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RECIPES FOR A NON-TOXIC HOUSEHOLD



**University of the Virgin Islands
Cooperative Extension Service**
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SUBSTANCE	POTENTIAL HEALTH EFFECTS/SYMPTOMS
PLASTICS	Plastics cause problems because of "out-gassing" — the release of fumes.
ACRYLONITRILE* (Lucite/Plexiglas)	Suspected human carcinogen. Symptoms include breathing difficulties, vomiting, diarrhea, nausea, weakness, headache, and fatigue.
EPOXY RESINS	Suspected human carcinogen.
PHENOL - FORMALDEHYDE RESIN ("Bakelite")	Releases formaldehyde when new (see formaldehyde).
POLYESTER	Can cause eye and respiratory tract irritation and acute dermatitis symptoms.
POLYETHYLENE	Suspected human carcinogen.
POLYURETHANE	Can cause bronchitis, coughing, and skin and eye problems. Also releases toluene diisocyanate, which can cause severe pulmonary effects and sensitization.
POLYVINYL CHLORIDE (PVC)	Releases <i>vinyl chloride*</i> which is carcinogenic, mutagenic, and teratogenic. Symptoms include mucous-membrane dryness, numbness in fingers, stomach pains, hepatitis, indigestion, chronic bronchitis, ulcers, Raynaud's disease, and allergic skin reactions.

Substances marked with an asterisk (*) have been listed by the U.S. Environmental Protection Agency as "priority pollutants" recognized as being hazardous to human health.

RECIPES FOR A NON-TOXIC HOUSEHOLD



Many common household products used in the Virgin Islands can trigger allergies, cause nausea or other adverse health effects, harm septic systems, and/or pollute our coastal or ground waters.

There are alternatives to these products available locally, including recipes using common household items that are relatively inexpensive and easy to obtain. Not only can changing our habits improve our health and the health of our environment, we can also save money!

When buying household products, we need to ask ourselves:

- ~ Is toxic exposure possible when using the product?
(What are the effects on humans?)
- ~ What happens to the product once we finish using it?
(What are the effects on the environment?)

Scientists know very little about the toxic health effects of almost 80 percent of the more than 48,000 chemicals listed by the U.S. EPA.

Fewer than 1,000 of these chemicals have been tested for **acute** health effects (immediate adverse effects such as rashes, asthma or allergy attacks), and only about 500 have been tested for **chronic** (long-term) health effects such as cancer, birth defects, or genetic changes. Furthermore, almost no testing has been done to determine possible adverse effects that can occur when combining two or more different chemicals. Many chemicals can be relatively safe by themselves, but are extremely harmful when mixed together.



The average home is filled with many products made from inadequately-tested synthetic chemicals. Many household products we commonly use and may think are safe can actually be very toxic. Common symptoms such as headaches, nausea, allergic reactions, and depression can be related to exposure to toxic household chemicals. For example, insomnia may be a response to the formaldehyde resin used on your no-iron bed sheets. Developmental and behavioral problems in children have also been linked to exposure to household toxic chemicals. The table provided in the back of this booklet lists many symptoms and disorders associated with commonly-used chemicals.

SUBSTANCE	POTENTIAL HEALTH EFFECTS/SYMPTOMS
NITROBENZENE*	Symptoms include bluish skin, shallow breathing, vomiting, and death.
PARAFFIN	Impurities in paraffin are carcinogenic.
PENTACHLOROPHENOL*	Carcinogenic. Can also cause central-nervous-system depression, light-headedness, dizziness, sleepiness, nausea, tremor, loss of appetite, disorientation and liver damage.
PHENOL	Suspected human carcinogen. Symptoms include skin eruptions and peeling, swelling, pimples, hives, burning, gangrene, numbness, vomiting, circulatory collapse, paralysis, convulsions, cold sweats, coma and death.
PESTICIDES, HERBICIDES, AND FUNGICIDES* <i>(Over 1500 are used in consumer products, combined with ~2000 other possible toxic substances to make nearly 3500 pesticide products)</i>	Over 100 in common use are thought to be carcinogenic, mutagenic, or teratogenic. Symptoms include paralysis, neuritis, sterility, convulsions, dizziness, weakness, tiny pupils, blurred vision, muscle twitching, slowed heartbeat, aplastic anemia, nausea, cough, diarrhea, tremors, damage to the liver, kidneys, and lungs, to ear, nose and throat, hyperirritability, brain hemorrhages, central-nervous-system effects, decreased fertility and sexual function, and altered menstrual periods.

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SUBSTANCE	POTENTIAL HEALTH EFFECTS/SYMPTOMS
LEAD* <i>There Is No Demonstrably Safe Exposure Level for Lead!</i>	Chronic low-level exposure has been found to produce permanent neuro-psychological defects and behavior disorders in children, such as low IQ, short attention span, hyperactive behavior, and motor difficulties. High doses can cause brain damage, nervous system disorders, and death. Lead can also affect the kidneys, liver, gastrointestinal system, heart, immune system, nervous system, and blood-forming system, and can cause malformations in sperm and low sperm counts. Early symptoms of lead poisoning include abdominal pains, loss of appetite, constipation, muscle pains, irritability, metallic taste in the mouth, excessive thirst, nausea and vomiting, shock, muscular weakness, pain and cramps, headache, insomnia, depression, and lethargy.
METHYLENE CHLORIDE	Suspected human carcinogen. Mutagenic.
NAPHTHALENE*	Suspected human carcinogen. Symptoms include skin irritation, headache, confusion, nausea and vomiting, excessive sweating, urinary irritation. In sufficient quantity can lead to death.

