ENVIRONMENTALLY SOUND CLEANING PRODUCTS

Hazel England
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!
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?
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?
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
ABRASIVES

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

- Contain antimicrobial agents such as pine oil, sodium hypochlorite, quartenary 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
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.
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

TRICLOSAN

CHARGE: HORMONE DISRUPTION

cutting boards

school supplies

toothpaste

antibacterial soaps

cleaning supplies

cosmetics

A high-quality, foam soap that is 99.9%

Drug Facts

Active ingredient
Triclosan, 0.30%.................

Uses
For hand washing to reduce bacteria...

Warnings

Photos: Pieter Vosmansky, ghislainie,
Jenni Darlens, Joe Hou, cityoleculesmouse, SCA Siviersa Cellulosa, Attelolager
PHTHALATES

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

Photos: Sharrow 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
<table>
<thead>
<tr>
<th>Product Name</th>
<th>Company</th>
<th>Sector</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAWS 3421 Glass &amp; Hard Surface Cleaner</td>
<td>Canberra Corporation</td>
<td>Business</td>
<td>All-Purpose Cleaners</td>
</tr>
<tr>
<td>JAWS 3700 Deep Scrub Multi-Purpose Cleaner</td>
<td>Canberra Corporation</td>
<td>Business</td>
<td>All-Purpose Cleaners</td>
</tr>
<tr>
<td>JAWS 3910 Multi-Purpose Cleaner/Degreaser</td>
<td>Canberra Corporation</td>
<td>Business</td>
<td>All-Purpose Cleaners</td>
</tr>
<tr>
<td>JAWS 6700 All Purpose Cleaner</td>
<td>Canberra Corporation</td>
<td>Business</td>
<td>All-Purpose Cleaners</td>
</tr>
<tr>
<td>JAWS 9700 All Purpose Cleaner</td>
<td>Canberra Corporation</td>
<td>Business</td>
<td>All-Purpose Cleaners</td>
</tr>
<tr>
<td>JAWS 9908 Multi-Purpose Degreaser</td>
<td>Canberra Corporation</td>
<td>Business</td>
<td>All-Purpose Cleaners</td>
</tr>
<tr>
<td>Oxy/Green Husky 908 O/G Concentrated Multi-Purpose Cleaner &amp; Degreaser</td>
<td>Canberra Corporation</td>
<td>Business</td>
<td>All-Purpose Cleaners</td>
</tr>
</tbody>
</table>

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

XAAR
FORMALDEHYDE

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

<table>
<thead>
<tr>
<th>Health Issue</th>
<th>Level of Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma/Respiratory</td>
<td>Moderate Concern</td>
</tr>
<tr>
<td>Skin Allergies &amp; Irritation</td>
<td>High Concern</td>
</tr>
<tr>
<td>Developmental &amp; Reproductive Toxicity</td>
<td>Some Concern</td>
</tr>
<tr>
<td>Cancer</td>
<td>High Concern</td>
</tr>
<tr>
<td>Environment</td>
<td>Low Concern</td>
</tr>
</tbody>
</table>

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

FORMALDEHYDE can be found in 27 products.
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/FORMULAT/FORMPART.HTM) HTTP://WWW.EPA.GOV/DFE/PUBS/PROJECTS/FORMULAT/FORMPART.HTM.
RESOURCES

