

## What's in your household products?

Match the household product from the word bank that shares an ingredient with the products listed below and fill in the ingredient they may share. Answers are on the back.

- |                     |                    |               |                 |                             |
|---------------------|--------------------|---------------|-----------------|-----------------------------|
| air freshener       | drain cleaner      | nail polish   | polystyrene cup | shaving cream               |
| all purpose cleaner | foam couch cushion | oven cleaner  | scented shampoo | Teflon™ coated nonstick pan |
| antiperspirant      | mascara            | paint thinner | shampoo         | toilet bowl cleaner         |

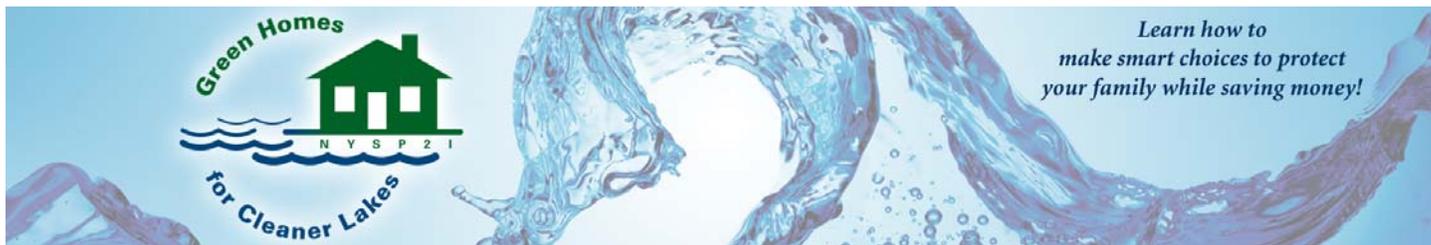
Product	Household product	Shared ingredient
1. raw material for TNT production	_____	_____
2. aspartame (artificial sweetener) production	_____	_____
3. engine degreaser	_____	_____
4. lead acid (car) batteries	_____	_____
5. plastic shower curtain	_____	_____
6. biodiesel production	_____	_____
7. fertilizer	_____	_____
8. gasoline	_____	_____
9. automotive fuel hose	_____	_____
10. aluminum can	_____	_____
11. urinal cakes	_____	_____
12. compact fluorescent light bulb (CFL)	_____	_____
13. particleboard furniture	_____	_____
14. disinfectants	_____	_____
15. polyurethane sealed hardwood floor	_____	_____



