



ENVIRONMENTALLY SOUND CLEANING PRODUCTS

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Director of outreach and Education

Great Swamp Watershed Association




- As an organization, we start and end with a focus on healthy water **and** land.

- Where **does our water** come from?

- Where does it go **after we use it...**

- What happens to it along the way...

It's all about the River!

The background is a light blue gradient. It is decorated with several realistic water droplets of various sizes. Some droplets are at the top left, some at the top right, and a cluster of larger droplets is at the bottom right. The droplets have highlights and shadows, giving them a 3D appearance.

Our watershed Friendly living
programs aim to help
homeowners to change their
practices and behaviors to make a
difference for the health of the
watershed.

our Watershed Friendly Living Program has more information



<https://www.greatswamp.org/watershed-friendly-living/>

Take a look... What's under your kitchen sink?



A word about plastic bottles...

Why is GSWA concerned about what your cleaning bottles are made of?



Look for these labels



What's inside your bottle? How do you know?

and ensure cap is closed securely.

5 020042 001334 >



CORROSIVE



OXIDISING



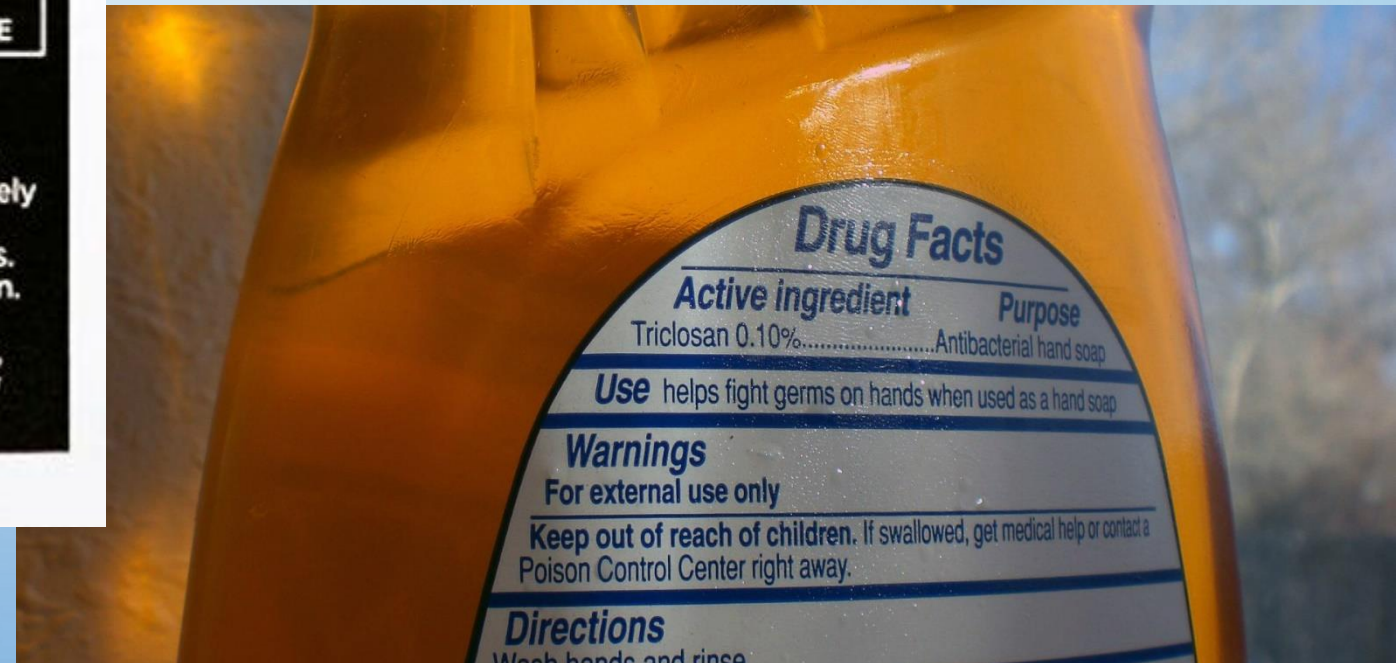
HARMFUL



**HIGHLY
FLAMMABLE**

**DRAIN CLEAR CONTAINS
SODIUM NITRATE AND SODIUM HYDROXIDE.**

Harmful if swallowed. Flammable. Contact with combustible material may cause fire. Contact with water liberates extremely flammable gases. Causes severe burns. Keep locked up and out of the reach of children. Avoid contact with skin and eyes. Wear suitable protective clothing gloves, eye/face protection. In case of contact with skin or eyes, rinse immediately with plenty of water and seek medical advice. In case of accident, or if you feel unwell, seek medical advice immediately (show this label where possible).





Is the product safe? How can you tell?



