



## CH 317

### Sources of IR Spectra of Plastics and Polymers

#### Things to know:

- Plastics are commercially formulated products that can be complex. The precise formulation of various plastics is often a trade secret guarded by the manufacturer.
- Most of the available collections of IR reference spectra are not intended for the identification of unknowns. They assume you already know what polymer you're looking for.
- Some collections are based on polymer/plastic trade name, and generally don't have much if any information on the chemical structure of the polymer or monomers. Trade names are numerous and always changing, and some trade names found in older books may not be used anymore.
- All of these books are found in the Spectra section of the Chemistry Library's reference collection. Please leave them in that area when you're done.
- There are no relevant or reliable online resources of polymer spectra available to the UT community.

#### Infrared spectra atlas of monomers and polymers.

QC 463 P5 I53 (Sadler, 1980)

2,000 spectra ( $4000-400\text{ cm}^{-1}$ ), arranged by the type of polymer or monomer and then in increasing order of complexity. Includes an alphabetical trade name index. Common trade names and chemical names, when known, are both used. The "Spec-Finder" index beginning on p.775 allows you to search for spectra based on strongest band and absorption peaks, but first you have to code the peaks

#### Handbook of Fourier transform Raman and infrared spectra of polymers.

QC 463 P5 K86 1998 (A.H. Kuptsov and G.N. Zhizhin, Elsevier, 1998)

Polymers are classified by type; see table beginning on p.xxiii. Indexes by name, trade name, general formula, and registry number. Spectra cover the  $4000-100\text{ cm}^{-1}$  range and include a structure diagram of the main unit(s).

#### Rapra collection of infrared spectra of rubbers, plastics, and thermoplastic elastomers.

QC 463 P5 S53 1997 (J.A. Sidwell, 2nd ed., Rapra, 1997)

Transmission and pyrolysate (condensed phase) spectra of important rubber and plastics-based materials, including homopolymers, copolymers and blends, at  $4\text{ cm}^{-1}$  resolution, plotted in % transmission ( $4000-400\text{ cm}^{-1}$ ). Indexes by material type and trade name. The first section has transmission spectra of some common plastic materials.

#### Infrared spectroscopy atlas for the coatings industry.

TP 1140 C48 1991 (2 vols., 4th ed., Federation of Societies for Coatings Technology, 1991)

Contains 2,500 FT-IR spectra of polymers, resins, pigments, solvents, additives and other materials. Indexed by name, subject, and includes introductory text and a large bibliography. Spectra nos. 1-704 in v.1 are polymers.

For additional sources of spectra, in print and online, browse in the Spectra section, or see the web page at <http://www.lib.utexas.edu/chem/info/spectra.html>.