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Household Cleaning Products

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Labels and advertisements filled with numerous claims and complex chemical terms can make shopping for home cleaning products confusing. To choose the best product for the job, a consumer must know the most common ingredients of each type of cleaner and be able to compare performance and safety. The common ingredients are abrasives, acids, alkalies, bleaches, detergents, sanitizers, and spirit solvents.

Abrasives

Abrasives clean by rubbing off dirt. Found in cleansers, they scour off hardened food particles, grease, tarnish, and stains. Sandpaper, plastic and nylon meshes, and steel wool are also abrasives. Some metal cleaners contain a fine abrasive like silica.

Caution

Coarse abrasives feel rough and gritty. Fine particles or minerals such as **silica**, **calcium carbonate**, and **feldspar** provide their cleaning and polishing action. Powdered cleaners also contain small amounts of surfactants to remove oil and grease film. A bleach agent is present if removing food, beverage, and mold and mildew stains. If the product features rust removal, oxalic acid or sodium hydrosulfite may be present.

Using harsh abrasives regularly scratches the shiny finishes of sinks, bathtubs, and kitchen appliances. Coarse abrasives also damage plasticware, glass, some nonstick finishes on cookware, painted woodwork, and plated and highly polished metals. Surfaces that are dull and rough soil faster and stain deeper; you must continue using a harsh abrasive to remove imbedded dirt and stains.

Mild abrasives or liquid cleaners are often used for fiberglass bath fixtures and other shiny finishes. They have a different balance of properties than powdered cleansers, containing more surfactant and softer abrasives. As a result, the abrasive action is gentler than powdered cleansers.



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Acids

Some acids remove hard water deposits. Some remove rust stains. Others eliminate discoloration from aluminum, brass, bronze, and copper.

Very Mild Acid

Vinegar removes hard water deposits from glassware, rust stains from sinks, and tarnish from brass and copper. It also counteracts alkaline oven cleaners.

Lemon juice works much the same as vinegar.

Cream of tartar sweetens coffee makers and brightens aluminum.

Very Strong Acid

Oxalic acid is an effective rust remover.

Hydrochloric acid, sulfuric acid, or sodium bisulphate (also known as sodium acid sulphate) are contained in some toilet bowl cleaners.

Caution

Oxalic acid, hydrochloric acid, sulfuric acid, and sodium bisulphate are all poisonous. They can also injure skin and eyes. They damage clothing, leather, and some metals, too.

Acids are found in these household cleaners:

Products

Toilet bowl cleaner

Rust removers

Metal cleaners

Possible acid ingredients

Sodium bisulphate, oxalic acid, dilute hydrochloric acid, dilute sulfuric acid

Oxalic acid

Weak acids, such as vinegar or lemon juice

Dispose of cloths and brushes after applying oxalic acid. Otherwise, you could transfer the acid to kitchen utensils and dishes, and ingest this poisonous substance.

Corrosion problems can occur when two or

more different kinds of metals are treated together with acid. For this reason, avoid soaking a metal in a container made of another metal.

Alkalies

Baking soda, ammonia, borax, and lye are all alkalies of varying strength. You can use alkalies to remove oily dirt by soaking, applying, or rubbing on a surface and rinsing it off.

Very Mild Alkali

Baking soda mixed with water cleans glass, wall tile,

and porcelain enamels. This mixture also removes coffee and tea stains from china and plastic dishes.

Moderate Alkalies

Household ammonia—containing 5 to 10 percent ammonia in water—cleans kitchen range burners and ovens, windows, and mirrors.

Sudsy ammonia has added soap or detergent. Sudsy ammonia cleans garbage pails, kitchen range burners, and sinks.

Borax is a cleaner for woodwork, walls, and sinks.

Strong Alkalies

Trisodium phosphate (TSP) is commonly found in products for cleaning walls, woodwork, and resilient floors except linoleum.

Use **washing soda**, also called **sal soda**, to clean kitchen range burners with heavy grease.

Very Strong Alkali

Lye, also known as **caustic soda**, is an ingredient in some drain and oven cleaners.