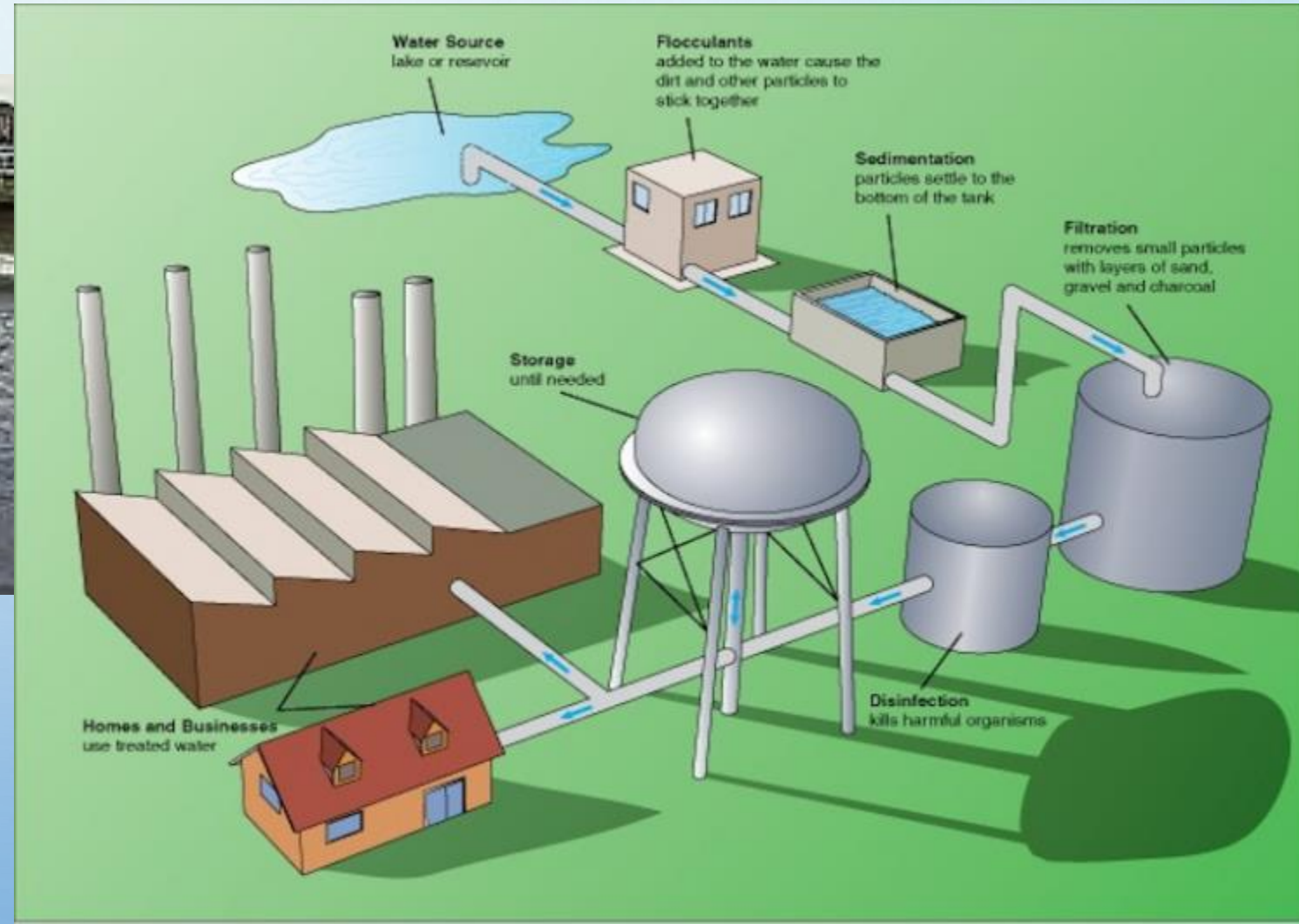
<http://www.ecolabelindex.com/ecolabels/>

What are the environmental problems cleaners pose?

- TOXIC FOR HUMANS AND ECOSYSTEM
- PERSISTENT IN ENVIRONMENT
- UNINTENDED HEALTH IMPACTS



How can cleaning products get into the Water?



**"Madge! You use a
dishwashing liquid to soften
hands?"**

Found in Mom's Basement



**"Doesn't
everybody?"**

"Seriously. It would have
to be awfully mild."

"Palmolive® Dishwashing
Liquid is a lot more than
just mild. At home the
suds last me a lifetime.
And it softens hands
while you're doing
the dishes!"

Don't just
do dishes.
Softens
your
hands!



©1968, Colgate-Palmolive Company

DEGREASERS

- Break down oils and fats
- Household cleaners are usually a combo of degreasing agents, 'builders' and things like antibacterial compounds or enzymes

