

PRACTICE PREVENTION

Solvents are tricky!

Solve this riddle: What does doing your nails, spritzing perfume, filling your gas tank, a cocktail party, lighting a cigarette, going to the dry cleaner and brain damage have in common?

If you guessed **solvents or volatile organic compounds**, you are correct! There are solvents in nail polish remover and there is alcohol in perfumes you use getting ready. Benzene and other solvents are in gasoline as you fill the tank on the way. You drink alcohol in the wine at the party. Butane fuels the cigarette lighter you use to light a friend's cigarette. Solvents are used at the dry cleaner's to get the wine stain out of your party clothes.

Solvents are everywhere.

Solvents are volatile liquids that are used to dissolve other materials. They are everywhere and we have many uses for them. They are found in glues, paints, cleaning products, aerosols, dry cleaning fluids, varnishes, gasoline, thinners and degreasers.

Solvents are dangerous.

If solvents can break down a stain, keep glue from drying in the tube, remove paint from the walls, and ignite quite easily, imagine what they can do to our bodies. Health risks associated with exposures to solvents are many. Exposure depends on many factors: **duration, route and dosage.** The immediate effects range from immediate throat and lung irritation upon inhalation, to dizziness, drunkenness, unconsciousness and even death. Exposure in the womb results in birth defects, learning disabilities and sometimes miscarriage.

How are we exposed?

Solvents are highly volatile, meaning that they readily convert from liquid to gas at room temperature. They are easily absorbed into our bodies. We can inhale them, where they pass quickly through our mucous membranes and lungs right into the bloodstream. We can drink them as in alcoholic beverages. We can absorb them directly through our skin: on contact!

Most of us encounter solvents as a brief acquaintance in our homes, or at work, or running errands. These exposures pose a serious health risk when the exposure is frequent and at higher than normal concentrations.

Solvents are not going away, but they are certainly avoidable.

The volatile nature of solvents is both a plus and a minus. Their volatility means that they go into the air we breathe very fast. But they also go away very fast in a properly ventilated area. They are easily absorbed into our bodies, but they are also quickly eliminated from our bodies. The problems occur when there is recurring exposure to low levels or intermittent exposures to very high levels.

Let's meet the culprits.

- *Alcohol:* We use rubbing alcohol to disinfect. We drink alcohol in the form of beer, wine, and cocktails.
- *Toulene:* Found in spray paints, glues and lacquers.
- *Butane:* Used in cigarette lighters and in fuel.
- *Benzene:* Used in gasoline and found in cigarette smoke.
- *Perchloroethylene:* Dry cleaning chemicals.

Solvents pose serious health risks.

Depending on the exposure, solvents can have severe effects on us and on our children.

- **Fetal Alcohol Syndrome** the most preventable cause of learning disabilities. Alcohol passes through the placenta and is responsible for lower birth weights, decreased IQ, and a range of identifiable defects in children.

- **Fetal Solvent Syndrome** is a similar problem. It results from solvent abuse such as deliberately breathing, or "huffing" glues, paints, or gasoline during pregnancy.

- **Chronic occupational exposure** to solvents may result in memory loss, mood changes, and liver damage. Toluene exposure during pregnancy has been linked with spontaneous abortion.

- **"Huffing"** glue, gasoline or other chemicals is dangerous and deadly.

- Benzene is a known **carcinogen**.

Exposures pose the greatest risk to the young and the unborn.

Developing fetuses are extremely delicate creatures. Their unformed nervous systems and developing brains are affected much more easily and drastically than adults. Solvents go into a mother's blood very quickly and cross the placenta easily as well. Some solvents, especially alcohol, like to collect in fat tissue and therefore in breast milk.

What you can do to reduce exposure:

- Be aware of what is in the products you use. Read labels for paint, nail polish removers, lacquers, varnish, cleaning sprays, carpet spot removers, car cleansers, glues, thinners, etc.

- A good **rule of thumb**: if it smells toxic, it probably is. Many solvents have a very strong odor due to their volatility. But be careful, some don't.

- Use good ventilation. Use a fan. Open windows. Go outside to do the job if possible.

- Use a face mask and goggles if your job requires handling solvents.

- Substitute with a less toxic alternative.

Friendly, less volatile products

The best way to avoid solvents is to not use them. There is a host of more body/brain friendly products for the home:

- Natural degreasers made with essential oils like tea tree oil not only work wonderfully, but they smell great and cost about the same.

- Citrus based cleaners remove goopy, gummy things just as well as alcohol based cleaners.

- Water-based paints are just as colorful and long lasting as oil based.

- Elbow grease is definitely non-toxic.

- Baking soda, vinegar, bleach (carefully), borax.

- **Rule of thumb**: if it is good to the environment it probably won't hurt us using it.

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For more information, visit THE HEALTHY CHILDREN PROJECT online at [www.healthychildrenproject.org](http://www.healthychildrenproject.org) or call: 1.888.300.6710 or visit the INSTITUTE FOR CHILDREN'S ENVIRONMENTAL HEALTH online at [www.iceh.org](http://www.iceh.org) or call: 360-331-7904.