Caution

Most alkalies are toxic (poisonous); some are corrosive; others irritate skin and eyes. Lye can burn skin severely. Read the label for recommendations on treating accidental exposure to skin.

Alkalies remove oil from skin, so wear gloves. Alkalies also extract oil from linoleum and oil-based paints, making them crack or peel. They can darken aluminum. Prevent surface damage by using a mild alkaline solution and by rinsing well to remove all the cleaner.

Bleaches

Bleaches remove stains by chemically altering the dyed material to eliminate the visible “stain.” In some cases, the soil containing the stain is also removed but the

Alkalies are found in these household cleaners:

Products

All-purpose cleaners, such as Spic n Span, Ajax, “409”
Oven cleaners
Window cleaners
Drain cleaners
Scouring powders

Possible alkaline ingredients

TSP, ammonium compounds

Sodium hydroxide (lye), ammonia
Ammonia or ammonium compounds
Caustic soda (lye)
Alkaline salts, TSP

principal effect is one of decolorization. Chlorine bleaches are also disinfectants.

If a product contains bleach the label may say "contains bleach," "bleaches as it cleans" or "chlorinated." **Sodium hypochlorite** may be among the list of label ingredients.

Caution

Never use bleach with a toilet bowl cleaner or rust remover because the mixture produces a harmful gas. Under some conditions, using bleach and ammonia together forms dangerous chemical compounds that could ignite.

Chlorine bleach can dull shiny finishes on sinks, bathtubs, and other porcelain enamel surfaces. This bleach is an alkali and will darken aluminum and make linoleum brittle.

Detergents

Some laundry detergents may be suitable for house cleaning jobs. Detergents are also a common ingredient in many home cleaning products. If suds appear, usually a detergent is present.

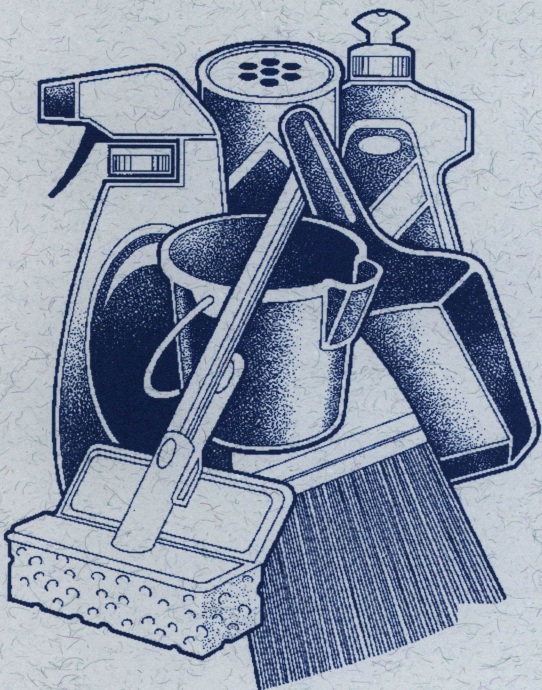
Detergents help loosen dirt. If a builder of complex soluble phosphate has been added, the product removes oily dirt better. A builder serves several functions, but principally to inactivate the water hardness minerals that interfere with good cleaning. This is accomplished either by holding hardness minerals in solution (sequestering) or by attracting calcium, thus removing it from hard water (ion exchanges). Builders emulsify oily soils. When a builder is present, the product is marked "heavy duty" or "all-purpose."

Sanitizers

Sanitizers kill bacteria that cause skin, respiratory, intestinal, and kidney infections. By killing bacteria, they also destroy odors.

Sanitizers are used alone or in products that clean tubs, showers, toilet bowls, bathroom sinks, and ceramic or plastic bathroom tile. They are also used for laundering and hand dishwashing.

If a product is a disinfectant, the label will include a disinfectant claim and an EPA registration number. Some common sanitizers by trade names: **Clorox, Purex, Texize Bleach, Co-op Household Sanitizer, Roccal, Texize, Pine Oil Disinfectant, Pine-Sol, Lysol Brand Disinfectant, Texize 8307 Centex.**



Caution

Never use chlorine bleach with a toilet bowl cleaner or rust remover because the combination will produce a harmful gas. Combining chlorine bleach and ammonia will produce harmful chemical compounds.