SURFACTANTS

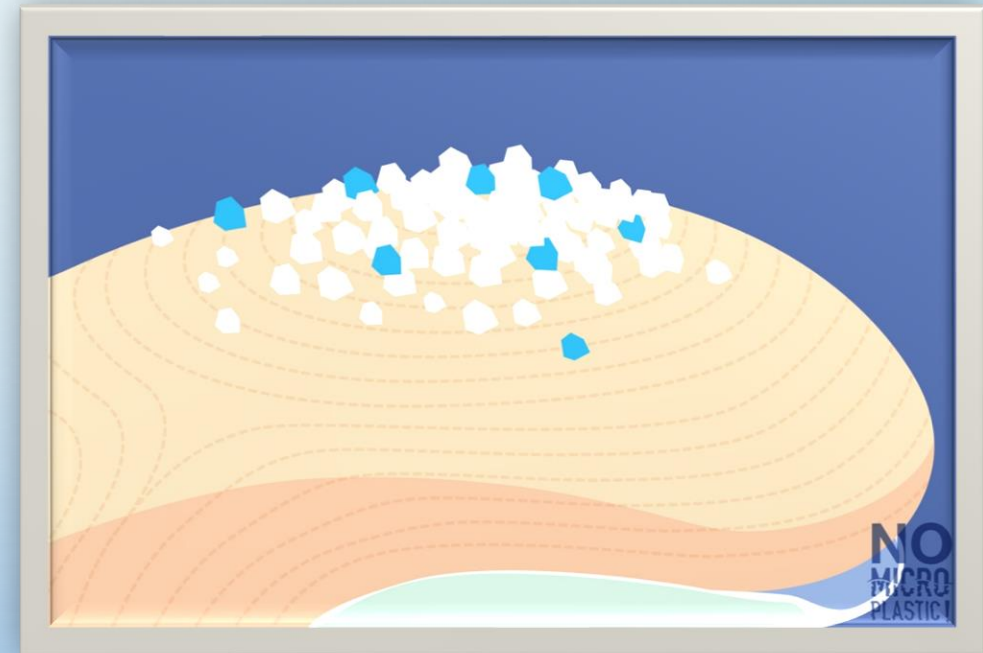
- Lower surface tension between two liquids or a liquid and a solid
- Usually act as detergents, wetting agents by breaking up fats into tiny drops and dispersing.
- Whitening agents, optical brighteners, enzymes and perfumes are typically added as well





- Microplastics
- Metal particles
- Minerals such as quartz, feldspar, silica or calcite

ABRASIVES



DISINFECTANTS AND ANTIMICROBIALS

- Contain antimicrobial agents such as pine oil, sodium hypochlorite, quaternary ammonium compounds or phenols
- Bleach and triclosan are other chemicals often added to cleaners for this effect
- Most contain surfactants and builders to help remove soil as well as killing germs.
- May 2002 study of contaminants in stream water -66% contained disinfectants
- Persistent

Good counsel for the counselor. Spray Lysol on bathroom surfaces so all guests other people leave behind.

Put air-conditioned air in better condition. Spray Lysol in exhaust vent to freshen up air-conditioned air.

Send a can of Lysol[®] to camp this summer.

Hit the showers with Lysol. Spray to kill athletes' foot fungus on the shower floor.

Spray inside sneakers to eliminate odors.

Make a fresher bed. Use Lysol to freshen sheets, pillows, mattresses and blankets.

Freshen the great indoors. Spray Lysol to eliminate odors in the air.

Lysol Disinfectant Spray kills household germs, including germs that cause odors.

Found in Mom's Basement

DISINFECTANT SPRAY
Lysol
ELIMINATES ODORS
Kills Germs That Cause Odors
120 FL. OZ.

Who are the brightest kids in America?

