



**DIVISION OF AGRICULTURE
RESEARCH & EXTENSION**

University of Arkansas System

DID YOU KNOW?

- All ingredients within a product do NOT have to be listed on the packaging.
- Indoor air levels of many pollutants may be 2-5 times, and occasionally, more than 100 times higher than outdoor levels. Cleaning products and other household products are among the many culprits.



- Of chemicals found in the home, about 150 are linked with cancer, allergies, reproductive problems, birth defects, and psychological abnormalities.

Clean and Green

HEALTHY HOMES, HEALTHY PEOPLE

Conventional cleaners

A clean home is a healthy and a pleasant home. It looks better, it smells better. But did you know that lurking behind all those smells can be numerous chemicals that are affecting your health? About 16% of individuals are extremely sensitive to chemicals, easily breaking out in rashes and other skin/eye irritations, or other chronic ailments. Others, who have chronic respiratory problems



Conventional chemical cleaners can be hazardous to your health, the environment and your pocketbook.

(such as asthma), may have trouble breathing with strong smells and fumes. Still others may be concerned with the

environmental impact of using such intense cleaners. Children especially are at risk. They can be poisoned easily. They are also growing and developing and are exposed to chemicals that weren't around just 75 years ago. Research is slowly showing that some ingredients in conventional cleaning chemicals can affect our health and our environment. They can also be expensive. But there are options....

Greening...

You may have noticed that there are an increasing amount of "green" labeled products on the market. While many of these are gentler and safer to your health and environment, they still may contain irritants. Although the cost of green cleaners has come down and can be comparable to conventional cleaners, some labels can still carry a heftier price tag. Green cleaners can be worth a try, but do your research first before settling on a brand. If these products are out of your budget, then consider making your own homemade cleaners.





Are homemade cleaners any good?

Many people have the perception that a homemade cleaner is not effective. Sometimes you will need to put a little bit more elbow grease to get something clean. Sometimes you may need to let it sit. However homemade cleaners can be as effective as conventional ones...with a bit of knowledge and planning. When you consider the costs to your health, environment and how much you can be saving...it's hard not to see the value in

taking a few extra steps. The key is...keeping a home clean makes the cleaning tasks a lot easier than waiting until the job is too big!



5 things to know before you start

So you thought that you'd never use that chemistry again? Think again! It's the key to effective homemade cleaners! Before you start, there are a few tips to apply.

1. Know the types of cleaners because that will help with creating cleaners.
2. Always start with as mild a cleanser as you can. If the job is not finished, even after a little elbow grease, or letting it sit for a while, then move up to a stronger recipe.
3. Remember: although gentler on us and the earth, this does not mean these products are safe to be consumed. Please still keep all cleaning products out of children's reach!
4. A microfiber cloth can save a lot of time with simple tasks like dusting.
5. Hot water will clean better than cold.

Many of these items are already in your pantry!

Your basic green clean toolkit



- Several spray bottles
- Microfiber cloth
- Brush, sponge or mesh pad
- Baking soda
- Washing soda
- Borax
- Vinegar or lemon juice
- Olive/vegetable oil
- Vegetable based soap, like Castile soap

Optional:

- Salt
- Hydrogen peroxide
- Tea tree/lavender oil
- Essential oils for scent

Know your cleaners

Type	What it does	Conventional	Alternative
Base/Alkali	Good for removing dirt, fat, and grease.	All purpose cleaner, oven cleaner	Baking soda (mild) Borax (moderate) Washing soda (strong)
Acid	Breaks things down like rust, mineral deposits, hard water stains. Good for glass, windows, brass, copper, tiles, and mold.	Toilet bowl cleaner Tub and tile cleaner Mold solutions	Vinegar Lemon juice
Detergents	Loosens dirt and lifts it up and out of the way. Usually used on laundry or dishes.	Laundry detergent Dishwashing liquid Cleansers	Washing soda/borax Soap nuts/granules Vegetable/coconut oils
Abrasives	Aka “Cleansers.” Wears off dirt by rubbing. Found in powders & scouring pads. Can scratch surfaces.	Scouring powders Steel wool	Baking soda or salt Borax/Washing Soda Mesh pads
Bleach and sanitizers	Whitens. Removes stains. Disinfects or reduces number of bacteria. Sanitizers* also help areas smell good.	Most common household product is chlorine bleach	Sunlight/citrus* Hydrogen peroxide Borax or vinegar Tea tree/lavender oil*
Air fresheners	Helps the air smell good.	Plug-ins Sprays	Open window Essential oils Lemon or lime juice Simmer spices on stove Baking soda

What about ammonia and bleach?

