

# Keyboard Cleaners

BUY SMART, CHOOSE NON-TOXIC

Tips for Reducing Toxic Chemical Use at the City of Seattle

Winter 2009

## HAZARDOUS PRODUCT: KEYBOARD CLEANERS

The City of Seattle is taking steps to reduce hazardous chemicals in the workplace. The goal of this effort is to help employees identify and use safer alternatives.

Many ordinary products pose risk to the environment or human health through manufacture, use, and disposal. These products can be found in many city work sites, training events, public events, offices, and warehouses. Some compressed gas keyboard cleaners contain highly potent greenhouse gases, which contribute to climate change. Other keyboard cleaners can contain toxic chemicals.

This fact sheet will help you find low-toxic alternatives to compressed gas cleaners that cause greenhouse gases (GHGs).

## WHAT CHEMICALS ARE IN KEYBOARD CLEANERS?

Marketed as “canned air”, aerosol keyboard cleaners rarely contain just “air”. The main ingredients found in most aerosol chemical-based keyboard cleaners are:

1. Hydrofluorocarbons (HFC) are known greenhouse gases. The two types used for keyboards are:
  - a. **HFC-134a** (CAS # 811-97-2), or 1,1,1,2-Tetrafluoroethane.
  - b. **HFC-152a** (CAS# 75-37-6), or 1,1-difluoroethane.
2. **2-Butoxyethanol**, an organic solvent found in cleaners.
3. **Ethylene glycol**, a poisonous alcohol commonly used in antifreeze.

## WHAT ARE THE HAZARDS OF KEYBOARD CLEANERS?

The hazards of keyboard cleaners are contributing to climate change and human poisoning.

### • **Climate Change**

Compressed gases such as HFC-134a and HFC-152a can be present in concentrations of 100%. HFC-134a is **1,300 times more potent** in the atmosphere than carbon dioxide over 100 years (global warming potential). HFC-152a is less potent than HFC-134a.

## *In Brief*

Avoid consumer products that may cause climate change by choosing alternative properties.

Many chemical-based keyboard cleaners also contain chemicals which are toxic to humans in repeated or high doses.

### HFC-134a

- 1,300 times more potent in the atmosphere\* than CO<sub>2</sub> over 100 year period
- Causes asphyxiation or cardiac arrest if inhaled in high doses
- Not flammable

### HFC-152a

- 140 times more potent in the atmosphere \* than CO<sub>2</sub> over 100 year period.

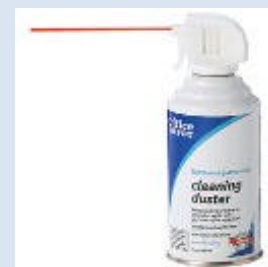
*\*Global warming potential (GWP) compares the ability of each GHG to trap heat in the atmosphere relative to another gas (IPCC Third Assessment Report)*

### 2-Butoxyethanol

- Blood toxin
- Affects target organs

### Ethylene Glycol

- Poisonous



Example of a compressed gas keyboard cleaner

HFC-152a is **140 times more potent** in the atmosphere than carbon dioxide over 100 years. The primary concern of HFC-152a is its flammability compared to HFC-134a and that it can cause headaches and fatigue (Central Nervous System depression).

- **Poisoning**

Because of their chemical properties, these aerosolized products are known for inhalant abuse or “dusting” by teens or adults to get high. HFC-134a causes **asphyxiation and cardiac arrest** (sudden sniffing death syndrome) if inhaled directly. The production of HFC-134a requires the use of trichloroethane (TCE), also a highly potent toxin and a probable human carcinogen. Therefore workers and nearby communities involved in producing HFC-134a have an increased risk for serious health problems.

2-Butoxyethanol is a toxicant that can cause effects on the blood, liver, and kidney in high doses. High doses can also cause reproductive effects in animals. Ethylene glycol is **potentially fatal** if ingested.

### **WHY ARE THESE INGREDIENTS USED?**

HFCs are intended to be a chemical substitute for ozone-depleting Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs). CFCs were phased out by the EPA in 1996. Certain HCFCs are currently being phased out according to the Montreal Protocol on ozone-depleting substances. There are at present no restrictions on use of HFCs.

HFC ingredients are used in a variety of consumer products and industrial applications. HFC-134a has significantly more blasting power than HFC-152a and costs less. HFC-134a is a replacement for CFC-11 and CFC-12. CFCs are four to eight times greater than HFC-134a in its global warming potential (IPCC 1995).

#### **CHOOSE SAFER KEYBOARD CLEANING OPTIONS**

##### **Keyboard Vacuums**

- Keyboard vacuums are \$5-\$10. Mixed reviews on how well they pick up larger crumbs
- Plugs into USB port

##### **Keyboard Brushes**

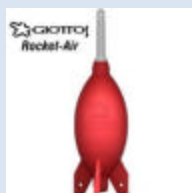
- Silicon brushes for removing dust particles

##### **Mini-Microfiber Dusters**

- Picks up small fibers without chemicals

##### **Manual Air Blowers**

- E.g. Giotto's Rocket-Air



Or, Invert keyboard to shake-out debris!

### **WHAT PRODUCTS CONTAIN TOXIC CHEMICALS?**

Examples of the names of products to avoid are:

#### **HFC-134a**

- Air Duster (Fellowes)
- OfficeDuster (Read Right)

#### **HFC-152a**

- Duster II Air Duster (Kensington)
- DustFree Duster (Read Right)
- 152A Air Duster (Memorex)
- Dust-Off Duster (Falcon/ Computer Accessories)

#### **2-Butoxyethanol**

- 3M Keyboard Cleaning Tool #674
- Scotch(R) Keyboard Cleaner AV517

#### **Ethylene Glycol**

- 3M CL680 Screen and Keyboard Cleaner

#### **FOR MORE INFORMATION CONTACT**

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