- HTTP://EARTHEASY.COM/LIVE_NONTOXIC_SOLUTIONS.HTM#HEALTHYHOME
- HTTPS://ECOCYCLE.ORG/HAZWASTE/ECOFRIENDLY-CLEANING
- HTTPS://WWW.CARE.COM/C/STORIES/5925/GREEN-CLEANING-12-NATURAL-SOLUTIONS-THAT-REA/
- HTTP://WWW.HEALTHYCLEANING101.ORG/TYPES-OF-HOUSEHOLD-CLEANING-PRODUCTS/#DIS
- HTTP://WWW.POLLUTIONISSUES.COM/HO-LI/HOUSEHOLD-POLLUTANTS.HTML
<table>
<thead>
<tr>
<th>Product Type</th>
<th>Harmful Ingredients</th>
<th>Potential Health Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air fresheners &amp; deodorizers</td>
<td>Formalddehyde</td>
<td>Toxic in nature; carcinogenic; irritates eyes, nose, throat and skin; nervous, digestive, respiratory system damage</td>
</tr>
<tr>
<td></td>
<td>Sodium hypochlorite</td>
<td>Corrosive; irritates and burns skin and eyes; nervous, respiratory, digestive system damage</td>
</tr>
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<td>Sodium hypochlorite</td>
<td>Corrosive; irritates and burns skin and eyes; nervous, respiratory, digestive system damage</td>
</tr>
<tr>
<td></td>
<td>Phenols</td>
<td>Carcinogenic; irritates eyes, nose, throat and skin; nervous, digestive, respiratory, nervous system damage</td>
</tr>
<tr>
<td></td>
<td>Ammonia</td>
<td>Toxic in nature; vapor irritates skin, eyes and respiratory tract</td>
</tr>
<tr>
<td></td>
<td>Sodium/potassium hydroxide (lye)</td>
<td>Corrosive; burns skin and eyes; toxic in nature; nervous, digestive and urinary system damage</td>
</tr>
<tr>
<td></td>
<td>Carbaryl</td>
<td>Very toxic in nature; irritates skin; causes nervous, respiratory and circulatory system damage</td>
</tr>
<tr>
<td></td>
<td>Dichlorophene</td>
<td>Toxic in nature; irritates eyes and skin; cause respiratory, digestive and urinary system damage</td>
</tr>
<tr>
<td></td>
<td>Chlorodane and other chlorinated hydrocarbons</td>
<td>Toxic in nature; causes nervous, digestive and urinary system damage</td>
</tr>
<tr>
<td></td>
<td>Diethylene glycol</td>
<td>Highly ignitable; carcinogenic; irritate skin, eyes, throat, and lungs</td>
</tr>
<tr>
<td></td>
<td>Petroleum solvents</td>
<td>Toxic in nature; vapor irritates skin, eyes and respiratory tract</td>
</tr>
<tr>
<td></td>
<td>Ammonia</td>
<td>Highly ignitable; toxic in nature; carcinogen; irritate skin, eyes, nose, throat and lungs</td>
</tr>
<tr>
<td></td>
<td>Petroleum distillates or mineral spirits</td>
<td>Corrosive; burns skin, eyes; toxic in nature; causes nervous and digestive system damage</td>
</tr>
<tr>
<td></td>
<td>Sodium/potassium hydroxide (lye)</td>
<td>Toxic in nature; cause digestive and urinary system damage</td>
</tr>
<tr>
<td></td>
<td>Chlorinated aliphatic hydrocarbons</td>
<td>Toxic in nature; irritate eyes, nose and throat</td>
</tr>
<tr>
<td></td>
<td>Esters</td>
<td>Ignitatable; cause nervous system damage; irritate eyes, nose and throat</td>
</tr>
<tr>
<td></td>
<td>Alcohols</td>
<td>Ignitatable; toxic in nature; digestive system damage</td>
</tr>
<tr>
<td></td>
<td>Chlorinated aromatic hydrocarbons</td>
<td>Ignitatable; toxic in nature; respiratory system damage</td>
</tr>
<tr>
<td></td>
<td>Ketones</td>
<td>Ignitatable; toxic in nature; respiratory system damage</td>
</tr>
<tr>
<td></td>
<td>Aromatic hydrocarbon thinners</td>
<td>Highly ignitable; toxic in nature; carcinogenic; irritate skin, eyes, nose and throat; respiratory system damage</td>
</tr>
<tr>
<td></td>
<td>Mineral spirits</td>
<td>Corrosive; irritates skin, eyes, and throat; if ingested cause severe burns to the digestive tract</td>
</tr>
<tr>
<td></td>
<td>Calcium hypochlorite</td>
<td>Irritation of eyes, mucus membrane and skin; effects reproductive system; probable human carcinogen of medium carcinogenic hazard</td>
</tr>
<tr>
<td></td>
<td>Ethylene (algaecides)</td>
<td>Corrosive; toxic in nature; burns skin; causes digestive and respiratory system damage</td>
</tr>
<tr>
<td></td>
<td>Sodium acid sulfate or oxalate or hypochloric acid</td>
<td>Ignitatable; very toxic in nature; cause respiratory and circulatory system damage</td>
</tr>
<tr>
<td></td>
<td>Chlorinated phenols</td>
<td>Toxic in nature; irritate eyes, nose and throat</td>
</tr>
<tr>
<td></td>
<td>Diethylene glycol</td>
<td></td>
</tr>
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