Environmental Purchasing Case Study: Glass Cleaner

City of McCall Environmental Advisory Committee

Environmental stewardship can be improved by switching glass cleaner from Windex to Spartan Bio-Renewable Glass Cleaner, or by using a home mixed recipe. The following compares the environmental impact of these cleaner options.

Environmental Impact Comparison:

A) Windex Glass Cleaner:

The ingredients of Windex include:

Water, Isopropyl Alcohol, Propylene Glycol, 2-Hexoxyethanol, Ammonium Hydroxide, Mirapol Surf S-210, Videt EGM, and Sodium C14-17 Sec-Alkyl Sulfonate.[1]

Ingredients of notable environmental impact include, but are not limited to, the following:

1) Ammonia Hydroxide:

Ammonium Hydroxide is harmful to aquatic life at low concentrations.[2] Ammonia is classified by European Union Law, Dangerous Substances Directive 67/548/EEC as "dangerous for the environment."

2) Isopropyl Alcohol:

Isopropyly Alcohol negatively affects animals and humans. Isopropyl alcohol is an irritant of the eyes and mucous membranes; at high concentrations, it causes central nervous system depression at very high concentrations [Hathaway et al. 1991]. Prolonged skin contact with isopropyl alcohol can cause eczema and sensitivity [Genium 1993]. Isopropyl alcohol causes "defatting" whereby lipids in skin are dissolved.[3]

Although not of direct concern to the community, the production of isopropyl alcohol is suspect. According to the Agency for Research on Cancer, studies link the primary production method, the "strong acid" method, to paranasal sinus cancer (ACGIH 1991, IARC 1987).[4] McCall's character of stewardship entails that the city avoid complicity in the manufacturing of harmful chemicals, whenever doing so is possible and feasible.

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[1] SC Johnson & Sons Inc. (2011). *What's Inside SC Johnson*: Windex. Accessed online. < http://www.whatsinsidescjohnson.com/en-us/products-by-brand/windex/windex-original-glass-cleaner.aspx>. July 16th 2012.

[2] New Jersey Department of Heath (2011). "Right to Know, Hazardous Substance Fact Sheet: Ammonium Hydroxide. Accessed Online, July 16th. .<http://nj.gov/health/eoh/rtkweb/documents/fs/0103.pdf>

[3] Wikipedia, Isopropanol. <http://en.wikipedia.org/wiki/Isopropanol#Safety>.

[4] OSHA: http://www.osha.gov/SLTC/healthguidelines/isopropylalcohol/recognition.html

B) Spartan Bio-Renewable Glass Cleaner

The Bio-Renewable cleaner is a Green Seal Certified product and a Biobased Product. According to the Farm Security and Rural Investment Act (FSRIA) of 2002, a biobased product is a product determined by the US Secretary of Agriculture to be a commercial or industrial product (other than food or feed) that is composed, in whole or in significant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials. In general, a biobased product is formulated with products from renewable plant and animal resources.

The two hazardous Windex ingredients discussed in the previous section are not listed on the Spartan Bio-Renewable Glass Cleaner Material Safety Data Sheet.[5]

There are additional benefits to Bio-based cleaners because such cleaners:

- are derived from renewable sources
- reduce fossil fuel use
- help to reduce dependency on foreign energy
- are generally better for the environment to produce and use.

Additionally,

- BioRenewables Glass Cleaner is non-flammable and compliant with the accepted levels of Volatile Organic Compounds (VOCs).
- BioRenewables Glass Cleaner is certified by a third party to contain 84% bio-based material.[6]

The Bio-based glass cleaner from the supplier comes by case in 4 gl. bottles, or in a 5gl. bucket. This means less packaging and energy used, less carbon emitted into the environment due to the packaging, and less waste goes to the landfill.

[5] Spartan Chemical Company Inc. (2010) "Material Safety Data Sheet." accessed online July 17: <http://www.spartanchemical.com/spartan/msds/USA/English/3835.pdf>.
[6] Spartan Chemical Company: http://www.spartanchemical.com/products/product/383504

C) Alternative Option, Homemade Window Cleaner:

A further alternative to both options above is to make glass cleaner. The recipe is as follows:[7]

1/4-1/2 teaspoon eco liquid detergent (such as Simple Green Cleaner, a multi-purpose cleaner).

3 tablespoons vinegar

2 cups water

Spray bottle

Combine ingredients into a spray bottle and shake.

Conclusion:

Switching between purchasing Windex towards the bio-renewable product from will result in reduced cost for more product, use of safer product in application and production, and better environmental practice through bulk purchasing and reduced packaging. The homemade alternative is also an option with similar benefits.

[7] Care2.com <http://www.care2.com/greenliving/make-your-own-non-toxic-cleaning-kit.html?page=1>.