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It is difficult to determine the toxicity of a product because of the many different factors that need to be considered. Whether or not a product is toxic can depend on how much of the product you are exposed to and the *method of exposure*. *Inhalation* exposure is from breathing in chemical compounds or particles; *ingestion* exposure is from swallowing chemicals; and *absorption* exposure is chemical absorption through the skin. Some products may be hazardous only for one method of exposure (such as ingestion), but others may be harmful for any method of exposure.

What may be safe for humans can kill or harm more delicate species and disrupt the balance of fragile ecosystems such as mangrove lagoons and coral reefs.

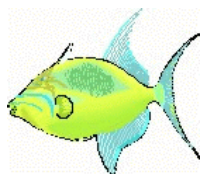
When we use and dispose of these products, they can contaminate the environment. In the Virgin Islands, our landfills do not have liners to keep *leachate* (water that collects pollutants as it seeps through the landfill) from entering ground water, coastal waters, and sensitive habitats. Toxic chemicals contained in products we use and throw away daily can easily pollute our environment.

To determine the *eco-toxicity* of a product, we must evaluate the basic toxicity of its ingredients, its *persistence* in the environment (how long it takes for nature to break down the product or chemical into non-toxic components), and its tendency to accumulate in the food chain. Toxic synthetic chemicals tend to persist in

the environment because their chemical structures do not break down under normal conditions. Once these artificial compounds are made, they become **pollutants** because they cannot decompose and recombine into other useful, non-toxic substances.



Naturally-occurring substances can be broken down efficiently into simple elements by nature; these substances are **biodegradable**. However, the word biodegradable is often misused — it is applied to products that generally aren't biodegradable (like detergents and plastics) and not used to describe those that usually are biodegradable (like soap and paper). Everything will break down (or biodegrade) eventually, but the important consideration is not **whether** a substance will eventually break down, but how **fast** and how **easily** the environment can break down that chemical.



Persistent chemicals that are not easily broken down **accumulate** in soils, plants, animals and other organisms. These are then eaten by other animals, which are eaten by predators even higher in the food chain, and so on. Each higher organism in the food chain contains a greater accumulation of that chemical in its body. Humans are at the top of the food chain, so our body's fatty tissues can accumulate large levels of harmful substances that occur in much lower levels in the environment. These chemicals can then be passed on to our children.

SUBSTANCE	POTENTIAL HEALTH EFFECTS/SYMPTOMS
FORMALDEHYDE	Suspected human carcinogen. Vapor inhalation symptoms: cough, throat swelling, watery eyes, respiratory problems, throat irritation, headaches, rashes, tiredness, excessive thirst, nausea, nosebleeds, insomnia, disorientation, broncho-constriction, and asthma attacks. Ingestion symptoms: nausea, vomiting, clammy skin and other shock symptoms, severe abdominal pain, internal bleeding, vertigo, loss of ability to urinate, and coma, possibly leading to death. Skin contact symptoms: skin eruptions. Speculation exists that formaldehyde may be a contributing factor in sudden infant death syndrome.
HEXANE	Symptoms include cough, depression, heart problems, nausea, vomiting, abdominal swelling, and headache.
KEROSENE	Symptoms include intoxication, burning sensation in chest, headaches, ringing in the ears, nausea, weakness, uncoordination, restlessness, confusion and disorientation, convulsions, coma, burning in the mouth, throat, and stomach, vomiting and diarrhea, drowsiness, rapid breathing, tachycardia, low-grade fever, and death.

SUBSTANCE	POTENTIAL HEALTH EFFECTS/SYMPTOMS
DETERGENTS	Symptoms include dermatitis, flu-like and asthmatic conditions, severe eye damage, and severe upper-digestive tract damage if ingested.
DYES	Do-it-yourself, at-home-dyes contain highly carcinogenic dichlorobenzidine, which is very easily absorbed through the skin. Can also cause anemia, jaundice, and damage to the central nervous system, kidneys, and liver, as well as death. Azo, basic, disperse fiber-reactive and vat dyes all can cause allergic reactions, as can fluorescent whitening agents.
ETHANOL	Symptoms include central-nervous-system depression, anesthesia, feelings of exhilaration and talkativeness, impaired motor coordination, diplopia, vertigo, flushed face, nausea and vomiting, drowsiness, stupor, coma, dilated pupils, shock, hypothermia, and possible death.
FRAGRANCE (can indicate the presence of up to 4000 separate substances)	Reported symptoms include headaches, dizziness, rashes, skin discoloration, violent coughing and vomiting, and allergic skin irritation. Central-nervous-system symptoms may include depression, hyperactivity, irritability, inability to cope, and other behavioral changes.