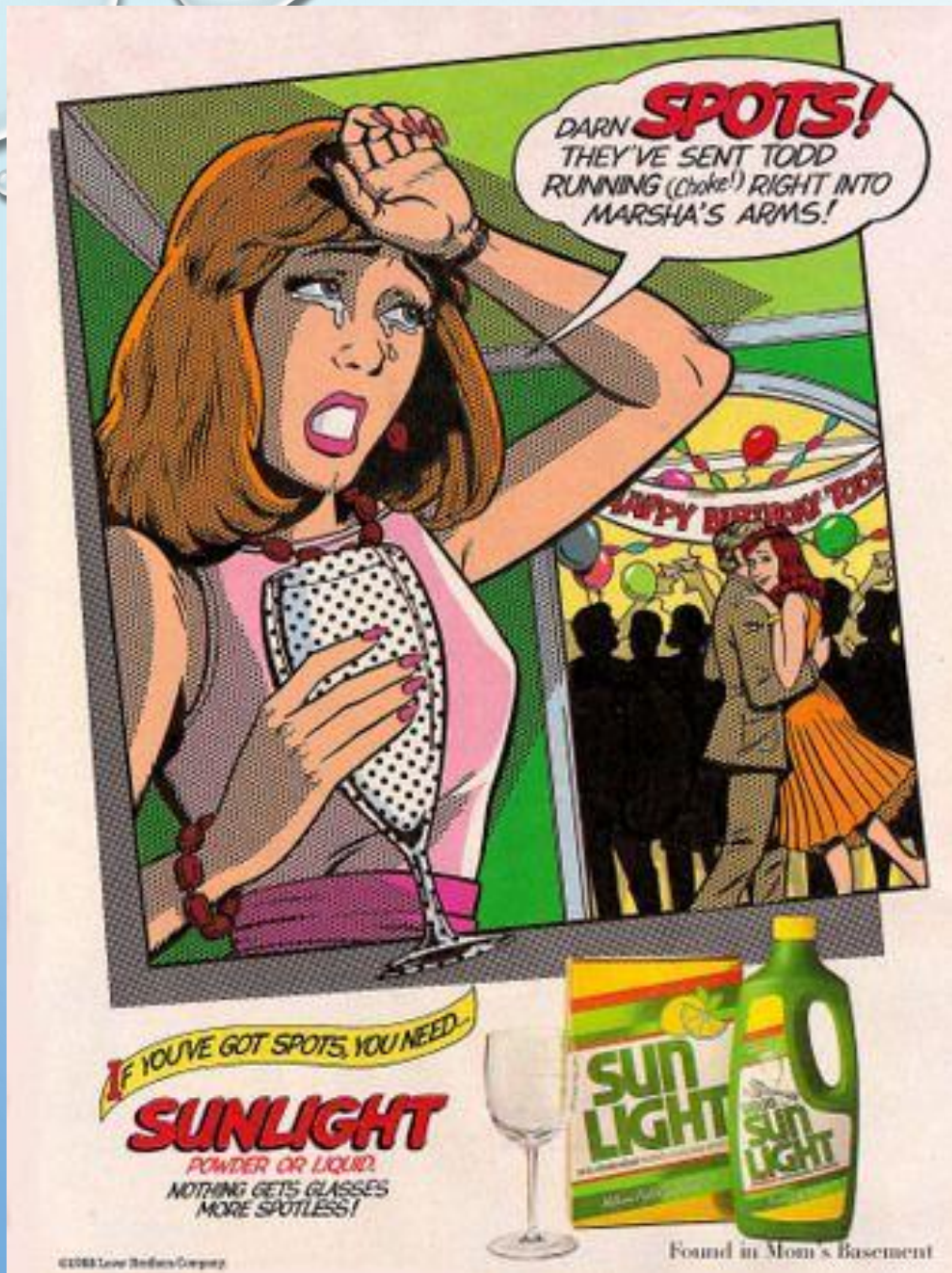


BLEACHES

- Often contain harsh fragrances to cover the bleaching agent
- Bleaches usually contain sodium hypochlorite or hydrogen peroxide if they are non-chlorine
- Troublesome combinations

Ammonia + Bleach =





MINERAL STAIN AND HARD WATER SPOT REMOVERS

- Contain acids, such as citric, oxalic, sulphamic or hydroxyacetic acid, to dissolve minerals, limescale and rust.

THE CHEMISTRY OF STAIN REMOVAL

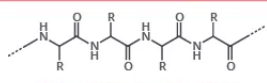
A number of substances can stain clothes or furnishings, and some can be stubborn to remove. A range of chemicals can help do the job, varying depending on the type of stain. Stains will often have more than one characteristic, meaning a mix of these agents is often used to facilitate their removal.



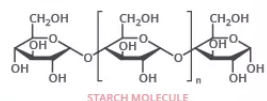
ENZYMATIC STAINS

Blood, grass, chocolate

ENZYMES



EXAMPLE PROTEIN MOLECULE SECTION



STARCH MOLECULE

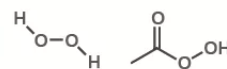
Enzyme-based agents help to break down proteins, starches and fats by breaking up the large, insoluble molecules into smaller, more soluble ones. Proteases break down proteins, amylases break down starch, and lipases break down fats.



OXIDISABLE STAINS

Tea, coffee, red wine

BLEACHES



HYDROGEN PEROXIDE & PERACETIC ACID

Oxidise coloured substances to colourless ones by breaking down chromophores, sections of chemical structures that can cause colouration. Bleaches are often either oxygen-based or chlorine-based.

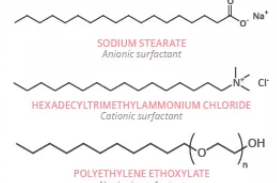
The oxidising agent in oxygen-based bleaches is hydrogen peroxide; this is less effective below 40°C, so the compound tetraacetylenediamine (TAED) is included to produce peracetic acid, a better oxidising agent.



GREASY STAINS

Oil, collar stains, butter

SURFACTANTS



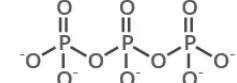
Surfactants help oils and grease dissolve in water. They are molecules that have a water-soluble 'head' and a oil-soluble 'tail'. They form spherical structures called micelles around oil droplets, which then allows them to dissolve in water.



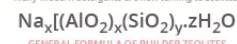
PARTICULATE STAINS

Mud, soil, dirt

BUILDERS



TRIPHOSPHATE (ABOVE)
Triphosphates used to be commonly used as builders in detergents. Due to the environmental impact of phosphates, many modern detergents are now turning to zeolites.



Builders are compounds that help soften hard water by removing calcium and magnesium ions. This helps remove soil molecules, as they are often bound to fabrics by calcium ion bridging. They also enhance the action of surfactants.



