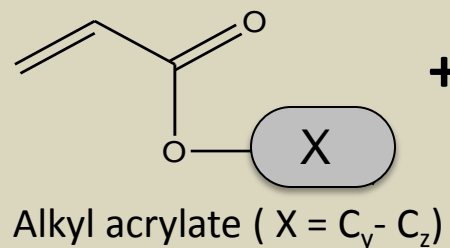
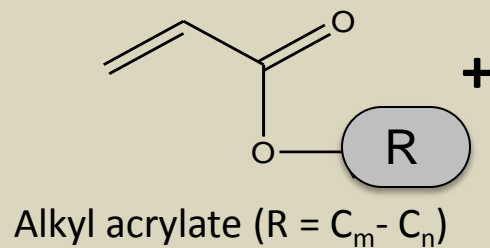


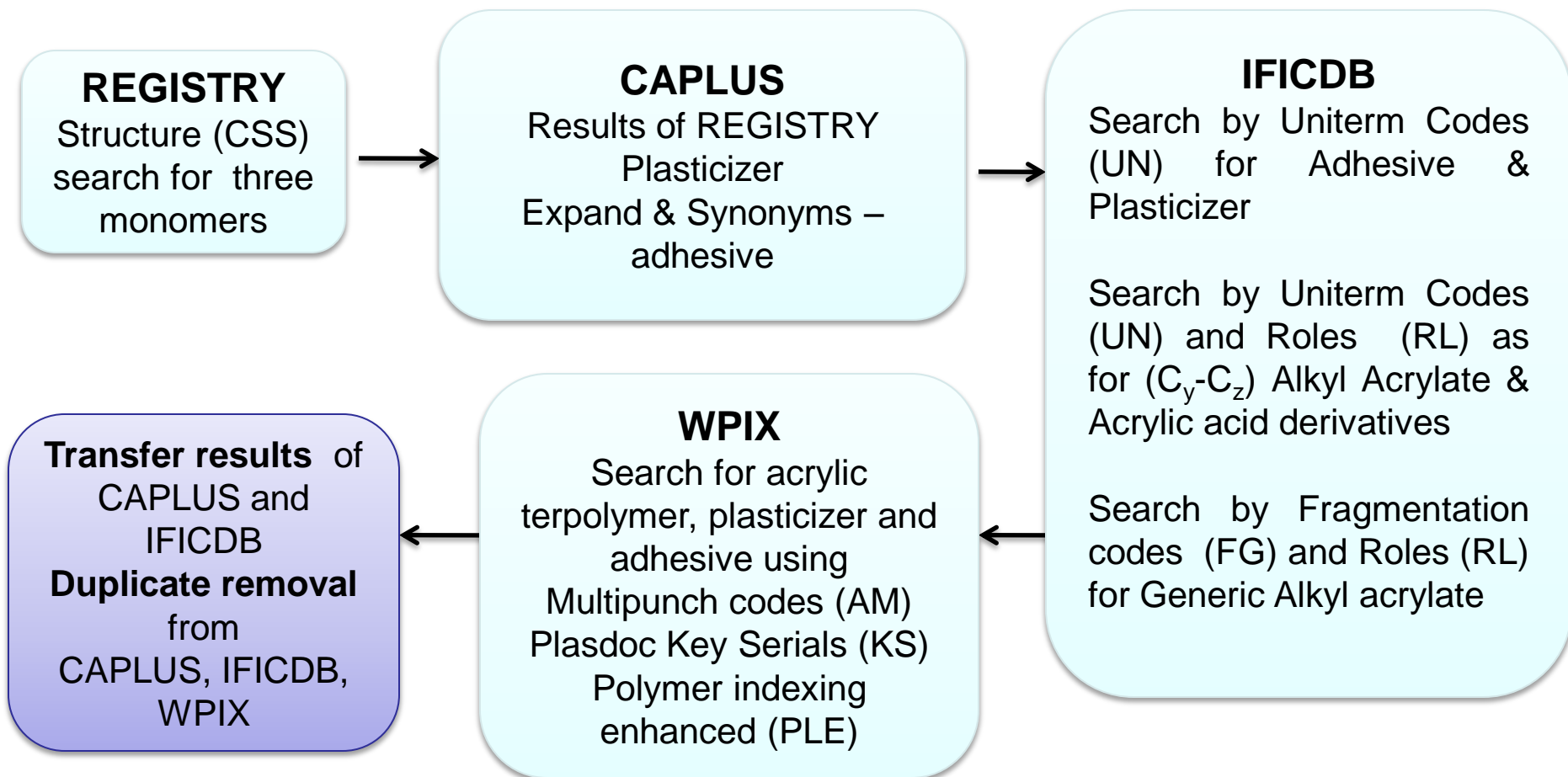


## Search Question

*To find all the Terpolymer adhesives consisting of the following 3 monomers and containing a plasticizer*

Polymer made from three monomers:





## REGISTRY

- **Uploaded** structures of three monomers to obtain the **substance results**

## CAPLUS

- Substance results from REGISTRY
- **Expanding** “adhesive” and “plasticizer” terms

*=> E ADHESIVE+ALL/CT*

*E1        0 --> Adhesive/CT*

*E2    134868    USE Adhesives/CT*

- The relevant synonyms are identified
- Inclusion in search fields like **Control terms #CT**, **Basic Index #BI**, **Chemical name #CN** etc.