Ammonia and bleach are inexpensive and effective at cleaning and disinfecting. They can be used sparingly and diluted as a last resort in household recipes. However, **NEVER** mix ammonia and bleach together! (i.e., spraying shower with bleach and glass cleaner (ammonia) on mirror) Mixing these chemicals together can produce highly toxic fumes. A few more safety tips:

- Chemicals can lose their effectiveness. Don't mix more than you will use.
- If you mix ANY chemicals together, mix in a well-ventilated area.
- Label mixed solutions carefully and keep out of reach of children or near food.
- Never mix in food containers
- Store original chemicals in original containers.



NEVER mix bleach with anything but water! Toxic fumes may be produced with other chemicals.



We would like to acknowledge and thank Sharon Gibson and Dr. Pamela Turner from the University of Georgia Cooperative Extension for providing many of the following recipes.*

All-purpose cleaners

Recipe 1 (Mild)

½ cup vinegar
¼ cup baking soda
½ gallon hot water

Mix ingredients in spray bottle. For very light jobs, you can also just use baking soda with water or ½ cup vinegar with 1 quart water.

Recipe 2 (Stronger)

2 tbsp borax
¼ cup vinegar
2 cups hot water

Mix borax and vinegar with water in spray bottle.

Recipe 3 (Strongest)*

3 tbsp white vinegar
½ tsp washing soda
½ tsp castile soap
2 cups hot water

Mix ingredients in spray bottle. Apply and wipe clean. This is an extra-strength recipe, and also good as disinfectant.

Window/mirror cleaner

Recipe 1

3 Tbsp vinegar
1 quart water

Mix ingredients in spray bottle. For a stronger solution mix half and half vinegar and water.

Recipe 2*

¼ cup vinegar
1 tbsp cornstarch
1 quart warm water

Mix ingredients in spray bottle.

Recipe 3

3 Tbsp vinegar
2 cups water
¼ to ½ tsp liquid detergent

Mix ingredients in spray bottle, shake up. Good for especially dirty windows.

Hint:
Newspapers leave a streak-free shine.

Creamy soft scrubber*

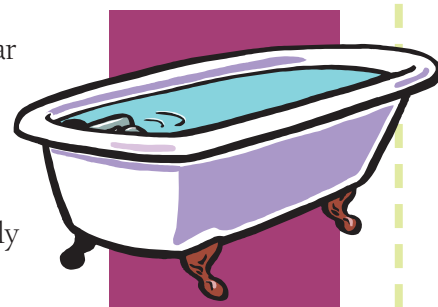
¼ cup of baking soda or borax
Castile soap (enough to make paste)

Mix together and use up right away as it dries quickly. Can add ½ tsp. essential oil if desired.

Tub and tile cleaner

1 ⅔ cup baking soda or salt
½ castile soap
½ cup water
2 tbsp vinegar

Mix first 3 ingredients, then add vinegar. Apply and scrub.



DID YOU KNOW?

Lavender and tea tree oils are natural antiseptics.

Green Recipes

Toilet bowl cleaner

Recipe 2 (Mild)

¼ cup baking soda
1 cup vinegar

Mix ingredients and pour into basin, allowing to sit for 3 minutes to ½ hour. Scrub with brush and rinse.

Recipe 2 (Stronger)

½ cup borax
1 gallon hot water

Mix solutions and scrub basin. Borax helps get rid of stains better than baking soda.

Recipe 3 (Strongest)*

1 cup borax
½ cup vinegar

Sprinkle borax around basin and spray with vinegar. Leave overnight. Then scrub with brush. This cleaner is extrastrength.



Want your cleaners to smell better?
Add lemon juice or essential oils.

Oven Cleaner

Recipe 1

¼ cup baking soda
2Tbsp salt

Mix in hot water as needed to make a paste. Let paste sit for 5 minutes. Don't use on wires or heating elements.

Recipe 2

2 tbsp castile or vegetable based soap
2 tbsp borax

Mix the soap and borax in a spray bottle. Fill the bottle with hot water and shake well. Spray on oven and leave for 20 minutes. Scrub off.



Mildew cleaner

Recipe 1

3 cups hot tap water
½ cup vinegar
¼ cup castile soap
1 tsp borax
1 tsp tea tree oil
½ tsp essential oil (optional)

Mix ingredients and spray bottle and shake gently. Spray and wipe.

