



Green Clean

Chemical Hit List

Ammonia

A common cleaning agent

Found in: toilet bowl cleaner, all-purpose cleaning sprays

Chlorine Bleach

A byproduct of chlorine it is a hazardous air pollutant

Found in:

Laundry bleach, dishwasher detergent, scouring powders, tub and tile cleaners

Synthetic Solvents

Hazardous air pollutants created from petroleum with a plethora of names including ethyl cellusolve, butyl cellusolve, ethylene glycol, ethylene dichloride and 2-butoxyethanol.

Found in:

All-purpose cleaners; window cleaners; floor strippers; degreasers; oven, metal and carpet cleaners

Formaldehyde

A VOC that is a probable human carcinogen.

Found in:

Deodorizers, disinfectants, germicides, adhesives, permanent-press fabrics, particle board and much more

Optical Brighteners

Used to make materials appear whiter, it is an effect, they aren't actually cleaner. Toxic to fish when washed into general environment and they can create bacterial mutations. They can also cause allergic reaction when in contact with skin that is then exposed to sunlight.

Found in:

Laundry detergents and laundry boosting and whitening products

Phosphates

Phased out of laundry detergents and as of July 2010 also phased out of dish detergents.

Perchloroethylene

Solvent used in cleaning processes it is a hazardous air pollutant, probable human carcinogen and groundwater contaminant.

Berkanaway LLC

Dr. Jennifer Echert, Naturopath, Clinical Aromatherapist

34 N Island Ave, Ste F, Batavia, IL 60510

630.406.1110 www.berkanaway.com

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Found in:

Drycleaning, spot cleaners and degreasers

VOCs

Include a variety of chemicals including formaldehyde, benzene and toluene. They dissipate, a process called outgassing, over a period of 3 months to five years or more. Adverse effects include eye, nose and throat irritation; headaches; nausea; damage to the liver, kidneys and central nervous system; cancer.

Found In: carpeting, pressed wood, upholstery, varnish, fiberglass insulation, adhesives, air fresheners, mothballs, insecticides, vinyl flooring, furniture, paint, treated wood, solvents, nail polish remover, gasoline and petroleum products, cosmetics, cleaning products.

Green Clean Ingredients

Types of cleaners

- Abrasives: Naturally occurring minerals that provide scrubbing and polishing action to remove soil.
- Acids: pH of 6 or less, used to dissolve mineral build-up and to disinfect, they may also be used to adjust the pH of other ingredients.
- Alkalis: pH of 8 or higher, used to adjust the pH of other ingredients. Increased alkalinity improves the effectiveness of builders and surfactants to remove fatty soil.
- Bleaches: Used to remove stains, whiten, and disinfect.
- Builders and chelators: used to soften water so cleaners can work more effectively.
- Disinfectants: Antimicrobial agents that kill bacteria, viruses and fungi.
- Enzymes: used to break down soils, enzymes are specific to their function.
- Fragrances: used to mask or enhance the smell of the product. Plant essential oils do not pollute the air and can act as deodorizers and disinfectants as well as fragrance.
- Solvents: used to dissolve other substances. Water is the universal solvent.
- Surfactants: Surface active agents that speed up the cleaning process by loosening and removing soils. Their performance is negatively affected by hard water, so the presence of builders or chelators is required.

Acetic acid (white distilled vinegar)

Function

- Solvent, pH adjuster, disinfecting agent, preservative, deodorizer
- A mild acid that dissolves soap scum, hard water mineral build-up, cleans glass and disinfects surfaces and acts as a fabric softener

Reasons to choose

- Biodegradable
- Plant-derived (check on label to verify this, some are not)

Beeswax

Function

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- Surface protectant, moisture shield, fragrance
- Used in natural wood and hard surface polishes and waxes

Reasons to choose

- Non toxic
- Renewable resource

Borax (sodium borate) - 20 Mule Team

Function

- Deodorizer, pH adjuster, mild abrasive, cleanser
- Has a higher pH than baking soda, but not as high as washing soda. Functions as an antibacterial and antifungal for killing mold. Dissolves dirt and is good for laundry applications. Rust and stain remover.

