



## Household Chemicals

### Information Sheet

#### Scientific Background

Solvents are substances that dissolve something else, such as unwanted dirt, grease, or finishes without harming material. They dry quickly and can carry other products, like pigment for paints. The safest products use water-based, detergent-based, or other non-organic solvent. Most non-water solvents are organic – petroleum distillates, mineral spirits, toluene, chlorinated solvents.



Most household solvents are also called volatile organic compounds (VOCs) that contain carbon and easily evaporate at room temperature (organic solvent). Flammable products have a high percentage of organic solvent. Aerosols disperse the cleaning product, or solvent, and propel into the air tiny particles that increase the chance of inhalation or that it will come into contact with your tissues. Droplets may irritate and damage eyes, skin, and lungs. Manufacturers are not required to name the chemical propellants because they are “inert,” that is, not part of the product function. Pump spray bottles do not contain propellants, but because they use air to break up the liquid, it increases the dispersal of the product in the air.

Adverse health effects from exposure to organic solvents depends on:

- Type of solvent
- How much solvent you are exposed to
- Frequency and length of the exposure
- Your weight and physical condition

Known to cause:

- Cancer
- Birth defects
- Allergy: inhalant & skin
- Asthma triggering in children (up 40% in 10 years)

#### Discovery



- Air fresheners/deodorizers – most work by desensitizing your sense of smell, coating your nasal passage with an oil film, or by masking the unpleasant odor with another odor. Aerosol spray air fresheners also release propellant chemicals.
- Bleach – extremely reactive, toxic gas when mixed with ammonia
- Cleaners for rugs, upholstery, and dry cleaning fluids – contain chemical solvents, flammable, irritate your skins and eyes. Solvent vapors may linger in the air.
- Disinfectants & Pesticides – disinfectants are pesticides used to control bacteria, some contain strong chemicals
- Drain openers – highly corrosive and never mix with bleach
- Oven cleaners – contain very strong, corrosive chemicals, aerosol sprays transform these caustic oven cleaners into a fine mist that may penetrate into and damage lung tissue
- Polishes & Furniture oils – organic solvents that carry or dissolve the polish are often health hazards. These solvents may be identified as “inert.” Hardwood floor cleaners and furniture oils also contain a high percentage of organic solvents.
- Shore care products – strong chemicals, some include chemical solvents

Ref: *Healthy Indoor Air for America's Homes* (Parrot, Andrews) [or www.aerias.org](http://www.aerias.org)



## Fixing the Problem



The best thing to do is use less hazardous substitutes. For example, use vegetable-based soaps instead of petroleum-based soaps/detergents. You can also use non-toxic or low toxicity products. Here are some less toxic substances to use in cleaning:

### *All-purpose, multi-purpose cleaner*

- Mix ½ cup ammonia, 1/3 cup vinegar, ¼ cup baking soda in 1 gallon of warm water (don't use this on wood products)
- Mix 2 teaspoons borax, 1-teaspoon vegetable-based soap/detergent, 1 teaspoon of borax, and 2 tablespoons of vinegar in a quart of water. Store in spray bottle.

### *Bleach*

- Use Borax

### *Carpet and rug shampoo*

- To prevent problems, vacuum often to keep dirt from getting ground in. If cleaning is needed, mix ½ cup mild dishwashing detergent with 1 pint of boiling water; let cool. Whip paste into a stiff foam using an electric mixer.
- Apply to the carpet with a damp sponge. Rub gently. Work in 4x4 foot sections. Wipe off suds with a clean cloth. To rinse, add 1-cup vinegar to 1 gallon of lukewarm water. Rinse each section and wipe carpet dry as you go.
- Change rinse solution frequently.
- Clean carpet on a dry, sunny day with windows open to speed drying. Do not soak carpet or it may mildew. Test any shampoo first on an inconspicuous area to prevent discoloration. For small areas, use club soda.

### *Ceramic tub and tile cleaner*

- Mix ¼ cup baking soda, ½ cup white vinegar, 1-cup ammonia (optional) and 1 gallon of warm water in a bucket. Stir until the baking soda dissolves.

### *Degreaser*

- Borax on a damp cloth
- Weak acids like vinegar or lemon juice

### *Dishwasher*

- Rinse plates first and remove any dried-on food. Use sodium hexametaphosphate in place of detergent.
- **Never** use dishwashing liquid as a substitute since the bubbles can clog the drain and prevent water spray.