Recipe 2*

½ cup vinegar
½ cup borax

Mix with water and spray.

For tough stains:

1/4 cup of bleach per 1 quart water

Spray, let sit for 15 minutes before rinsing.

For mold: use a stiff brush with castile soap and baking soda and scrub. Make sure to wear a mask and gloves because mold spores can be inhaled.

Rule of thumb:
Always start with a milder formulation (using baking soda) and move up to stronger ones



Green Recipes

Floor cleaners

Wood floors

1 cup vinegar per
pail of water
OR
2 tbs olive/
vegetable oil
2 tbs vinegar
¼ cup lemon juice

Mix together, spray
and mop.

Linoleum/no wax floors*

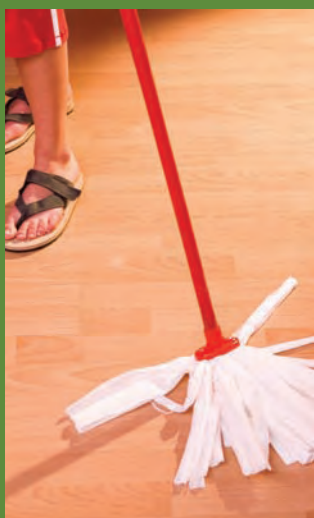
¼ cup washing soda
1 tbs castile soap
¼ cup-1 cup vinegar
2 gallons hot water

Mix washing soda with
water before the rest of the
ingredients. For extra polish
add 6 tablespoons corn-
starch per cup of water.

Laminate floors*

½ cup white vinegar
1 gallon warm water

Mix ingredients.
Don't overwet floors.
Instead, apply with
spray bottle. Mop.
Consider using a
microfiber mop.



Wood cleaners

Wood cleaner*

2 tbsp olive oil
2 tbsp white
vinegar
¼ cup lemon juice

Mix ingredients
and rub into wood
using a soft cloth.
Rub in the direc-
tion of the grain.

Furniture polish*

1 lemon
1 tsp olive oil
1 teaspoon water

Make fresh for each use.
Extract the juice from the
lemon and mix with oil and
water. Apply a thin coat on
wood and let sit for 5 minutes.
Use a soft cloth to buff.

- Rub toothpaste to
remove water marks.
- Mix 2 tsp lemon oil
and 1 pint mineral
oil in spray bottle.
Let stand several
hours then polish.
- Melt 1 tbsp carnauba
wax with 2 pints
mineral oil.

DID YOU KNOW?

Most
household
cleaning
can be
done with
only baking
soda and
vinegar.

Garbage disposal*

Grind ice with either used
lemon, lime or orange rind in
the disposal. Ice also sharpens
the blades of the disposal.

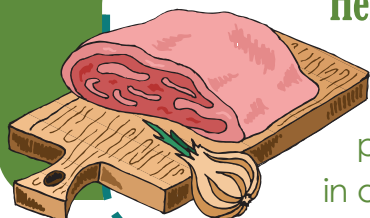
Refrigerator cleaner*

2 Tbsp baking soda
1 quart warm water

Dissolve baking soda and
water. Wipe down. You can
also make a paste out of the
baking soda with less water for
more stubborn spots. A small opened box
of baking soda will keep refrigerator
smelling fresh.



Helpful Hint: To sanitize cutting
boards, spray with vinegar,
then spray with 3% hydrogen
peroxide (but don't mix together
in one bottle). Let sit 10 minutes.



Metal polishes

Chrome/ stainless steel*

2 Tbsp baking soda
1 qt water

Dissolve the baking soda in water, wipe on, rinse.

Other

- Rubbing alcohol
- Small amount of ammonia with water

Copper

Rub lightly with fine table salt (non iodized) wetted with vinegar or lemon juice.

Brass*

With a soft rag, apply with equal parts of salt, cornstarch and a little vinegar or lemon juice. Rinse with warm water and mild dish soap.

Silver

1 qt warm water
1 tsp baking soda
1 tsp salt

Line bowl with aluminum foil. Place silver in bowl and cover with boiling water. Add remaining ingredients and soak until tarnish comes off.

Other

Rub toothpaste on silver, let dry and rinse.

Drain cleaner

Recipe 1*

Pour $\frac{1}{4}$ cup baking soda followed by $\frac{1}{2}$ cup vinegar. Cover and let sit for 15 minutes. Follow with 2 quarts boiling water.