Reasons to choose

- Naturally occurring mineral

Carnauba wax

Function

- Surface protectant, moisture shield
- Hardest natural wax made from Brazilian palm tree, used in hard surface pastes and waxes

Reasons to choose

- Plant derived

Castile Soap - Dr. Bronner's concentrated

Function

- Surfactant, detergent substitute
- A true vegetable oil based soap, but leaves no scum like animal-fat based soaps

Reasons to choose

- Non-irritating
- Biodegradable
- Plant derived
- Versatile

Citric acid (found in lemon juice or as a powder)

Function

- pH adjuster, chelating agent, bleach, disinfectant

Reasons to choose

- Nontoxic
- Biodegradable
- Plant-derived

Cornstarch

Function

- Absorbent
- Non abrasive cleaner for glass, good for carpet cleaning

Reasons to choose

- Nontoxic
- Plant derived

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Cream of tartar

Function

- Non abrasive crystalline cleaner for porcelain and cookware

Reasons to choose

- Nontoxic

Essential oils - BerkanaWay, store.berkanaway.com, available in undiluted and water soluble

Function

- Antimicrobial, antiseptic, disinfectant, solvent, natural fragrance, insect and pest repellants
- Most have antibacterial, antifungal and antiviral properties. Recommended for Green Cleaners are Tea Tree, Lavender, Eucalyptus varieties, Thyme varieties, Laurel, Myrtle, Lemon, Lemon Myrtle, Marjoram, Pine

Reasons to choose

- Plant-derived (purchase from a reputable source, many are adulterated)
- Biodegradable
- Generally non-toxic, note that "hot" oils such as cinnamon, oregano and clove are recommended for disinfecting the air, non-contact use or use with gloves due to their potential skin irritating qualities.

Ethyl alcohol - Everclear

Function

- Antiseptic, disinfectant, solvent

Reasons to choose

- Biodegradable
- Plant-derived

Glycerin

Function

- Solvent, denaturant, humectant
- Used in mild cleaners, also for preventing fogging on glass and mirrors

Reasons to Choose

- Nontoxic
- Biodegradable
- Plant-derived (vegetable glycerin)

Hydrogen Peroxide (H₂O₂)

Function

- Mild acid, oxidizer, disinfectant, antiseptic, bleach
- Comes in either 3% from drugstore or 35% food-grade from health food store. 3% achieves high level disinfection in 5 minutes.
- Kills bacteria, viruses and fungi on surfaces, sometimes combined with colloidal silver

Reasons to Choose:

- Safer than chlorine bleach
- Decomposes into water and oxygen

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Oxygen Bleach (sodium percarbonate, a mixture of hydrogen peroxide and sodium carbonate)

Function

- Stain removing, whitening, pH adjuster, kills mold and mildew
- Brightens, deodorizes and removes most stains in laundry use

Reasons to choose

- Safer than chlorine bleach, no harsh vapors
- Non toxic, non polluting
- Biodegradable

Plant-Based Surfactant (polyglucosides)- Earth Friendly Dishmate

Function

- Surfactant

Reasons to choose

- Non-irritating
- Biodegradable
- Plant-derived

Sodium bicarbonate (baking soda)

Function

- pH adjuster, non-abrasive cleaner, deodorant
- Removes odor, softens water, dissolves dirt and soap scum, unclogs drains, cleans ovens

Reasons to choose

- Nontoxic
- Naturally occurring mineral

Sodium carbonate (washing soda/soda ash) - Arm & Hammer Super Washing Soda

Function

- pH adjuster, water softener
- High pH gives most cleaning power to boost laundry and other soaps power. It is abrasive and should not be used on fiberglass, aluminum, delicate fabrics and no-wax floor-it strips waxes as well as grease. The alkalinity can irritate skin, gloves may be needed.

Reason to choose

- Nontoxic
- Naturally occurring mineral

Sodium chloride (salt)- noniodized

Function

- Abrasive

Reasons to choose

- Nontoxic
- Naturally occurring mineral

Tri-atomic oxygen, activated oxygen, ozone (O₃)- Ozonater- online

Function

- Treats air or water, lengthens shelf life of fresh food. Disinfectant -kills bacteria, viruses, mold, mildew and cysts Oxidizer-breaks chemicals down into their basic components,

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destroys chemical contaminants and deodorizes

- Requires a tri-atomic oxygen generator aka ozonator to produce, an unstable gas it's life span is ~20 minutes
- Used in hospitals, food industry, in place of chlorine in personal spas and pools, it kills a wider range of pathogens than chlorine bleach

Reasons for use

- Reverts to O₂ after it has finished oxidizing
- Nontoxic
- No chemicals
- pH neutral

Vegetable oils - castor, hemp, linseed, olive, walnut

Function

- Lubricant, protectant
- Used in wood cleaners, polishes and waxes

Reasons to choose

- Non toxic
- Plant derived

Zeolite mineral

Function

- Chelator/ Absorbs toxins such as metals, VOC's and formaldehyde, odors and moisture
- Used in carpet cleaning, laundry, cat boxes and pet clean-up, to deodorize and remove chemical outgassing, as a soil enhancer in organic gardening
- Available in a variety of sizes from powder up to pea gravel size