Check the product label for limitations on using a sanitizer. Follow label directions.

Spirit Solvents

Spirit solvents remove oily dirt. Many waxes and polishes for furniture and floors and floor wax removers contain spirit solvents. They are also found in some all-purpose cleaners, sanitizers, and drain cleaners.

Examples of spirit solvents are paint thinners, turpentine, and kerosene.

Caution

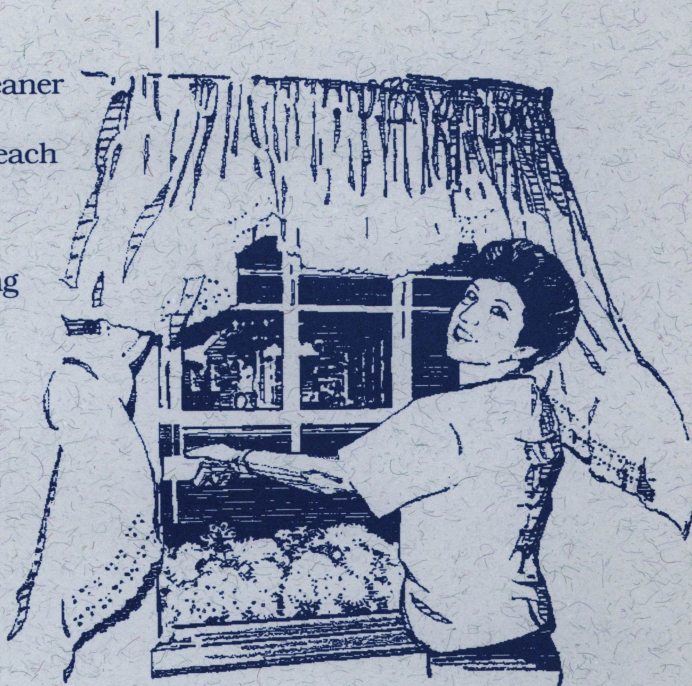
Most spirit solvents are flammable. Keep containers away from heat, sparks, and open flame. By law, the label must indicate that the product is flammable. Extremely flammable products may also say "Harmful or fatal if swallowed...if swallowed, do not induce vomiting. Call a physician immediately."

If you spill a solvent on clothing, don't wear it near a heat source; since clothing is also flammable, you risk serious burns. Launder soiled clothing using a heavy duty liquid laundry detergent. Be careful when disposing of empty solvent containers. If left in a warm place or sunlight even a small amount of solvent left in the container can ignite and cause an explosion.

Carbon tetrachloride, once used for home spot removal, is a spirit solvent now considered too dangerous for home use. Swallowing carbon tetrachloride or inhaling its fumes can be fatal. Carbon tetrachloride can also injure the liver, kidneys, brain, and nervous system.

A spirit solvent wax for floors may contain turpentine or kerosene. It is not safe to use on asphalt or rubber tile, because solvent softens these surfaces. Be sure to check the contents label when choosing a floor wax.

Not all floor waxes are spirit solvents. Some are water-emulsion waxes, which damage wood and cork. Read the label to identify these waxes. Look for the statement, "Keep from freezing."