Recipe 2

Pour $\frac{1}{2}$ cup borax in drain followed by 2 cups boiling water

Recipe 3

Use a plumber's "snake" with boiling water.

If you are still using conventional products, check your labels:

Caution/Warning:
Hazardous chemicals are present

Danger:
Ingredients are corrosive, flammable, or highly toxic.

Sensitizers:
Can cause allergic reactions or chronic adverse health effects



References

- Environmental Protection Agency (EPA), www.epa.gov.
- Sharon MS Gibson and Pamela R Turner, University of Georgia Cooperative Extension. "Cleaning Green" Series, www.fcs.uga.edu/ext/housing/home_maint.php. Last accessed Nov 11, 2010.
- Healthy Child, Healthy World. Healthychild.org. Last accessed Nov 11, 2010.
- KSC Recycling and Sustainability Office (New Hampshire). "Green Cleaning: Do-It-Yourself Safe Cleaning Solutions", www.keene.edu/sustain/greenclean.pdf. Last accessed Nov 11, 2010.
- Clemson University Cooperative Extension. "Reducing hazardous products in the home," National Ag Safety Database.
- New Mexico State University Cooperative Extension Service. "Hazardous household substances: Alternative that are relatively free of toxic effects.", Guide G-315.

Alternate Ingredient Reference

Baking soda: a mild alkali scouring powder that can be used for almost all household cleaning purposes. Also absorbs odors and works great at removing baked-on food from pans and oven. Can remove stains from fruit juices and other mild acids, as well as from glass, tile, and china. Use this for cleaning refrigerators. You can also leave a small box of baking soda in the refrigerator to absorb odors or sprinkle on carpet before vacuuming. Buy in baking section of grocery store.

Borax: Similar in use to baking soda but stronger. Good for sanitizing, freshening laundry and deodorizing. Buy in laundry section of grocery store.

Washing soda: Strongest alternative to baking soda and borax. Can be used with washing detergents. Use gloves when using this ingredient as it may irritate skin. Buy in laundry section of grocery store.

Castile soap: a mild high-quality soap made from vegetable oils such as olive, and others. Can be used for all general purpose cleaning. Can be purchased in whole food stores or organic/natural sections of grocery store.

Vinegar: Good for killing germs and deodorizing, can remove some stains from carpets. Good for cleaning coffee pots, chrome, cookware and counter tops. It is an acid so be careful using it on fabrics containing acetate, such as tablecloths.

Lemon juice: Can deodorize, lighten stains and cut grease. It can also kill bacteria remove tarnish from brass, copper, bronze and aluminum but should NOT be used on silver. You can add lemon juice to cleaners to bring out a lemony scent.

Hydrogen peroxide: a mild alternative to bleach. Used for stain removal, killing germs, mold, or mild whitening.

Tea tree oil and lavender essential oil: Natural disinfectants. Others include cedarwood, lemon, and spearmint.

Essential oils: Essential oils can deodorize and naturally provide fragrance. They can be mixed with cleaners, but do your research in advance. Some oils can be sensitizers or have warnings for people with certain chronic conditions. Unless if you know what you are doing, lemon or lime juice are good alternatives.

Soap nuts: Dried fruit of the Chinese Soapberry. They are natural surfactants (which act like detergents) and have been used for hundreds of years in Eastern countries. You can find them in natural foods stores and online. Oftentimes used for laundry, they release their soapy substance better in warm water than cool and are reusable.

About *Healthy Homes, Healthy People*

This program and publication is part of the Healthy Homes Partnership Network — an initiative that addresses housing-based health and safety risks. It is a collaboration between the National Institute of Food and Agriculture and the Department of Housing and Urban Development, coordinated by the University of Alabama Cooperative Extension System. The Arkansas

Healthy Homes, Healthy People partners locally with the Poison Control Center, the

Arkansas Drug Director's Office and joins a national network of Extension Coordinators. To find out more about how to obtain other resources and information, visit: www.healthyhomespartnership.net/ and www.uaex.uada.edu



Margaret Harris, Ph.D., M.S., is Assistant Professor – Health with the University of Arkansas Division of Agriculture, Little Rock.

Pursuant to 7 CFR § 15.3, the University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services (including employment) without regard to race, color, sex, national origin, religion, age, disability, marital or veteran status, genetic information, sexual preference, pregnancy or any other legally protected status, and is an equal opportunity institution.

MP492-PD-4-11N