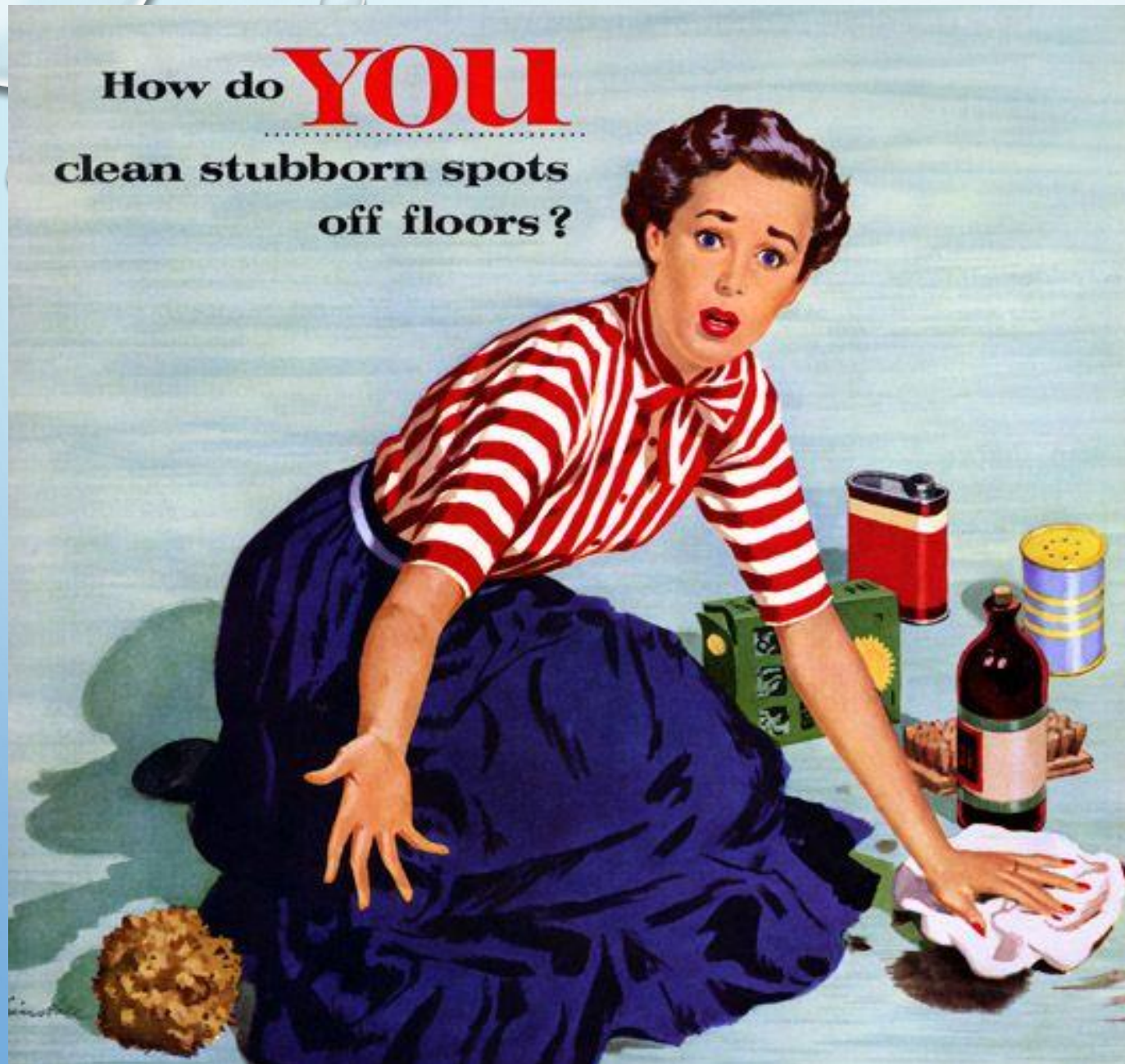
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SPECIALIZED STAIN REMOVERS

- Often contain enzymes
- hazardous to human health
- Can have unintended effects in the environment where they can persist
- Organic biomolecules





POLISHES

- Made up of waxes and oils and usually a degreasing agent
- Often produced from petroleum distillates or other hydrocarbon chains
- Can also be silicone-based (persistent)

FRAGRANCE

- Can be naturally or artificially derived
- Usually concentrated
- Stabilizers like thimerosal (Hg) or formaldehyde are toxicity concerns



DRILLING DOWN INTO SPECIFIC TYPES OF CLEANERS

-AIR FRESHENERS CAN BE REAL STINKERS

- Often contain synthetic fragrances
- Avoid listing the exact ingredients by labeling them as “proprietary” or “trade secrets”
- Consider purified essential oils



SCOURING POWDER

- Mineral scouring agents (calcite, feldspar, silica)
- However, most add chlorine bleaching agents or even plastic.
- Read packaging carefully!
- Many scourers include chemicals highly toxic to aquatic life
- Natural scourers include salt, and baking soda
- Stale bread is particularly effective at cleaning metal



WINDOW CLEANERS

- Use surfactants to break grease and solvents to carry away oils without residue
- Commonly contain ammonia products (irritants)
- Clean windows with newspaper, 1-2 part vinegar: 4 parts water





- Avoid ammonia wherever possible

CARPET CLEANER

- ONE WORD: Perflurochemicals (scotch guard)
- Perchloroethylene: Nausea, dizziness, fatigue, liver and kidney problems
- Naptha popularly used as a solvent, derived from coal tar. CNS danger



METAL POLISH

- Contain organic
- Toothpaste is an incredibly effective alternative,
- Vinegar and salt are other options