Handling Cleaning Products Safely

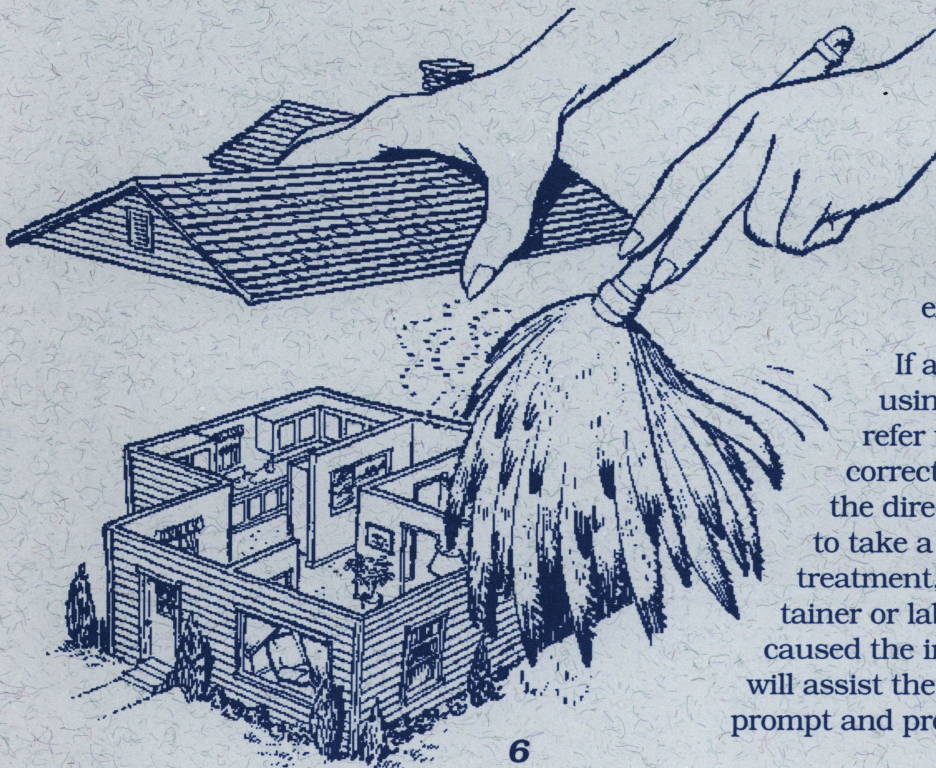
Most cleaning products used in homes today are dangerous only when misused. The most common misuse is curious children accidentally swallowing cleaners. To prevent this, never transfer cleaners into soft drink bottles or other containers that may seem harmless or familiar to children.

Federal regulations require that all hazardous substances include on their label the statement, "Keep out of the reach of children." Under the kitchen sink is the poorest place to store household cleaners. Cupboards out of children's reach, in the garage or laundry area away from food storage places are preferable for storing these products.

Keep products with strong acids and alkalis away from your skin and eyes. Wear protective clothing, such as gloves or an apron. Wash immediately if you splash or spill any products on your skin.

Never use products containing flammable liquids near an open flame, such as a pilot light on a kitchen range or gas clothes dryer, lighted cigarette, or furnace.

Do not leave an aerosol (pressurized) container on a kitchen range, radiator, furnace, in direct sunlight, or near other heat sources. Never puncture an aerosol container. Before discarding this type of container, hold the valve open until all the contents and gas have escaped.



Never discard an empty aerosol container into a fire or incinerator because some gas usually remains, even in an apparently empty can. Heat causes the gas to expand and may lead to an explosion.

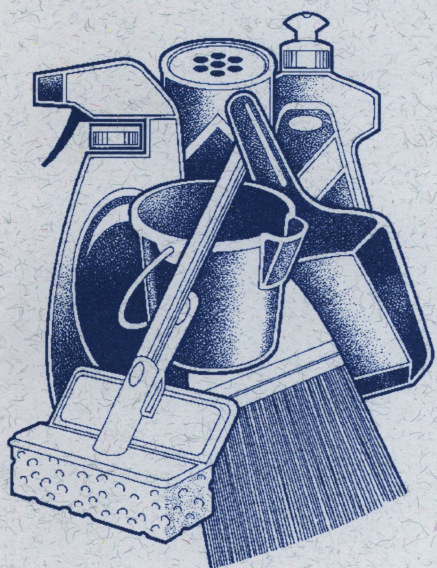
If an accident occurs when using a hazardous substance, refer to the product label for the correct first aid procedures. Follow the directions carefully. If you need to take a child or adult for medical treatment, be sure to bring the container or label of the product that caused the injury. The label information will assist the physicians in giving prompt and proper treatment.

