

Making polyurethane foam

It's everywhere

The properties of polyurethane products vary greatly — from rock hard, molded plastics to plush furniture padding and stretching fibers used in sports clothing. Urethanes are present in many coatings, paint and varnishes. Rigid urethane foams are used in ceiling and wall insulations. All of it is based on the reaction of two alcohol groups; isocyanates and polyols.

Isocyanates: The most commonly used isocyanates are products of chemical compounds containing nitrogen, toluen, hydrogen and formaldehyde.

Polyols: These alcohol-based compounds come in different forms for different foam products; elastomers for stretch fibers, ethers, esters and ureas for foams and coatings.

When it burns

Aside from producing a considerable amount of carbon monoxide, the predominant toxic gas hazard is hydrogen cyanide. Exposure to levels of 0.3 percent in air is rapidly fatal. Other toxic gases are carbon dioxide, hydrogen dioxide, nitrous oxide and nitric oxide.

SOURCES: gale-edit.com; bayer.com
JOURNAL GRAPHIC/ TOM MURPHY

