Library and Database Assignments for

Undergraduate Chemistry Majors

Ann Bolek

The University of Akron

Abstract

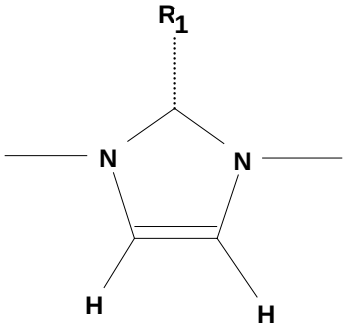
At The University of Akron, undergraduate chemistry majors are given library and database assignments during their junior year in their Advanced Chemistry Laboratory classes. During the first semester, they are assigned searches in *SciFinder Scholar*,

Abstract (continued)

whereas during the second semester, they are assigned searches in *Beilstein* and *Gmelin CrossFire*, the *Web of Science*, the *Cambridge Structural Database*, various Web resources, and printed reference books. This poster will list the sources used and provide examples of some of the searches assigned.

SciFinder Scholar Searches

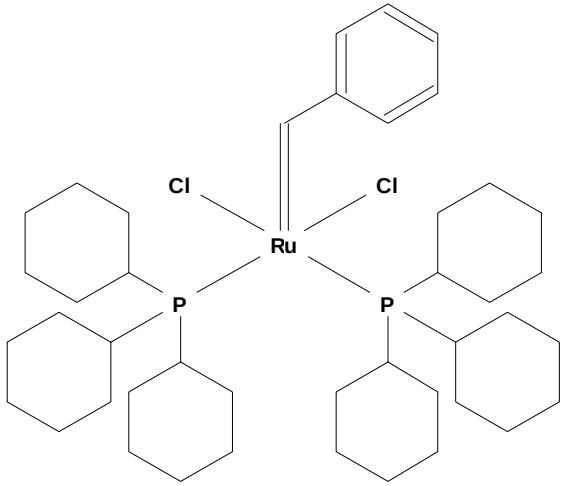
- Substructure search on this structure
  - Asked to provide the total number of references
  - Asked to limit the references to "uses"



R1 = Ru, Ag

SciFinder Scholar Searches

- Exact search on this structure
  - List commercial sources
  - Click on microscope
    - For whom is compound named?
    - How is it used?

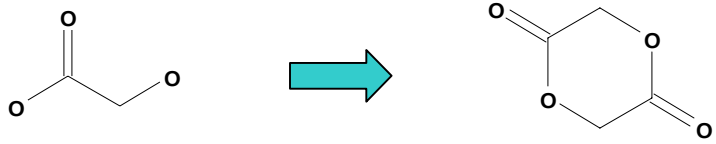


SciFinder Scholar Searches

- Exact structure search on another compound
  - List registry numbers retrieved
  - Provide the following for one "journal" reference
    - Abstract number (AN or CAN)
    - First author
    - Title of article
    - Journal name
    - Volume, issue number, & page numbers
    - Check library and Web availability

SciFinder Scholar Searches

- Handout on various ways to find preparations and properties
  - Structure search on reaction of glycolic acid to form glycolide



  - Search “glycolide” as a substance identifier and click on the A+B button.
  - Click on the microscope for glycolide and list one calculated property and one experimental property.

SciFinder Scholar Searches

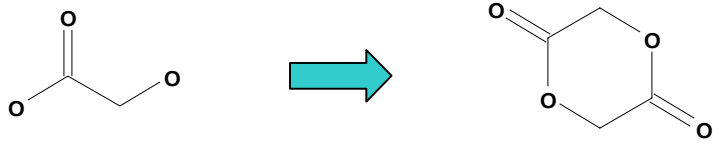
- Handout (continued)
  - After searching for glycolide as a substance identifier, click on “Get References” and limit the search to **references associated with:** preparation.
  - Search the “preparation of glycolide from glycolic acid” as a **research topic**. Disadvantages of searching in this manner are explained.

Web of Science

- Topic search
  - Availability of an abstract
  - Number of cited references
  - Number of times cited
  - Availability in library or on the Web
- Author search on University of Akron faculty
- Cited reference search on specific paper

CrossFire Searches

- Structure search in Beilstein for the reaction of glycolic acid to form glycolide



- Molecular formula search in Gmelin for K_3UF_7
- Registry number search in Beilstein for dissociation exponent (pK) and various types of spectra

Cambridge Structural Database

- Search by structure and print out results for closest match
  - Structure diagram
  - Unit cell parameters
  - Literature reference
  - Chemical name and molecular formula
  - Experimental data

Printed Reference Books

- Chemical Abstracts Service Source Index (CASSI)
- Dictionary of Organic/Inorganic Compounds
- Spectra (FT-IR, FT-NMR, Mass, UV-VIS)
- Organic Syntheses
- Inorganic Syntheses

Web Resources

- Toxnet
- Integrated Spectral Data Base for Organic Compounds
- NIST Chemistry WebBook
- Organic Syntheses