DISINFECTANTS

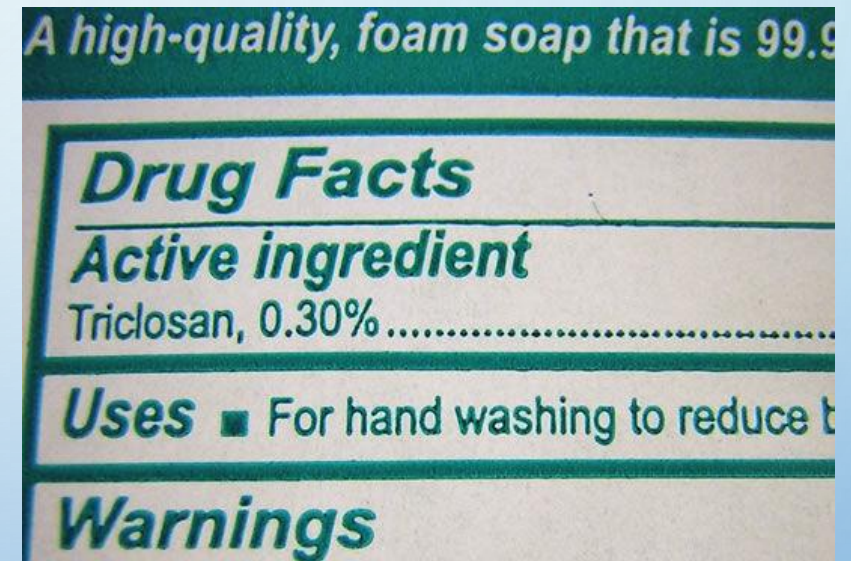
- Overused
- Watch which surface you use them on!!
- Triclosan...issues



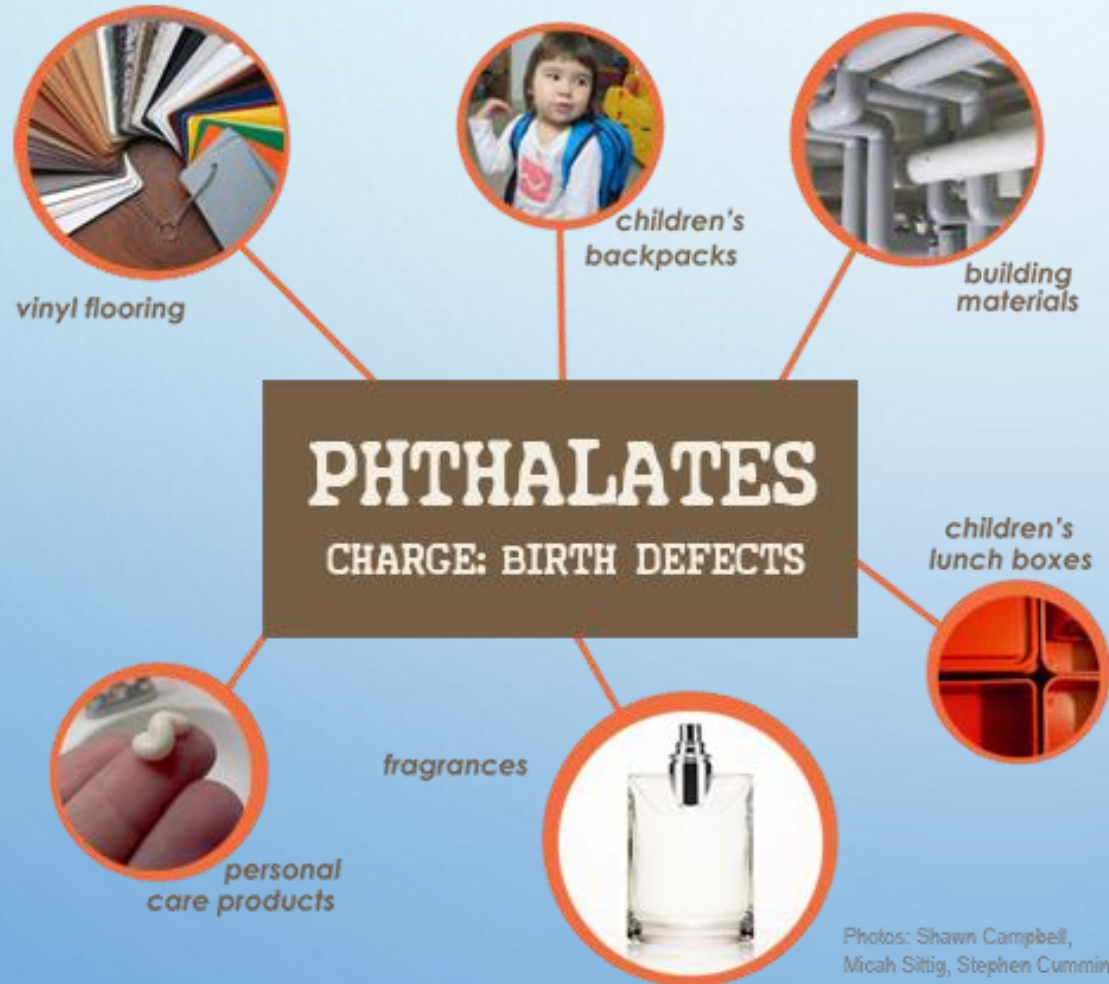
AMERICA'S LEAST WANTED: TRICLOSAN



Photos: Pieter Vanhaecke, gkdavie,
Jenn Dufey, Joe Hsu, citychiccountrymouse, SCA Svenska Cellulosa Aktiebolaget