In order to determine the effects a product may have upon either ourselves or our environment, we must become experts at reading **product labels**.

If a product contains a chemical that is hazardous, the label must, by law, specify what that hazard is.

Look for the following words on your cleaning and other household products:



Toxic/Highly Toxic:

Poisonous if you drink it, breathe the fumes, or if it is absorbed through your skin.

Extremely Flammable/Flammable/Combustible:

Can catch fire if exposed to a flame or electric spark.

Corrosive:

Will corrode metal, can eat away your skin or cause inflammation of mucous membranes.

Strong Sensitizer:

May provoke an allergic reaction.

DANGER:

Could kill an adult if only a tiny pinch is ingested.

WARNING:

Could kill an adult if about a teaspoon is ingested.

CAUTION:

Could kill an adult if an amount from two tablespoons to two cups is ingested.

There are many inexpensive, easy-to-use alternatives to common household cleaning products, disinfectants, and pesticides that are non-toxic to human health and the environment.

The best cleaning products are those that you can make at home. They are simple, inexpensive, effective, and non-toxic. Natural substances that can be used for many cleaning purposes that you may want to keep at hand include:

- C **Baking soda**
- C **Salt**
- C **Distilled white vinegar**
- C **Rubbing alcohol**
- C **Lemon juice**
- C **Liquid soap** — save the ends of bar soap in a jar with water. When you collect enough, they will dissolve into a good cleaning soap.
- C **Borax** — a naturally-occurring mineral that has no toxic fumes and is safe for the environment, but can be harmful if swallowed and irritates eyes.
- C **Non-chlorine scouring powder**
- C **Trisodium Phosphate (TSP)** and **Sodium Hexa-metaphosphate** — naturally-occurring minerals that are non-toxic to humans; can be purchased from hardware or paint stores.



SUBSTANCE	POTENTIAL HEALTH EFFECTS/SYMPTOMS
BENZENE*	Carcinogenic. Symptoms include drunken behavior, light-headedness, disorientation, fatigue, and loss of appetite.
BENZYL ALCOHOL/SODIUM BENZOATE	Symptoms include intestinal upsets and allergic reactions.
CHLORINE	Exposure has been linked to high blood pressure, anemia, diabetes, and heart disease, and causes a 44% greater risk of gastrointestinal or urinary-tract cancer. Symptoms include pain and inflammation of the mouth, throat, and stomach, and erosion of mucous membranes, vomiting, circulatory collapse, confusion, delirium, coma, swelling of the throat, severe respiratory tract irritation, pulmonary edema, and skin eruptions.
CRESOL	Affects the central nervous system, kidneys, lungs, pancreas, and spleen, and can be fatal. Can be absorbed through the skin and mucous membranes. Symptoms include dermatitis, digestive disturbances, faintness, vertigo, mental changes, sweating, pallor weakness, headache, dizziness, ringing in the ears, shock, delirium, and skin numbness and discoloration.

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HARMFUL EFFECTS OF CHEMICALS FOUND IN HOUSEHOLD PRODUCTS

These substances are those that are classified as and known to be hazardous. Those indicated with an asterisk (*) have been listed by the U.S. Environmental Protection Agency as “**priority pollutants**” recognized as being hazardous to human health. This partial list was taken from *Nontoxic, Natural & Earthwise* by Debra Lynn Dodd (G.P. Putnam’s Sons, 1990).

SUBSTANCE	POTENTIAL HEALTH EFFECTS/SYMPTOMS
AEROSOL PROPELLANTS	Heart problems, birth defects, lung cancer, and liver damage. Symptoms include headaches, nausea, dizziness, shortness of breath, eye and throat irritation, skin rashes, burns, lung inflammation.
AMMONIA (including Ammonium Chloride, Ammonium Hydroxide, Benzalkonium Chloride, and Quaternary Ammonium Compounds)	Symptoms include irritation of eyes and respiratory tract, conjunctivitis, laryngitis, tracheitis, pulmonary edema, pneumonitis, and skin burn.
ASBESTOS*	Asbestosis (a chronic lung disease), mesothelioma (an often fatal form of cancer). There is NO safe level of asbestos exposure.

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SPECIFIC PRODUCTS

AIR FRESHENERS *harmful ingredients* — aerosol propellants, colors, cresol, ethanol, formaldehyde, fragrances, naphthalene*, phenol, xylene.



These products work by either using a nerve-deadening chemical to interfere with your ability to smell; by coating your nasal passages with an undetectable oil film; by deactivating the offensive odor; or by covering up the odor with another smell.

Alternatives

- Keep things clean.
- Open the windows. This will also help reduce any build-up of fumes that may be in your home.
- Empty the garbage frequently and clean the can often. One-half cup of borax or baking soda sprinkled in the bottom of trash cans will help inhibit the growth of odor-producing molds and bacteria.
- Distribute partially-filled bowls of baking soda or white vinegar around the room to absorb odors.
- Make an air-freshening tea by adding herbs (such as bay leaf, sweet thyme, or basil) to boiling water to release their scent.
- Put drops of essential oils (like rosemary or lavender) on a cotton ball placed at room entrance.
- Make citrus pomanders. Pierce a thin-skinned orange or lime with cloves.