### *Drain cleaner*

- **Prevent clogs** by putting a strainer or screen on all drains to keep out food scraps and hair. To loosen clogged drains, mix 1 cup of baking soda, 1 cup of vinegar, and 1 cup of salt (optional). Pour down the drain and cover it to allow the carbon dioxide bubbles to work on the clog. Wait 15 minutes. Flush with boiling water.
- **For more serious clogs**, use a plunger or a plumber's snake.

### *Floor cleaners*

- **For vinyl tile and linoleum floors:** Remove scuffmarks with toothpaste. For regular cleaning, mix 1-cup vinegar into 2 gallons water. To remove old wax, pour a small amount of club soda on the area, scrub well, let it soak in for a few minutes, then wipe clean. To polish these floors, mix one part thick, boiled starch with one-part soapsuds. Rub mixture on floor, and then polish dry with a clean, soft, dry cloth.
- **For wood floors**, damp mop with a mild vegetable oil soap and dry immediately.



- **For painted or varnished wood floors**, mix 1 tsp washing soda into 1 gallon of hot water; rinse with clear water. Dry immediately.
- **For polyurethane-sealed wood floors**, use ¼ cup white vinegar in 1 gallon of water. Dry immediately.

#### *Furniture polish*

- Mix 1 tablespoon of **lemon oil** in 1 pint of mineral oil and put in a spray bottle.
- Mix 3 parts **vegetable oil** (like olive oil) with 1 part lemon juice or vinegar and apply with a soft cloth.
- For **varnished** wood, use a mild, **vegetable oil soap**.
- For **unvarnished** wood, use almond, walnut, or olive oil. Work it in well and wipe off excess. Oily surfaces attract dirt.
- To **revitalize old furniture**, use linseed oil.
- Wash **painted wood** with a mix of 1-teaspoon washing soda in a gallon of hot water and rinse with clear water.

#### *Glass and window cleaner*

- Mix 1 tablespoon of vinegar, 3 tablespoons ammonia (optional) in ¾ cup of warm water into a clean spray bottle. Wipe off with newspaper.
- If **chemical cleaners have been used before**, then a streaking residue may be left. To prevent this, wipe the glass off with **rubbing alcohol first**.
- For **windows**, put a squirt of **dishwashing liquid** in a gallon of water. Use a squeegee to prevent streaks.

#### *Mold and mildew cleaner*

- To **prevent** mold and mildew, repair leaks and use an exhaust fan in bathrooms or a dehumidifier in areas where there is a lot of humidity in the air.
- To **clean mold and mildew**, mix ½ cup of borax in 1 gallon of hot water. Spray on and wipe off. Scrub mildew spots with borax/water and a nylon scouring pad.
- For **shower curtains**, machine wash and add 1 cup of vinegar to the rinse cycle.

#### *Spot remover*

- Clean spills as soon as they happen with club soda, lemon juice, or salt.
- Clean with a solution of 1 teaspoon white vinegar and 1 quart cold water.
- **For stains that have set**, try a dab of full-strength white vinegar or put paper towels underneath to blot, and apply a solution of equal parts ammonia and water.

#### *Toilet bowl cleaner*

- Coat toilet bowl stains with a paste of **lemon juice** and borax. Let sit about 20 minutes and then scrub with a bowl brush.
  - Clean bowl regularly with a solution of ½ cup **borax** in 1 gallon of water. Sprinkle baking soda around the rim.
  - Let 1 cup of borax sit in the bowl overnight.
  - **Avoid** using solid toilet bowl deodorizers that contain **paradichlorobenzene** since that chemical may cause cancer.
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**If you do not use safer substitutes, then be sure to follow these rules:**

- **Do not use a potentially hazardous chemical** unless absolutely necessary. Chlorine bleach, for example, can produce a toxic gas if mixed with ammonia or acid-based cleaners (some toilet bowl cleaners contain acids). Bleach can also irritate the skin as well as damage fabric if undiluted bleach is spilled on it.
  - Use household chemicals and products **only for their intended purpose**
  - Always use products according to the **manufacturer's directions**
  - Choose **product packaging that reduces the chance of spills and leaks**. Package should also be childproof if children live or visit in the home.
  - Keep household products in **original containers** so safety information and directions for use are with the product
  - Always use household products in **well-ventilated** areas
  - Choose products with **low VOC content**
  - Choose **non-fragrant** products
  - **Be careful with "all-natural" products**. These can also have high VOC and hazardous content.
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**Reference**

O'Connell A. "Unseen perils are lurking in your home." The Times (London). April 11, 2000.