



## Alternatives to Formalin

Formalin, a 37% solution of formaldehyde in water, has traditionally been used in the biological sciences for the fixation and preservation of tissues and whole specimens. It has fallen out of favor in the past few years because of several undesirable properties: It is carcinogenic, poisonous, irritating to the skin, eyes & mucous membranes, and at certain concentrations, flammable. The concentration of formalin vapors that a person can safely be exposed to over a 40 hour work week is 0.75 parts per million (ppm). This concentration can easily be exceeded during routine manipulations of open containers of formalin. Unless absolutely necessary, formalin should no longer be used, and replaced with one of the materials listed below.

There are two alternatives to formalin currently available:

**Carosafe**, sold by Carolina Biological Supply Company, <http://www.carolina.com>

Sold under catalog #85-3341 (4 liter) and #85-3343 (20 liter), this propylene glycol-based material serves as a safer, far less toxic substitute for preserved specimens.

**Formalternate**, sold by Flinn Scientific, <http://www.flinnsci.com>

Also a propylene glycol-based product, this material is sold as a concentrate to be diluted with water. It is recommended for storage of preserved specimens, but not actual fixation.

Effective IMMEDIATELY, the use of formalin should be discontinued unless it is absolutely required. In such cases, Environmental Health and Safety should be contacted at (814) 8685-6391 to evaluate potential employee exposure and for recommended measures to control exposures.