

# Center For Environmental Medicine

## Ethanol

Amyl Alcohol - Made from ethyl alcohol and used as a solvent

Isopropyl Alcohol - Used in antifreeze, rubbing alcohol, solvents

Glycerol - Used for sweetening & preserving foods; manufacturing of cosmetics, perfumes, inks, certain glues, cements, shampoos, conditioners, lotions, and in suppositories & emollients

Menthol - Used in perfumes, confections, liqueurs, cold and nasal preparations

Products of Alcohol:

1. Anesthetic
2. cleaning fluid
3. explosives
4. flavoring extracts
5. preservative
6. acetic acid
7. rubber tires
8. formaldehyde plastics
9. rubber overshoes

A class name for a group of chemicals-methyl alcohol (also called methanol or wood alcohol), amyl alcohol, isopropyl alcohol, butyl alcohol, ethylene glycol (permanent antifreeze), glycerol and menthol. Direct uses of alcohol are motor fuel, disinfectant, sedative, heating.

## Ethyl Alcohol:

1. Formed at wine or hard cider by the fermentation of any sweet fruit juice. Industrial ethyl alcohol may be made from molasses, potatoes or grain--particularly corn.
2. Will dissolve many organic substances (shellac and oil), an ingredient in tinctures and many toilet/drug preparations. Used as body rubbing alcohol, used in making ether, and sterilizing surgical equipment. Used in making rubber.

Alcohol is used in the preparation of:

1. coating vitamins/minerals
2. hand lotions, perfumes, dyes, drugs
3. photographic film, textiles, paint and varnish, celluloid toothbrushes and bakelite products.

## Formalin

Formaldehyde is a formic aldehyde or methanol, HCHO, a powerful disinfectant gas obtained by the oxidation of methyl alcohol. The aqueous solution is a colorless, volatile fluid, used as a surgical and general antiseptic and as a preservative. It is also employed as a reagent, which is a substance used for the detection of another substance by chemical, microscopical, or other means.

Uses of Formaldehyde:

Intermediate in the synthesis of alcohol's, acids and other chemicals.

Used in the formulation of slow release nitrogen fertilizers, and as an herbicide, additional agent in concrete, plaster & related products impermeable to liquids, component parts of wallboard used in construction, glues, varnishes.

Tanning agent, used as a deodorant & antiseptic in dentifrice's, used in nail polish and undercoating, mouth-washes, germicidal and detergent soaps & fabric softeners, hair setting gels, shampoos, air deodorant, in preparation of fireproofing compositions in fabrics, insecticide, synthesis of Vitamin A and improving the activity of vitamin preparation.

Used in combination with alcohol, glycerol, and phenol in embalming fluids. Also a preservative in waxes, polishes, adhesives, fats, oils, and anatomical specimens.

Improves wet strength and water resistance of paper products

Used in natural and synthetic fibers crease-resistant, wrinkle-resistant, crush-proof, water repellent, dye-fast, flame-resistant, shrink-proof, moth-proof and more elastic.

NOTE: Formaldehyde usually accounts for about 50% of the estimated formaldehydes in air pollution. The major sources of formaldehyde pollution are in the incomplete combustion of hydrocarbons in gasoline and diesel engines.

[www.cemmed.com](http://www.cemmed.com)

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## Sources of Formaldehyde:

- Adhesives
- Antifreezes
- Beverages (beer, wine)
- Burning of gas, oil, wood, coal, kerosene, diesel fuel
- Carpets and carpet pads
- Cleaning solutions/detergents/laundry starches
- Clothing of polyester and/or artificial silk
- Construction adhesives
- Cosmetics (mouthwash, toothpaste, deodorants, nail polish, nail hardeners, shampoos)
- Disinfectants, bactericides, fungicides, germicides, deodorizers
- Dry-cleaning compounds
- Embalming fluids
- Explosives
- Exterior plywood
- Fabric dyes
- Fabrics (wrinkle-proof, water-resistant, dye-fast, flame-resistant, moth-resistant, shrink-proof, elastic)
- Fertilizers
- Furniture cabinets
- Gas appliances
- Gelatin capsules
- Hair-growing products; hair-setting lotions
- Household waxes and oils
- Industrial air pollution
- Inks
- Insect repellents, pesticides and rodent poison
- Insulation--Urea formaldehyde foam (UFFI), fiberglass
- Jute or hemp fiber (carpet backing, burlap, area rugs, rope, twine)
- Laminating materials
- Leather-tanning agents
- Maple syrup (use Canadian, not USA to avoid this)
- Newsprint
- Paints, finger paints, enamels, tempera paints, lacquers, varnish removers, wood preservatives, wood stains, wood veneers
- Particle board, chipboard, interior plywood, wood paneling
- Perfume
- Pharmaceuticals
- Phenol formaldehyde resin
- Photographic chemicals and film
- Plaster, stucco, wallboard, concrete, Bakelite, cellophane
- Plastics, plastic cleaners
- Shoe polish
- Tissues (facial) and toilet paper
- Tobacco smoke, tobacco
- Upholstery fabrics and finishes (permanent-press, water-repellent, dye-fast, flame-resistant, water-resistant, shrink-proof, moth-proof, mildew-proof)
- Upholstery foam
- Vitamin E and A preparations
- Wallpaper
- Wines

Formaldehyde test kits are available from the Northeast Center for Environmental Medicine, 2800 W. Genesee St., Syracuse, NY 13219. Telephone: (315) 488-2856

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## Glycerin

Glycerine or glycerol; a clear, colorless, syrupy liquid with sweet taste. Mixes easily with water, obtained by hydrolysis of fats, and by synthesis. Is a by-product in the manufacturing of soaps and fatty acids.

Scientific names are 1, 2, 3 propane triol and trihydroxypropane.

Has been tabulated in 1583 uses and may be found in the following products:

Solvents - a compound that dissolves another substance.

Humectants - used to retain moisture.

Emollients - used externally to soften skin and internally to soothe irritated surface.

Artificial sweetener, liquors, confectioners

Cosmetics, liquid soaps, and in at least 60% of all shampoos, hand and body soaps

Ink, elastic glue, antifreeze, auto window washing solution.

Suppositories, lubricants, vehicle in many pliable drugs or vitamins

## Phenol

Phenol is any of a family of organic compounds characteristic by attachment of at least one hydroxyl group to a carbon atom which forms part of the benzene ring. Phenol is also called carbolic acid or hydroxybenzene.

In 1834, a German named Ruge isolated carbolic acid from coal tar. In 1843, another German, Gerhardt, prepared the same substance by a different method and called it phenol. In 1845, an English surgeon, Joseph Lister, began to use a dilute solution of phenol to treat wounds, establishing its usage as an antiseptic.

Other uses of phenol are listed below:

1. Starting point for production of epoxy, phenolic resins, aspirin, and many other drugs.
2. Used in manufacture of picric acid explosives.
3. Constituents of herbicides and pesticides.
4. Phenolic resin (bakelite) formed by reaction of phenol with formaldehyde are used in molded articles such as telephone parts, thermal insulation panels and laminated boards, children's toys, refrigerator storage dishes, etc.
5. Used in manufacturing of nylon, synthetic detergents, polyurethane, perfume, gasoline, additives, dyes, photography solutions, in medications.
6. Preservative in medications, antigens for allergy shots.

There are naturally occurring phenols such as:

1. The toxic agent in poison ivy and poison oak.
2. Thyme oil is used as an intermediate solution in production of mentol.
3. Tea Tree Oil and similar