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AMMONIA AND OTHER ALL-PURPOSE CLEANERS *harmful ingredients* — ammonia, artificial dyes, detergents and fragrances.

Ammonia can be very toxic — only use it in well-ventilated areas and avoid inhaling it.

NEVER MIX AMMONIA (or vinegar) WITH BLEACH — IT CREATES A DEADLY GAS CALLED CHLORAMINE GAS!!!



Alternatives

- Mix one gallon hot water with $\frac{1}{2}$ cup of borax
- Mix one teaspoon of liquid soap or borax into one quart of warm or hot water. Add a squeeze of lemon juice or a splash of vinegar to cut grease.
- Mix three tablespoons baking soda in one quart warm water.
- Mix rubbing alcohol with hot water to disinfect and clean.
- For heavy-duty cleaning, mix $\frac{1}{2}$ cup borax, $\frac{1}{2}$ teaspoon liquid soap and two teaspoons TSP into two gallons warm water.

BASIN, TUB AND TILE CLEANERS *harmful ingredients* — aerosol propellants, ammonia, detergents, ethanol, fragrances.



Alternatives

- Use a non-chlorine scouring powder (see Scouring Powder).
- For toilets, make a paste of $\frac{1}{3}$ cup lemon juice and $\frac{2}{3}$ cups borax, spread on stains, let sit two hours, then brush off.
- For regular toilet cleaning, brush toilet with baking soda.
- Use rubbing alcohol to clean toilet and tiles.

FOR MORE INFORMATION, CALL:

American Lung Association: 1-800-LUNG-USA

Consumer Product Safety Commission: 1-800-638-2772

National Institute for Environmental Health Sciences
(EnviroHealth Clearinghouse): 1-800-643-4794

National Institute for Occupational Safety and Health
(NIOSH): 1-800-356-4674

U.S. Environmental Protection Agency:
Indoor Air Quality Information Clearinghouse (IAQ
INFO): 1-800-438-4318

National Lead Information Center: 1-800-LEADFYI

National Pesticides Telecommunications Network:
1-800-858-PEST

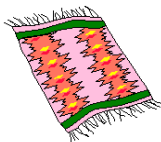
UVI Cooperative Extension Service
St. Croix: 692-4080
St. Thomas/St. John: 693-1080

V.I. Department of Health
St. Croix Hospital: 778-6311
St. John Hospital: 776-6400
St. Thomas Hospital: 776-8311

Wash new sheets and clothing labeled as described above a couple of times to remove formaldehyde residues.

Building and furnishing materials can also contain harmful materials such as formaldehydes. The following is a list of materials and the harmful materials they may contain. Again, **read labels carefully!**

CARPETING AND AREA RUGS *harmful materials* — formaldehyde, pesticides (moth-proofing), plastics



FLOORING *harmful materials* — formaldehyde, plastics

FURNISHINGS *harmful materials* — formaldehyde, plastics

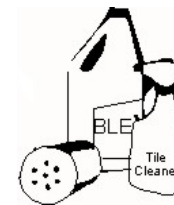
PAINTS, FINISHES, SEALANTS, CAULKS, AND ADHESIVES *harmful materials* — aerosol propellants, ammonia, benzene*, ethanol, formaldehyde, glycols, kerosene, lead*, pentachlorophenol*, phenol, plastics, toluene*, trichloroethylene*, xylene



WOOD PRODUCTS *harmful materials* — formaldehyde, plastics, pentachlorophenol*, phenol

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BLEACH *harmful ingredients* — chlorine, lye, artificial dyes, detergents, fluorescent brighteners, synthetic fragrances.



The main hazardous ingredient in bleach is **sodium hypochlorite**. Chlorine is toxic as a skin irritant and by inhalation or ingestion. Chlorine residues left on fabrics after laundering can also trigger allergic reactions. Chlorine bleach also causes septic systems to fail because it kills the beneficial bacteria that break down waste in the septic tank.

NEVER MIX ANYTHING WITH BLEACH -- IT CAN CREATE DEADLY GASES!!!

Alternatives

- Use baking soda or borax in your laundry washwater.
- Use non-chlorine bleach.

DISHWASHER DETERGENT *harmful ingredients* — chlorine, dyes, detergents, fragrances.

Alternative

- Use the same amount of sodium hexametaphosphate as you would detergent. It cuts grease, leaves dishes spotless, and cleans the dishwasher with each washing.

DISHWASHING LIQUID *harmful ingredients* — liquid detergent, artificial dyes, fragrances, ethanol.

Hot water is the most effective dish-cleaning agent.