PHTHALATES



- To avoid phthalates
AVOID fragrances
- “fragrance” or “parfum”
- 95% of people tested
have phthalates present
in their urine

Photos: Shawn Campbell,
Micah Sittig, Stephen Cummings

CANCER CAUSING COMPOUNDS

- 1,4 DIOXANE..... 2010 STUDY BY THE NEW YORK STATE DEPARTMENT OF HEALTH.
- SOME OF THE PRODUCTS LIKELY TO CAUSE BIRTH DEFECTS INCLUDE 1,4 DIOXANE WHICH IS PRESENT IN MANY LAUNDRY DETERGENTS AND CLEANERS AS A BY PRODUCT FROM PRODUCTION
- CREATION OF FORMALDEHYDE AS A BREAKDOWN PRODUCT

WHAT CAN YOU DO?- **DON'T PANIC!**

1. Read the labels!
2. Research the most damaging chemicals and look to avoid these few
3. Choose products that display their ingredient listing fully
4. Search the E.W.G data base for background about the products you use
5. Simplify the number and type of product you use
6. Make your own products!! Changing habits can be hard but worth it

Cleaning pics 1 - witchh... Search Products that Me...

Secure | https://www.epa.gov/saferchoice/products#a04i000000WuqZuAAJ

Program History

Connect with Safer Choice

Back Alt+Left Arrow
Forward Alt+Right Arrow
Reload Ctrl+R
Save as... Ctrl+S
Print... Ctrl+P
Cast...
Translate to English
View page source Ctrl+U
Inspect Ctrl+Shift+I

Product Name	Company	Sector	Type
JAWS 3421 Glass & Hard Surface Cleaner	Canberra Corporation	Business	All-Purpose Cleaners
JAWS 3700 Deep Scrub Multi-Purpose Cleaner	Canberra Corporation	Business	All-Purpose Cleaners
JAWS 3910 Multi-Purpose Cleaner/Degreaser	Canberra Corporation	Business	All-Purpose Cleaners
JAWS 6700 All Purpose Cleaner	Canberra Corporation	Business	All-Purpose Cleaners
JAWS 9700 All Purpose Cleaner	Canberra Corporation	Business	All-Purpose Cleaners
JAWS 9908 Multi-Purpose Degreaser	Canberra Corporation	Business	All-Purpose Cleaners
Oxy/Green Husky 908 O/G Concentrated Multi-Purpose Cleaner & Degreaser	Canberra Corporation	Business	All-Purpose Cleaners

Search Products that Meet the ...

IMG_6880.JPG IMG_6878.JPG IMG_6877 (1).JPG IMG_6877.JPG Show all

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https://www.epa.gov/saferchoice/products#a04i000000Wups
XAAR

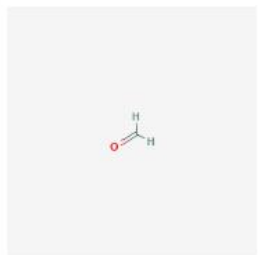


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EWG's Guide to Healthy Cleaning Search more than 2,500 products Search

EWG'S GUIDE TO HEALTHY LIVING: HOME CLEANING WHEN YOU SHOP? \$10 WALLET GUIDE GET THE GUIDE



See more:

Evidence

Products Listing It

FORMALDEHYDE

This substance ranges from C to F depending on concentration/usage.

Asthma/Respiratory	<div></div>	Moderate Concern
Skin Allergies & Irritation	<div></div>	High Concern
Developmental & Reproductive Toxicity	<div></div>	Some Concern
Cancer	<div></div>	High Concern
Environment	<div></div>	Low Concern

Top scoring factors: Evidence of cancer; skin irritation/allergies/damage; general systemic/organ effects

FORMALDEHYDE can be found in 27 products.

Print Share on: [f](#) [t](#) [+](#)

Evidence

Health issue	Level of Concern	Source
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[Product Updates](#) [Find out more](#)

SAFETY RATINGS FOR MORE THAN 2,500 PRODUCTS

[Search](#)

1
2
3

TOP PRODUCTS

Find greener cleaners for
household needs



LABEL DECODER

Translate technical terms
and ad hype



ABOUT THIS REPORT

EWG looked beyond labels
to rate products



IT'S EWG'S GUIDE TO
HEALTHY CLEANING
BUT FOR FOOD!



EWG's Guide to Healthy Cleaning
Update Center

[Product Updates](#)



Love a particular cleaning product?