Reasons to use

- Non toxic
- Naturally occurring mineral

Green Clean Formulas

Dishwashing Liquids

1. Choose a plant based surfactant soap with either no fragrance to which you can add a couple drops of essential oils of your choice or contains fragrance that is plant based from real essential oils.
2. Castile soap, 2 tablespoons per sink full of water. Add a couple drops of the essential oil(s) of your choice for an aromatherapeutic effect and/or to enhance cleaning/disinfecting.
3. Mix together 1 cup each baking soda, borax and washing soda, keep in a jar or container. Add 1 heaping tablespoon of mixture along with your soap choice to a sink full of water. Your soap will go further and you'll need less.

Dishwasher Soap

1. Mix 1 cup borax, 1 cup baking soda, 1/4 cup non-iodized salt, 1/4 cup citric acid and 30 drops of essential oil, citrus oils add degreasing qualities . Mix well, grind in blender if there are chunks.

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Use 1 tablespoon in each dispenser cup.

2. Variation: add 1 cup washing soda to the above blend for additional cleaning power.
3. Rinse Aid: at end of wash cycle, add 1 cup white vinegar and continue with a short rinse only cycle. Very helpful in preventing spotting and scum buildup, especially in hard water areas.

All Purpose Cleaners- to clean countertops, appliances, showers and toilets

1. 2 teaspoons washing soda (sodium carbonate), 2 teaspoons borax, 1/2 teaspoon natural liquid soap (surfactant), 1/4 teaspoon essential oil, I like citrus and evergreen oils, and 4 cups warm distilled water in spray bottle, shake well to mix and dissolve.
2. 1 teaspoon castile soap or 4 drops plant based liquid soap, 1/4 teaspoon essential oil, 1/4 cup white vinegar, 2 teaspoons borax, 4 cups warm distilled water in spray bottle, shake well to mix and dissolve.

Cleansing Powders/Scrubs

1. Mix equal parts borax and baking soda, stir in 5 drops essential oil per cup. Rinse with white vinegar and hot water.
2. Mix 1 cup baking soda, 2 teaspoons cream of tartar and 1/8 cup borax. Stir in 5 drops of essential oil per cup. Rinse with white vinegar and hot water. This is good for white/light hard surfaces such as porcelain sinks.
3. For a soft scrub mix just enough castile or plant based liquid soap into 1 cup baking soda, 1 teaspoon citric acid and 10 drops essential oil to make a soft paste of frosting consistency. Store in a jar.

Disinfecting Cleansers

1. Place 3% hydrogen peroxide in an opaque spray bottle. For moldy surfaces allow to sit one hour before wiping. For extra disinfecting first spray with white vinegar, then spray with peroxide.
2. Mix 2 cups white vinegar to 2 cups distilled water,
 - a. Increased kill variation: add 8 teaspoons water soluble tea tree essential oil (available at BerkanaWay) or 4 teaspoons regular (a 2.5% dilution), note if using regular you will have to shake repeatedly during use to keep essential oil in suspension.
3. For an essential oil only spray, you will need to use a 5% dilution of tea tree oil for best broad spectrum effectiveness. This is useful in sick rooms and for cleaning up after children. Use of water soluble essential oils available from BerkanaWay is advisable for even dispersion.
4. Mix 2% dilution of tea tree essential oil and 20% ethyl alcohol into distilled water. Use of water soluble essential oils available from BerkanaWay is advisable for even dispersion.
5. Ozonate(create O₃ with an ozone generator, available at BerkanaWay) a jug or sink of water for appropriate time for volume and use this to disinfect with. The lifespan is about 20 minutes before the 3rd oxygen molecule oxidizes so this needs to be made as needed. Excellent for destroying toxins and deodorizing too.

Oven Cleaners

1. Mix 2 cups baking soda, 1/2 cup non-iodized salt, 1/4 cup washing soda(sodium carbonate), 2 teaspoons plant based liquid soap and 20 drops essential oil. Combine with distilled water to make a thick paste. Apply to oven floor and walls and let set overnight. Spray with white vinegar

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, wipe and rinse well.

Fruit & Vegetable Cleaner

1. Spray first with white vinegar spray, scrub and rinse. Follow with 3% hydrogen peroxide spray. Rinse again.
2. Rinse and scrub under running water. Then fill sink with water to cover items and use an ozonator (ozone generator to create O₃, see more under Green Clean Ingredients) to ozonate the water and clean food of bacteria, viruses, fungi and toxins. Highly recommended for immune challenged and sensitive persons.