Alternatives

- Use plain liquid soap or fragrance- and dye-free detergent.
- Rub your sponge with bar soap.
- Add a few slices of fresh lemon or a few tablespoons of vinegar *to cut grease*.
- *To wash bottles*, put sand and water in the bottle, cover the opening, and shake vigorously.
- *To clean wooden serving dishes* (cutting boards, bowls, etc.), rub half a cut lime or lemon over the surface, rinse, dry with a cloth, and cover with salt to absorb moisture.
- *To wash fine crystal*, clean gently with warm soapy water then rinse with a mixture of one part white vinegar and three parts warm water.
- *To remove stains on enamel cookware*, use a salt and white vinegar paste.
- *To remove burned-on food*, sprinkle the pot or pan with baking soda and moisten with water. Let sit for a few hours and food should lift right off. Plain steel wool or cloth scrubs (with no added detergents) and a little elbow grease work just as well.

DISINFECTANTS *harmful ingredients* — cresol, phenol, ethanol, formaldehyde, ammonia, chlorine, artificial dyes, synthetic fragrances.

Alternatives

- Clean regularly with plain soap and water. Just a hot water rinse kills bacteria.
- Keep things dry (bacteria, mildew, and mold cannot live without dampness).
- Try a solution of $\frac{1}{2}$ cup borax to one gallon of hot water.
- Clean with rubbing alcohol or hydrogen peroxide. They disinfect without leaving a residue.

- Mix three tablespoons of lemon juice with one quart of vegetable or mineral oil. Wipe on and then remove with clean cloth.
- Mix one teaspoon olive oil, juice of one lemon, and one teaspoon water (one teaspoon brandy or whiskey optional).
- Mix three parts olive oil and one part white vinegar.
- *For mahogany*: mix equal parts white vinegar and warm water; wipe onto wood and then polish with a chamois cloth.
- *For oak*: boil one quart beer with one tablespoon sugar and two tablespoons beeswax. Wipe cooled mixture onto wood. When dry, polish with a dry chamois cloth.
- Use plain mineral oil, apply sparingly with a small cloth (can add one teaspoon lemon oil to two cups mineral oil for lemon scent).

Many textiles are treated with formaldehyde.

For example, "No-iron" percale bed linens are treated with formaldehyde to prevent wrinkling. It is also used on nylon fabrics to make them flame-proof. Such clothing finishes labeled "easy care," "permanent press," "no-iron," "crease resistant," "durable pressed," "shrink-proof," "stretch-proof," "water repellent," "water-proof," or "permanently pleated" combine formaldehyde resin directly with the fiber, making the formaldehyde irremovable. New textile products treated this way can contain free-formaldehyde levels of 800 parts per million (ppm) to 1000 ppm. Washing can lower levels to 100 ppm, but formaldehyde will continue to be released as the residue breaks down.

- **Fruit and fruit juice** — Stretch the fabric over a basin and pour boiling water over the stain. Wash as usual.
- **Grass** — Rub with glycerin soap and let sit for one hour. Wash as usual.
- **Ink** — Soak fabric in cold water, then wash as usual. If stain has set on a white fabric, wet fabric with cold water, then apply a paste of cream of tartar and lemon juice and let sit for one hour. Wash as usual.
- **Mildew** — Wash in hot, soapy water, rinse and dry in the sun.
- **Milk** — Soak fabric in warm water and rub gently with glycerine soap. Then wash in cool, soapy water, rinse and dry.
- **Mud** — Brush off excess dried mud, then rub the stain with water left over from boiling potatoes or a solution of two tablespoons borax in two cups of water. Rinse well and wash as usual.
- **Perspiration** — Stretch the fabric over a basin and pour boiling water over stain. Wash as usual.
- **Urine** — Sponge stain with a solution of baking soda and water, then rinse in warm water and wash as usual.

WOOD POLISH *harmful ingredients* —

aerosol propellants, ammonia, detergents, synthetic fragrance (particularly lemon, that causes extreme sensitivity in some people), nitrobenzene*, phenol, acrylic, and polystyrene plastics.



Alternatives

(use a soft cloth to apply one of the following mixtures)

- Wipe with mayonnaise.
- Rub with a cloth dipped in cool tea.

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DRAIN CLEANERS *harmful ingredients* — petroleum distillates, sulfur compounds.

Alternatives

- Use a plunger or a mechanical snake to dislodge clogs.
- Pour $\frac{1}{2}$ cup baking soda and $\frac{1}{2}$ cup of white vinegar down the drainpipe and let sit for ten minutes. Flush with $\frac{1}{2}$ gallon of boiling water and repeat as needed.
- Pour $\frac{1}{2}$ cup of salt and $\frac{1}{2}$ cup of baking soda down the drain, followed by six cups of boiling water. Let sit for several hours or overnight, then flush with water.
- Extra strength: use one cup baking soda, one cup salt, and $\frac{3}{4}$ cup vinegar, let sit 20 minutes and flush with one gallon of hot water.
- If these methods don't work, try pouring a $\frac{1}{4}$ cup of 35% hydrogen peroxide down the drain. Wait a few minutes, then plunge. Repeat a second time, if needed.
- You can prevent clogged drains by using a drain strainer to trap food particles and hair that cause clogs.
- For regular maintenance, pour four tablespoons borax flushed with boiling water every two weeks.
- **NEVER** pour grease down the drain.