## Uniterms

- Manual codes assigned for chemical compounds
- They are unique for different chemicals, e.g. 53011 is a code for Acrylic Acid
- These codes can be retrieved only on subscription

## Polymer Role Searching

- All IFI (Information For Industry) polymers take roles to denote whether the polymer is:
  - ✓ Present            RL-10
  - ✓ Reactant          RL-20
  - ✓ Product            RL-30
- New polymers generally get both Present and Product roles

## Fragmentation Codes

- Codes assigned to functional groups or specific or functionality present in the molecule
- These are unique, e.g. 31081 is the code for =C=C= (carbon-carbon double bond), 30971 for –COO(carboxylic ester)

## IFICDB

- “Adhesive” and “Plasticizer” terms are searched by using their **Uniterm codes (UN)**

E.g. => S 00090/UN OR 04384/UN OR 00089/UN OR 06306/UN

00090 ADHESIVES

04384 PRESSURE SENSITIVE ADHESIVES

00089 ADHESIVE TAPES

06306 HOT MELT ADHESIVES.....

- Specific search for (C<sub>y</sub>-C<sub>z</sub>) Alkyl Acrylate & Acrylic acid **derivatives by Uniterm Codes (UN) and Roles (RL)**
- Generic alkyl acrylate is **searched using Fragmentation codes (FG) and Roles (RL)**

## WPIX

- Search “Acrylic Terpolymer”, “Plasticizer” and “Adhesive” by using
  - Multipunch codes (AM)
  - Plasdac Key Serials (KS)
  - Polymer indexing enhanced (PLE)
  
- **Search by AM** ( $C_y - C_z$  alkyl acrylate,  $C_m - C_n$  acrylate and vinyl carboxylic acid associated with **Search by KS** (Terpolymer)
  
- **Search by PLE**
  - $C_y - C_z$  alkyl acrylate,  $C_m - C_n$  acrylate, vinyl carboxylic acid
  - Terpolymer
  - Adhesive
  - Plasticizer

## IFICDB Combination Search

Search by Uniterm (**UN**), Fragment code (**FG**) and Role (**RL**)

**A**  
**Search by UN**  
 Adhesive  
 Plasticizer

**B**  
**Search by UN assigned  
 RL (Terpolymer)**  
 $C_y - C_z$  alkyl acrylate  
 $C_m - C_n$  acrylate  
 vinyl carboxylic acid

**C**  
**Search by FG** (*with  
 negated fragments*) with  
**RL**  
 Generic alkyl acrylate  
 Generic vinyl acid

Specific Search  
**A+B**

Generic search  
**A+C**

**Generic search  
 AND  
 Specific search**

**Generic search  
 NOT  
 Specific search**



## Multipunch (AM) Codes

- Each concept was defined by one or more of these codes since 1966 when the Plasdoc codes started
- AM code can be used for generic searching as well as specific searching
- AM codes can be searched from 1966 through to the end of 1994.

## Key Serials (KS)

- Introduced in 1978 to improve relevance
- The KS codes are unique to each concept
- The KS codes are available for searching DWPI from 1978 through to the end of 1994

## Polymer Indexing Enhanced (PLE)

- They are codes for chemical compounds and provide an alpha-numerical listing in the Polymer Index

### WPIX

Search by Multi-punch positions (**AM**), Plasdoc Key Serial(**KS**) and Polymer indexing enhanced(**PLE**)

#### Search by AM

$C_y - C_z$  alkyl acrylate  
 $C_m - C_n$  acrylate  
 vinyl carboxylic acid  
 associated with  
**Search by KS**  
 (Terpolymer)

#### Search by PLE

$C_y - C_z$  alkyl acrylate  
 $C_m - C_n$  acrylate  
 vinyl carboxylic acid  
 Terpolymer  
 Adhesive  
 Plasticizer