Toilet Bowl Cleaners

1. Add 1 cup borax and 1/2 cup white vinegar to toilet bowl, swish with brush around entire bowl. Let sit overnight. In morning scrub and flush.
2. Variation: add 10 drops tea tree oil to the above

Drain Cleaners

1. Pour 1/2 cup baking soda down drain, follow with 1/2 cup white vinegar, this will bubble vigorously. Wait 15 minutes the pour 4 quarts boiling water down drain to clear residue. Do not use in disposals.

Glass Cleaners

1. 1 cup white vinegar mixed with 3 cups distilled water. You may add a few drops (up to 20) of an essential oil, favorites are citrus. Wipe with newspaper or microfiber to buff clean
2. For extra grime fighting or to remove a wax build-up left from commercial cleaners add 1 teaspoon natural liquid soap to the above.
3. Variation: substitute 1/4cup grain alcohol (ethyl) for part of the water.

Wood & Linoleum Floor Cleaners

1. Dust weekly with a 100% cotton dust mop. Spritz to dampen the mop with a mixture of 1/4cup white vinegar to 1 quart distilled water.
2. 1/4 cup white vinegar mixed in 1 gallon lukewarm water. Use a 100% cotton mop or terry cloth towel. Do not use microfiber, it will eventually wear away the finish.
3. Variation: You may add a few drops of essential oil to enhance cleaning and deodorizing effects. Lavender is a nice choice.

Hard Floor (vinyl, tile) Cleaners

1. 1/4 cup white vinegar and 2 tablespoons borax mixed into 1 gallon hot water. If the floor has a sealant use 100%cotton vs microfiber.
2. 1/8 cup castile soap and 1/8 cup white vinegar mixed into 1 gallon hot water.
3. Variation: You may add a few drops of essential oil to enhance cleaning and deodorizing effects. Lavender is a nice choice.

Dusting

1. Wood furniture- mix 1 pint linseed(flax), walnut, olive or hemp oil, 5 drops essential oil such as lemon and 1/4 cup white vinegar in spray bottle. For delicate items or small areas, spritz on 100% cotton cloth to use. Hard surfaces that do not have a coating or finish, use a microfiber

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dustcloth. It can be dampened with water or your all-purpose cleaner as needed.

2. For delicate items and surfaces with a coating or finish, use a 100% lambswool or cotton cloth. Dampen cotton cloth with a bit of water only if needed to remove grime.

Laundry

Detergents/Soaps

- a. My first choice is to use a plant based surfactant laundry soap designed for this duty that is free of fragrances. I use bleaches and boosters as needed and use white vinegar in the rinse cycle for softening. Add 5-10 drops of essential oils like lemon eucalyptus or geranium to the soap in the dispenser cup and your clothes will have a light subtle clean scent. Add two teaspoons of tea tree or eucalyptus if you need to kill dust mites.
- b. 1 cup washing soda, 1 cup borax 1 cup soap flakes or shredded vegetable based soap. Mix ingredients together and use 1/4-1cup per load depending on load size and machine type. For soft water you may want to reduce the washing soda and borax to 1/2 cup each.

Bleaches

- a. Use white vinegar, borax, or a safe non-chlorine bleach like Oxo Brite, amount depends on load size and type of machine, but generally 1/4-1/2 cup.

Boosters

- a. Add 1/4 cup washing soda, borax or white vinegar to machine along with usual detergent

Fabric Softeners

- a. Add 1/4-1/2 cup white vinegar to the rinse cycle.
- b. I don't encourage the use of dryer sheets and the fragrancing of clothes which often simply is covering an unclean state and degrades to a funky smell. Using essential oils in the washer helps with cleaning and deodorizing without leaving an overwhelming scent. The choice of detergent, boosters and the machine itself will determine the real cleanliness of the clothes.

Air Fresheners/Purifiers

1. Zeolite mineral is a safe natural way to eliminate odors and deactivate toxins in garbage and compost pails, litter boxes and animal bedding, and mildewed areas. Used to absorb outgassing from carpet, furniture, paint, in cars, etc. Application may range from a tablespoon to several ounces and it comes in powder to pea gravel size.
2. Pure essential oils from plants work as odor eliminators and air purifiers and can also be chosen for their scent. Using in a diffuser or in a spray mist bottle are two ways to employ these.
3. An ozonator (O3 generator) will destroy toxins and mold/mildew and will get rid of odors at the source.
4. Setting out small bowls of baking soda will help remove odors from a room. Add lemon peel for a fresh scent.
5. Plants can remove toxins from the air and help to purify it. Several indoor houseplants have been studied for their effectiveness, including spider plants and philodendron.
6. Open the windows!

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