FABRIC SOFTENERS *harmful ingredients* — aerosol propellants, ammonia, artificial dyes, very strong synthetic fragrances.

Alternatives

- Pour one cup white vinegar into the final rinse water.
- Use unscented dryer sheets rather than liquids added to wash water or aerosol sprays.

FLEA CONTROL *harmful ingredients* —

pesticides* such as DDVP, propoxur, diazinon, and carbaryl (which are nerve poisons that are also toxic to pets and humans and can cause long-term health problems).



Alternatives

- **Management:** keep pets healthy -- fleas are attracted to unhealthy animals.
 - Establish one regular sleeping area for your pet that can be cleaned easily and regularly. Fleas accumulate where animals sleep, so it will be easier to collect them. Remove and wash bedding materials (blankets, rugs) frequently.
 - Vacuum pet areas every week with a strong canister-type machine. Use crevice tools for corners and out-of-the-way places (including furniture). Empty vacuum bag outside the house immediately.
- **Repellents:** Sprinkle two ounces of lavender-oil extract over two or three quarts of rock salt and let the salt absorb the oil. Sprinkle lavender salt under dressers, sofas, and rugs. Dried pennyroyal can also be used.
 - Feed your pet brewer's yeast or garlic.
- Combine orange peels, grapefruit peels, three cloves garlic, one tablespoon rosemary (optional), and one pint of water in a blender, blend until liquefied, and then heat mixture on low heat for 15 minutes. Strain liquid into spray bottle, spray on pet, and massage thoroughly into pet's coat, avoiding the eyes.
- **Flea Killers:** Use a flea comb. Run the comb through your pet's fur and drop the fleas that remain on the comb into a nearby container of soapy water (flush water down toilet immediately when through).

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magnet in the salty water and attract the tarnish away from the silver. After leaving the silver in the salt water with aluminum for a few minutes, remove the pieces and wipe them dry (you may need to repeat the process a few times for badly tarnished silver).

- For large items (like trays), run very hot water into a stopped up kitchen sink, adding a sheet of aluminum foil and a handful of salt. Let sit for two to three minutes, then remove, rinse and dry.
- For silverware, put a sheet of aluminum foil in the bottom of a pan, add two or three inches of water, one teaspoon salt, and one teaspoon baking soda. Add silverware and boil for two or three minutes, then remove, rinse and dry.
- For jewelry, fill a glass jar half full with thin strips of aluminum foil, add one tablespoon salt and fill jar with cold water. Keep covered. To use, drop in jewelry for a few minutes, remove, rinse and dry.

SPOT REMOVER *harmful ingredients* —

perchloro-ethylene*, ammonia, benzene*, chlorine, synthetic fragrances, naphthalene*, toluene*, trichloroethylene*, aerosol propellants.



Alternatives:

- **Blood** — soak fabric in cold water, then wash with soap and cold water. If necessary, bleach white fabrics in a solution of $\frac{1}{4}$ cup borax and two cups water, wash as usual.
- **Cocoa, chocolate, and coffee** — Sponge stain with cold water and then with a solution of one tablespoon borax in two cups water. Wash as usual.

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SILVER POLISH AND OTHER METAL CLEANERS *harmful ingredients* — ammonia, petroleum distillates, ethanol, synthetic fragrance, sulfur compounds.

Alternatives

- **Brass and Copper Polish** — There are a number of different home remedies for brass and copper:
 - Use lemon juice or a paste of lemon juice and salt, or a slice of lemon sprinkled with baking soda. Rub with a soft cloth, rinse with water and dry.
 - Make a paste of lemon juice and cream of tartar. Apply, leave on for five minutes, then wash in warm water and dry with a soft cloth.
 - Make a paste of salt, white vinegar, and flour. Apply the paste, let it set for an hour, then rub off, rinse, and polish with a soft cloth.
 - Rub with hot buttermilk or sour milk.
 - Rub with tomato juice.
 - Brass will look brighter and need less polishing if rubbed with olive oil after each polishing.
 - For tarnished copper, boil item in a pot of water with one tablespoon salt and one cup white vinegar for several hours. Wash with soap in hot water, rinse and dry.
- **Chrome Polish** — Wipe with a soft cloth dipped in cider vinegar or rub with lemon peel, rinse, and polish with a soft cloth.
- **Gold Polish** — Wash in lukewarm, soapy water. Dry with a cotton cloth and then polish with a chamois cloth.
- **Silver Polish** — There are many different home remedies to polish silver, but the best way is to **magnetize** tarnish away:
 - Submerge silver pieces in water containing some type of salt (table salt, sea salt, rock salt, baking soda) and aluminum (either use an aluminum pan or put strips of aluminum foil in the water). The aluminum will act as a



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- Shampoo animals to knock off fleas and drown others. Use ordinary soap or insecticidal soap.

GLASS CLEANERS *harmful ingredients* — ammonia, artificial dye, aerosol propellants.