Table 1. Household cleaning problems: Causes, solutions, preventive measures.

Surfaces	Problems	Causes	Solutions	Preventive measures
Bathroom fixtures Porcelain	Colored stains	Older porcelain fixtures may develop cracks, which can trap the dye in scouring powder.	Brush the area with a stiff brush and scouring powder and flush away the residue. Several brushings may be required.	Flush area thoroughly after using scouring powder.
	Rust stains	Iron in water.	Treat stains with a rust remover.	For an ongoing problem installing an iron filter in the water supply may be necessary.
	Soils and stains	Fixtures not cleaned regularly.	Scour with powdered oxygen bleach or use chlorine bleach.	Clean frequently to avoid build-up.
Porcelain/chrome	Dull discolored appearance	Hard water mineral deposits.	Treat with a lime scale remover.	In extremely hard water areas installing a water softener may be necessary.
Drains	Drain not cleared from using cleaner in a badly clogged drain	Badly clogged drain or a solid foreign object may be lodged in drain, the trap or in the pipe line.	Apply drain cleaner a second time. If a third application does not clear the drain, call a plumber.	
	A dry drain cleaner hardening in the drain	Using an excessive amount of a dry drain cleaner with an insufficient amount of water.	Let water trickle slowly into the drain for an extended period of time to dissolve the product.	Read and follow package directions.
Floors Resilient (vinyl, linoleum)	Sticky surface	Insufficient amount of an all-purpose cleaner used.	Increase the amount of all-purpose cleaner to loosen and help remove a wax build-up.	Use sufficient amount of all-purpose cleaner.
		Wax build-up.	It may be necessary to use a wax remover or a solution of one cup ammonia, ¼ cup powdered floor cleaner added to each ½ gallon of water.	Use a one-step/self-stripping product. Remove wax periodically.
No-wax	Shine removed	All-purpose cleaner not rinsed off sufficiently enough to remove all the residue.	Rinse floors thoroughly to remove all traces of the cleaning solution.	
		The polyvinyl or polyurethane layer on the top of the floor is wearing away.	Use a no-wax floor polish.	
Furniture	Streaking.	Using too little furniture polish so soil is not removed	Apply polish again. Rub thoroughly, using a soft clean cloth turning it frequently to a fresh side.	Use sufficient amount of furniture polish.
	Wax build-up	Over-applying polish, incomplete buffing.	More vigorous buffing using a clean cloth.	Avoid overusing polish. Buff thoroughly.
	Dulled finish	Over-applying polish, incomplete buffing.	Use a cloth treated with a dusting aid between polishing.	Buff thoroughly.
	Dust attraction	Over-applying polish, incomplete buffing.	More vigorous buffing using a clean cloth.	Avoid overusing polish. Buff thoroughly.

Table 1. Cont.

Surfaces	Problems	Causes	Solutions	Preventive measures
Windows/glass	Smudges on glass	Using an insufficient amount of glass cleaner for degree of soil.	Spray glass generously with cleaner and wipe with a clean dry cloth or paper towel. Then respray lightly with glass cleaner and polish with another clean dry cloth or paper towel.	Same as solution.
	Streaks on glass	Using too much or too little glass cleaner. Polishing cloths contain a residue of fabric softener or wax. Using a high absorbency paper towel.	Apply glass cleaner and wipe it off with a clean dry cloth or paper towel.	Same as solution.
	Difficulty removing cream glass cleaner	Cleaner was removed before it was completely dry.	Allow cream glass cleaner to dry completely before removing it. Use a clean dry cloth to remove the residue.	Same as solution.
	Cream glass cleaner trapped in a crevice	Cleaner applied beyond the window glass.	Allow cleaner to dry thoroughly. Use a soft brush to remove the powder residue.	Apply cream glass cleaner to window surface only.
	Spots on exterior surfaces.	Hard water mineral deposits.	Clean with an abrasive soft cleaner.	Same as solution.



To simplify information, trade names of products have been used. No endorsement of named products is intended nor criticism implied of similar products not mentioned.

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