- research its ingredients- - follow up to find out all ingredients
- Check its composition on EWG
- Write to companies to ask what's in their products

NATURAL CLEANING PRODUCT BASICS:

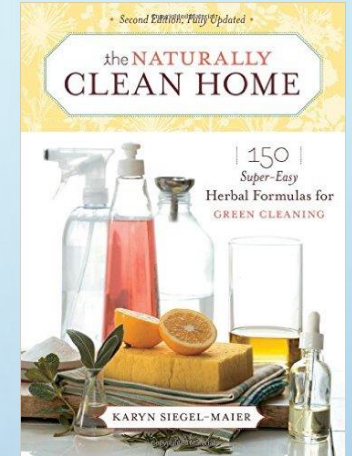
Sodium borate*



- [HTTP://WWW.EWG.ORG/GUIDES/CLEANERS](http://www.ewg.org/guides/cleaners)
- DESIGN FOR THE ENVIRONMENT'S WEBSITE:
[HTTP://WWW.EPA.GOV/DFE/PUBS/PROJECTS/FORMLAT/FORMPART.HTM.](http://www.epa.gov/dfepubs/projects/formulat/formpart.htm)

RESOURCES

- [HTTP://EARTHEASY.COM/LIVE NONTOXIC SOLUTIONS.HTM#HEALTHYHOME](http://eartheasy.com/live_nontoxic_solutions.htm#healthyhome)
- [HTTPS://ECOCYCLE.ORG/HAZWASTE/ECOFRIENDLY-CLEANING](https://ecocycle.org/HAZWASTE/ECOFRIENDLY-CLEANING)
- [HTTPS://WWW.CARE.COM/C/STORIES/5925/GREEN-CLEANING-12-NATURAL-SOLUTIONS-THAT-REA/](https://www.care.com/c/stories/5925/green-cleaning-12-natural-solutions-that-really-work)
- [HTTP://WWW.HEALTHYCLEANING101.ORG/TYPES-OF-HOUSEHOLD-CLEANING-PRODUCTS/#DIS](http://www.healthycleaning101.org/types-of-household-cleaning-products/#dis)
- [HTTP://WWW.POLLUTIONISSUES.COM/HO-LI/HOUSEHOLD-POLLUTANTS.HTML](http://www.pollutionissues.com/ho-li/household-pollutants.html)



Product Type

SOURCE: Compiled by author.

Air fresheners & deodorizers

Bleach

Disinfectants

Drain cleaner

Flea powder

Floor cleaner/wax

Furniture polish

Oven cleaner

Paint thinner

Paints

Pool sanitizers

Toilet bowl cleaner

Window cleaners

Harmful Ingredients

Formaldehyde

Sodium hypochlorite

Sodium hypochlorite

Phenols

Ammonia

Sodium/potassium hydroxide (lye)

[Carbaryl](#)

Dichlorophene

Chlordane and other chlorinated hydrocarbons

[Diethylene glycol](#)

Petroleum solvents

Ammonia

Petroleum [distillates](#) or mineral spirits

Sodium/potassium hydroxide (lye)

Chlorinated aliphatic hydrocarbons

Esters

Alcohols

Chlorinated aromatic hydrocarbons

Ketones

Aromatic hydrocarbon thinners

Mineral spirits

[Calcium hypochlorite](#)

Ethylene (algaecides)

Sodium acid sulfate or oxalate or [hypochloric acid](#)

Chlorinated phenols

Diethylene glycol

Potential Health Hazards

Toxic in nature; [carcinogen](#); irritates eyes, nose, throat and skin; nervous, digestive, respiratory system damage

Corrosive; irritates and burns skin and eyes; nervous, respiratory, digestive system damage

Corrosive; irritates and burns skin and eyes; nervous, respiratory, digestive system damage

Ignitable; very toxic in nature; respiratory and circulatory system damage

Toxic in nature; vapor irritates skin, eyes and respiratory tract

Corrosive; burns skin and eyes; toxic in nature; nervous, digestive and urinary system damage

Very toxic in nature; irritates skin; causes nervous, respiratory and circulatory system damage

Toxic in nature; irritates skin; causes nervous and digestive system damage

Toxic in nature; irritates eyes and skin; cause respiratory, digestive and urinary system damage

Toxic in nature; causes nervous, digestive and urinary system damage

Highly ignitable; carcinogenic; irritate skin, eyes, throat, nose and lungs

Toxic in nature; vapor irritates skin, eyes and respiratory tract

Highly ignitable; toxic in nature; carcinogen; irritate skin, eyes, nose, throat and lungs

Corrosive; burns skin, eyes; toxic in nature; causes nervous and digestive system damage

Toxic in nature; cause digestive and urinary system damage

Toxic in nature; irritate eyes, nose and throat

Ignitable; cause nervous system damage; irritate eyes, nose and throat

Ignitable; toxic in nature; digestive system damage

Ignitable; toxic in nature; respiratory system damage

Ignitable; toxic in nature; carcinogenic; irritates skin, eyes, nose and throat; respiratory system damage

Highly ignitable; toxic in nature; irritates skin, eyes, nose and throat; respiratory system damage

Corrosive; irritates skin, eyes, and throat; if ingested cause severe burns to the digestive tract

Irritation of eyes, mucous membrane and skin; effects reproductive system; probable human carcinogen of medium carcinogenic hazard

Corrosive; toxic in nature; burns skin; causes digestive and respiratory system damage

Ignitable; very toxic in nature; cause respiratory and circulatory system damage

Toxic in nature; cause nervous, urinary and digestive system damage