Alternative

- Half-fill a pump spray bottle with white vinegar and the other half with water.
 - For heavily soiled glass, mix one cup of vinegar in one gallon of water, add two tablespoons of cornstarch and mix well.
- Tips:**
- If vinegar and water streaks, it's because you have been using a type of glass cleaner that has left years of build-up. Use a little rubbing alcohol to remove build-up.
 - Never wash windows when the sun is shining directly on them. The mix will dry too fast and streak.
 - Use newspaper instead of paper towels to clean glass. Newspaper won't leave paper fibers on the glass.

INSECTICIDES *harmful ingredients* — pesticides*, aerosol propellants.



Alternatives

- **Ants:** There are a number of different methods for keeping ants away, but first, keep things clean, don't leave crumbs or garbage lying around.
 - Wipe up a line of ants with a wet sponge so other ants won't follow. Wipe up stray ants that may be out looking for food or other ants.

Chemicals marked by asterisks (*) have been listed by the U.S. Environmental Protection Agency as **priority pollutants recognized as being hazardous to human health.*

- Sprinkle boric acid, talcum powder, powdered chili pepper, paprika, dried peppermint, damp coffee grounds, or borax where ants are coming in.
- Squeeze lemon juice at the entry spot and leave the peel there.
- Plant mint around the outside of the house to discourage ants from entering, or spray them with strong mint tea in a squirt bottle.
- Spray ants and ant trails with a biodegradable soap, both inside and outside the house.
- **Cockroaches and Silverfish:** Mix equal parts baking soda and sugar. Spread around infested area.
 - Mix equal parts powdered oatmeal or flour with plaster of paris. Spread on the floor of infested area.
 - Mix by stirring and sifting one ounce trisodium phosphate, six ounces borax, four ounces granulated sugar, and eight ounces flour. Spread on floor of infested area. Repeat after four days and again after two weeks to kill newly hatched roaches.
 - Mix two tablespoons flour, one tablespoon cocoa powder, and four tablespoons borax. Spread around infested area.
 - Use cucumber rinds in infested area.
 - Use bay leaves in infested area.
 - Trap them: set an uncapped one-quart jar upright, with grease on the inside of the neck and a piece of banana inside for bait. Place a tongue depressor against the outside of the jar so they can get in.
- **Flies:** Hang clusters of cloves in a room.
 - Make fly paper by spreading honey thinly onto bright yellow paper.
 - Use a fly swatter.
 - Scratch the skin of an orange and leave it out - the citrus oil released will repel flies.



SCOURING POWDER *harmful ingredients* — dry chlorine bleach, detergents, artificial dyes. Some brands may also contain talc, which can be contaminated with carcinogenic asbestos*.

Alternatives

- Mix $\frac{1}{4}$ cup baking soda with $\frac{1}{4}$ cup borax and one and $\frac{1}{2}$ cups hot water.
- Sprinkle baking soda, borax, or dry table salt on the surface to be cleaned or on a sponge, then scour and rinse.
- For aluminum pots, add two pints of water and three tablespoons vinegar to pot and boil until stains are removed.
- For burned or baked on food, add two tablespoons liquid soap, three teaspoons baking soda, and enough water to cover the burned-on food; boil for 15 - 20 minutes and then wash.



SHOE POLISH *harmful ingredients* — aerosol propellants, ethanol, methylene chloride, nitrobenzene*, perchloroethylene*, trichloroethane*, trichloroethylene*, xylene.

Alternatives

- Wear shoes that do not require polishing (canvas, linen, suede, etc.).
- Frequently clean and buff shoes with soft cloth.
- Use natural or non-toxic polishes.

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RUG, CARPET AND UPHOLSTERY SHAMPOO

harmful ingredients — perchloroethylene*, naphthalene*, ethanol, ammonia, detergents, fluorescent brighteners, artificial colors, synthetic fragrances.

Alternatives

- **Prevention** — Clean spills immediately before they become stains; keep carpets fresh by vacuuming regularly.
- **To deodorize** — Vacuum first to remove dust. Mix one quart white vinegar with three quarts boiling water and apply with a wet rag (take care not to wet backing). Dry thoroughly and then rub surface with warm bread crumbs and vacuum.
- **Blood stains** — Gently sponge stain with cold water and dry with a towel. Repeat until stain is removed.
- **Grease** — Cover with baking soda and rub lightly into rug. Leave on for one hour and then brush off. Repeat as needed.
- **Grease and oil** — Cover spots with corn starch, wait one hour and vacuum. 
- **Ink** — Put cream of tartar on stain and squeeze a few drops of lemon juice on top. Rub into stain for one minute, brush off powder, and sponge with warm water. If ink is still wet, immediately put a mound of table salt on the wet spot. Let it sit for a minute, brush up and reapply and remove until all ink is absorbed and the stain is bleached out.
- **Urine** — Rinse with warm water, then apply a solution of three tablespoons white vinegar and one teaspoon liquid soap. Leave on for 15 minutes, then rinse and rub dry.