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## Answer Key

- 1. Toluene:** raw material for TNT production and solvent in paint thinners  
Concerns: Breathing high levels in a short time can make you feel light-headed, dizzy, or sleepy. High levels may affect your kidneys.<sup>1</sup>
- 2. Hydrochloric acid:** used in a chemical reaction to create aspartame (artificial sweetener) and an active ingredient in toilet bowl cleaner  
Concerns: Corrosive to the eyes, skin, and mucous membranes. Breathing may cause eye, nose, and respiratory tract irritation and inflammation. Long exposure to low concentrations may also cause discoloration and erosion of the teeth.<sup>4</sup>
- 3. Sodium lauryl sulfate (SLS):** used in engine degreasers because it is good at removing oils and it lathers and foams in shaving cream  
Concerns: SLS is a penetration enhancer, making it easier for other chemicals to pass through skin and into the body. It can irritate skin and eyes.
- 4. Sulfuric acid:** found in car batteries and is used in drain cleaners as it is effective at clearing drains  
Concerns: Skin contact will burn your skin, and breathing can result in tooth erosion and respiratory tract irritation. Drinking can burn your mouth, throat, and stomach; high levels can result in death. Will cause your eyes to water and will burn.<sup>1</sup>
- 5. Phthalates:** components of flexible PVC, typically used for plastic shower curtains, and a component of synthetic fragrance in scented shampoo  
Concerns: Eating/drinking very high levels damaged sperm in mice and high amounts damaged the liver of rats and mice. It cannot easily pass through the skin.<sup>1</sup>
- 6. Lye,** also called sodium hydroxide: used in producing biodiesel from waste cooking oil and is an active ingredient of most oven cleaners  
Concerns: Breathing mists or aerosols may irritate the nose, throat, and respiratory system; higher levels can produce swelling or spasms of the upper airway, inflammation of the lungs and accumulation of fluid in the lungs. Skin contact can cause severe burns with deep ulcerations. Eye contact may cause pain and irritation, and in severe cases, blindness.<sup>1</sup>
- 7. Ammonia:** it is typically used in fertilizers as it is rich in nitrogen and is an active ingredient in all purpose cleaners  
Concerns: Breathing high levels may irritate the skin, eyes, throat, and lungs and cause coughing and burns; very high levels may cause lung damage and death. People with asthma may be more sensitive to breathing ammonia. Swallowing concentrated solutions can cause burns in the mouth, throat, and stomach. Eye contact can cause burns and blindness.<sup>1</sup>
- 8. Benzene:** is a gasoline additive to increase the octane rating and used in the production of styrene used to make polystyrene cups  
Concerns: Ingesting foods with high levels can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death. Causes harmful effects on the bone marrow, decrease in red blood cells, and harm to immune system.<sup>1</sup>
- 9. Perfluorooctanoic acid (PFOA):** used as a processing aid in the production of heat- and chemical-resistant materials, such as automotive fuel hoses and may be emitted from Teflon® coated nonstick pans when heated to high temperatures  
Concerns: It can stay in the body for many years. Two studies in workers found changes in sex hormones and cholesterol associated PFOA in blood. Animals suffered alterations in the liver and slower growth through ingestion and skin contact.<sup>1</sup>
- 10. Aluminum:** commonly used to make cans is used in antiperspirant as it slows the flow of sweat  
Concerns: Very small amounts of aluminum that you inhale, ingest, or have skin contact with will enter the bloodstream. Uncertain whether it causes Alzheimer's disease. Animal studies show the nervous system may be affected.<sup>1</sup>
- 11. 1,4 dichlorobenzene:** disinfectant in urinal cakes and air fresheners, the characteristic smell of urinal cakes  
Concerns: Dizziness, headaches, and liver problems have been observed in people exposed to very high levels. May cause a burning feeling in your skin if you hold mothballs or toilet-deodorizer blocks for a long time. Breathing or eating caused harmful effects in the liver of laboratory animals. Animal studies found that it caused effects in the kidneys and blood.<sup>1</sup>
- 12. Mercury:** vapor is in the tubes of compact fluorescent light bulb (CFL) and used in mascara as a preservative  
Concerns: Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. May result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause lung damage, nausea, vomiting, diarrhea, increases in blood pressure/heart rate, skin rashes, and eye irritation.<sup>1</sup>
- 13. Formaldehyde:** glue in particleboard may contain it and may be found in nail polish  
Ingredient concerns: The most common health problems in people exposed include irritation of the eyes, nose, and throat. Animal studies show that breathing it can result in irritation and damage to the lining of the nose and throat. Impaired learning and changes in behavior along with stomach damage has been observed in rats. The Department of Health and Human Services (DHHS) and the International Agency for Research on Cancer (IARC) have characterized formaldehyde as a human carcinogen.<sup>2</sup>
- 14. Quaternary ammonium cations:** have disinfectant & anti-static properties; good for disinfectants and shampoo  
Concerns: Breathing or touching may cause asthma and skin irritation.<sup>3</sup>
- 15. Diisocyanates:** component of clear polyurethanes to seal hardwood floors and used in the production of foams typically used in furniture  
Concerns: People exposed for a long time have shown an allergic, asthma-like syndrome, with shortness of breath, wheezing, bronchitis, and coughing. Animals exposed in the lab experienced irritation to the eyes, nose, throat, redness and irritation to the skin, some developed pneumonia, and a few died.<sup>1</sup>

<sup>1</sup> US Centers for Disease Control, Agency for Toxic Substances & Disease Registry, ToxFaq, <http://www.atsdr.cdc.gov/toxfaqs/index.asp#>

<sup>2</sup> US Centers for Disease Control, Agency for Toxic Substances & Disease Registry, Public Health Statement, <http://www.atsdr.cdc.gov/phs/phs.asp>

<sup>3</sup> US Centers for Disease Control, Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008, [http://www.cdc.gov/hicpac/Disinfection\\_Sterilization/9\\_OPcceticAcidHydroPoxide.html](http://www.cdc.gov/hicpac/Disinfection_Sterilization/9_OPcceticAcidHydroPoxide.html)

<sup>4</sup> US EPA, Technology Transfer Network Air Toxics Web Site, <http://www.epa.gov/ttn/index.html>