Combination  
search

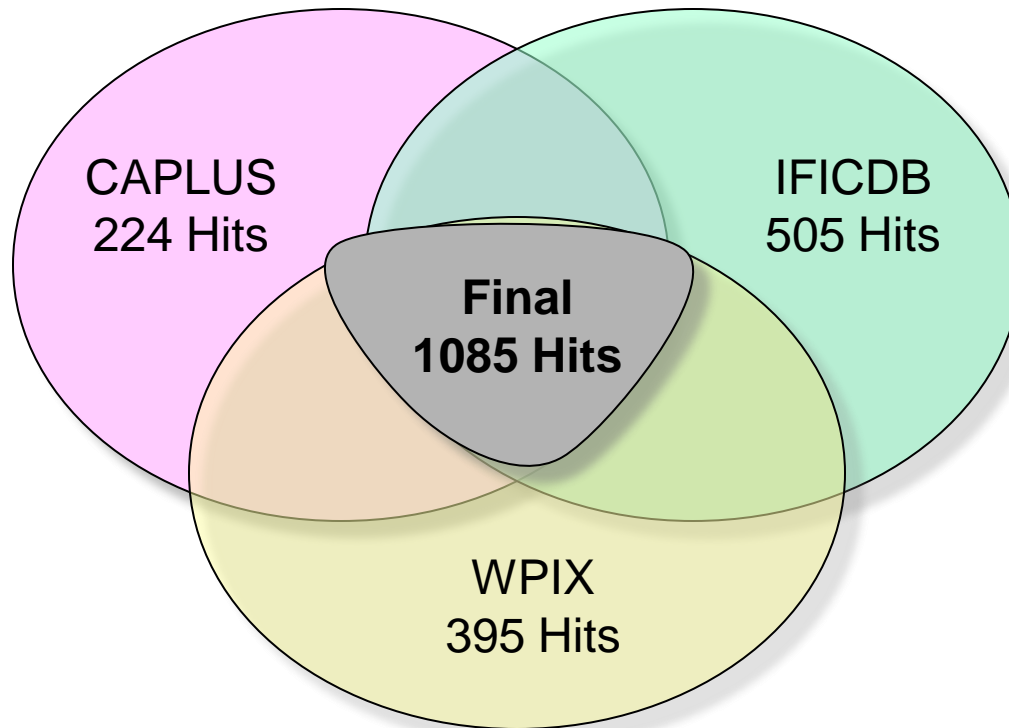
Transfer results of  
CAPLUS and IFICDB



Duplicate removal from  
CAPLUS, IFICDB, WPIX



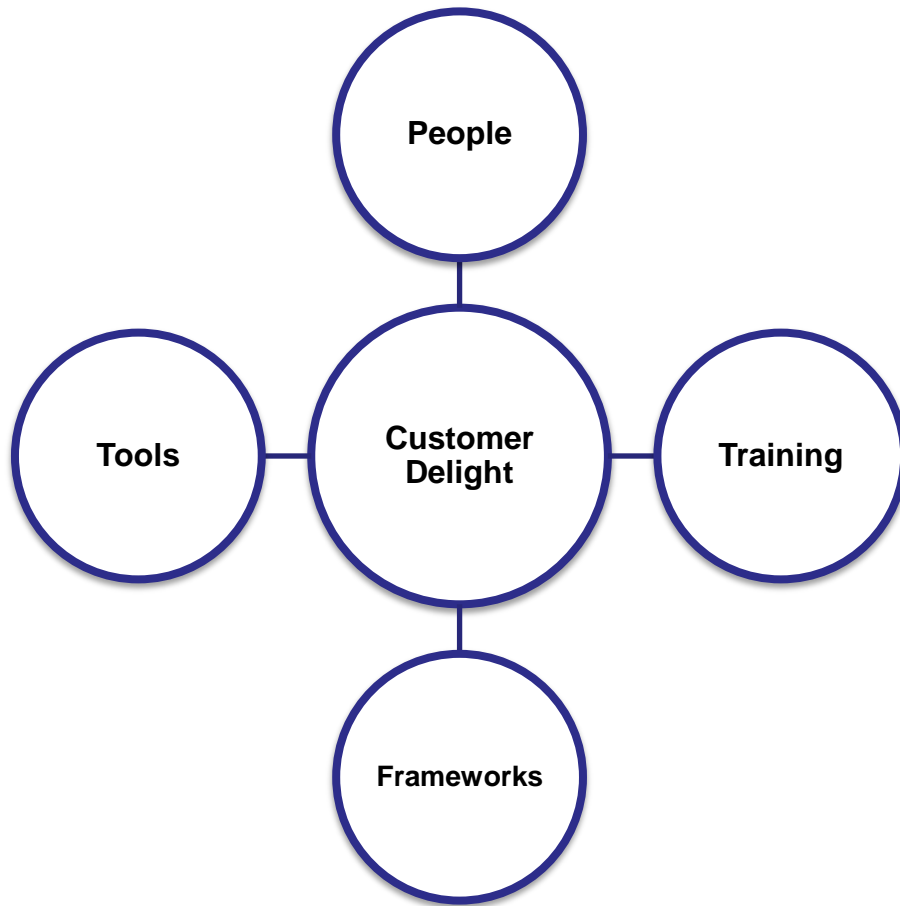
Display Unique  
results



- Identified relevant data bases for particular polymer search
- Collected attribute codes for various terminology like 'Monomer', 'Adhesives' and 'Plasticizer'
- Sample search conducted by using structure, keywords and attribute codes
- Depending on the sample search results, conducted full search
- Combination search performed for various queries
- Unique results obtained by combining and removing duplicates
- Analysis of the final results

Various databases and thereof respective summary sheets are available online at:

<http://science.thomsonreuters.com/support/patents/userguides/polymerguides/>



**Thank You!!**

[ankit.biyani@dolcera.com](mailto:ankit.biyani@dolcera.com)  
[www.dolcera.com](http://www.dolcera.com)