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- **Beetles and Weevils:** Put a bay leaf in each container of cereal, crackers, cookies, flour and other grain products.
 - Store flour and grains in a cool cabinet, or preferably in the refrigerator, or in a container sealed with a rubber gasket.
 - Hang small cloth sacks of black pepper in your food bins.
 - **House & Garden (all purpose):**
 - Mix two tablespoons liquid soap in one quart water and store in spray bottle. Spray plants evenly, aiming directly at pests.
 - Finely chop one bulb of garlic and one small onion, mix with one quart tap water, add one tablespoon cayenne pepper, let sit for one hour, then add two tablespoons liquid soap. Mix well; when foam subsides, strain into spray bottle & keep refrigerated. Lasts one to two weeks.

INSECT REPELLENTS **harmful ingredients** — pesticides* (most common ingredient is DEET); aerosol propellants.

Alternatives

- Splash a little vinegar on exposed skin or dab it on with a cotton ball.
- Use commercially-available citronella lotions or oils.
- Dilute citronella or pennyroyal oil with vodka or vegetable oil (a few drops to one ounce of either) and then apply at strategic points (like perfume).
- Eat lots of garlicky food -- mosquitoes hate garlic.

LAUNDRY DETERGENT **harmful ingredients** — detergents, ammonia, fluorescent brighteners, ethanol, fragrance, naphthalene*, phenol.

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DETERGENTS CAUSE MORE HOUSEHOLD POISONINGS THAN ANY OTHER HOUSEHOLD PRODUCTS.

Detergents were developed *especially* to clean synthetic fabrics. They are unnecessary for cotton, linen, silk, and wool.



Alternatives

- Use a plain powdered or liquid soap. Bar soap can also be grated and added to laundry. To prevent soap from leaving a residual scum on fabric, add a water-softener such as baking soda or borax to wash water.
- To remove odors, perspiration and to freshen clothes, use one cup of plain baking soda, white vinegar or borax per load of clothes.
- Use a detergent free of perfumes, dyes, bleach or other additives.

LAUNDRY STARCH *harmful ingredients* — formaldehyde, phenol, pentachlorophenol*, aerosol propellants.

Alternatives

- Dissolve one tablespoon of cornstarch in one pint of cold water. Place in pump spray bottle and shake before using.
- Use a steam iron instead of a dry iron.
- Add $\frac{1}{2}$ teaspoon of vinegar to water in your steam iron.

MOLD AND MILDEW CLEANERS *harmful ingredients* — formaldehyde, phenol, pentachlorophenol*, kerosene.

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Alternatives

- **Prevention** — Try to keep rooms dry and light. Allow air to circulate to help keep things dry. Hang clothes so that there is space between them. Let towels dry before throwing them in laundry basket. Place a piece of charcoal in bookcases to help absorb dampness. You can "bake" musty books in the oven for a few minutes at a low temperature.
- **Cleaner** — Mix borax or vinegar with water in a spray bottle. Spray on and mold will wipe right off.
 - For mildew, pour one cup hydrogen peroxide in a spray bottle and spray on stains. Scrub with a thin paste of lemon juice and borax to inhibit mildew from re-appearing.
- Borax also inhibits mold growth, so you can wash down bathroom walls with the borax solution, leaving it on, or sprinkle borax in damp cabinets under sinks.

OVEN CLEANERS *harmful ingredients* — ammonia, detergents, synthetic fragrances, aerosol propellants.

Alternatives

- **Prevention** — Prevent spills in oven by cooking food in proper-sized containers and by placing a cookie sheet or aluminum foil on the lower rack to catch spills. Also, clean up spills in oven as soon as oven cools so that food does not bake onto oven.
- **Cleaner** — Mix together in a spray bottle two tablespoons liquid soap (NOT detergent), two teaspoons borax, and fill with warm water. Spray in oven very close to oven surface to avoid inhalation. Wear gloves and glasses or goggles when using. Leave solution on for 20 minutes and then scrub with steel wool and non-chlorine *scouring powder*.

SUBSTANCE	POTENTIAL HEALTH EFFECTS/SYMPTOMS
<i>POLYVINYL-PYRROLIDONE (PVP)</i> <i>TETRAFLUORO-ETHYLENE (Teflon)</i>	Carcinogenic. Can also cause thesaurosis, a lung disease affecting some hairspray users. Symptoms include irritation of eyes, nose, and throat, and breathing difficulty. Produces poisonous gases when burned.
SULFUR <i>(Including Potassium and Sodium Bisulfate, Metabisufite, Sulfur Dioxide, and Sulfuric Acid)</i>	Can cause fatal allergic anaphylactic shock and asthma attacks, and can act synergistically with carcinogens to make them more potent.
TOLUENE*	Symptoms include nervous system and mental changes, irritability, disorientation, depression, and damage to liver and kidneys.
TRICHLOROETHYLENE*	Suspected human carcinogen. Mutagenic. Symptoms include gastrointestinal upsets, central-nervous-system depression, narcosis, hear and liver malfunction, paralysis, nausea, dizziness, fatigue, and psychotic behavior.
XYLENE	Symptoms include nausea, vomiting, salivation, cough, hoarseness, euphoric feelings, headaches, giddiness, vertigo, ringing in the ears, confusion, coma, and death.

Substances marked with an asterisk () have been listed by the U.S. Environmental Protection Agency as “priority pollutants” recognized as being hazardous to human health.*