

Tools for informed substitution

(Everything you wanted to know about replacing that toxic graffiti cleaner, and more)



Presented by Dorothy Wigmore
A 2014-2015 project with Larry Stoffman
and Bev Thorpe, funded by WorksafeBC,
in partnership with BCGEU and WSI

International
Symposium on
**Alternatives
Assessment**

2nd International Symposium
Alternatives Assessment:
Building the Field
Sacramento, Calif. – Nov. 1-2, 2018

During this project, we ...



- did an **inventory** of the cleaning products used in B.C. government buildings;
- *reviewed product **data sheets** for the ingredients' reported hazards;*
- used on-line **screening tools** to find out what others said about the hazards of those chemicals;
- *reviewed Shared Services BC's **procurement policy**;*
- analysed which products met the requirements **for third-party certified "green" products**;
- *looked for less hazardous or non-toxic options after setting **priorities for informed substitution**;*
- identified **sources** for third-party certified alternatives or other informed substitutes;
- reviewed good purchasing practices; and
- produced a toolkit that explains these steps, with RTK information and resources

Why do (cleaning product) chemicals matter?

Cleaning product chemicals can have **short-term effects**, such as:

- irritating, itchy or burning **eyes**;
- **skin** rashes, allergies and burns;
- **dizziness** and **headaches**;
- **nose bleeds**; and
- sore **throat**, coughing, wheezing, **shortness of breath**.



Studies show that -- depending on the chemical – cleaning product ingredients can :

- cause new cases of **asthma** and trigger asthma attacks;
- harm the **brain, nervous system, reproductive organs, kidneys and liver**;
- cause breathing problems and illnesses;
- disrupt/act like hormones (**endocrine disruptors**);
- lead to **cancer**; and
- be linked to **cardiovascular** (heart) problems.

Asthma's a big deal for cleaners and those in the spaces where they work

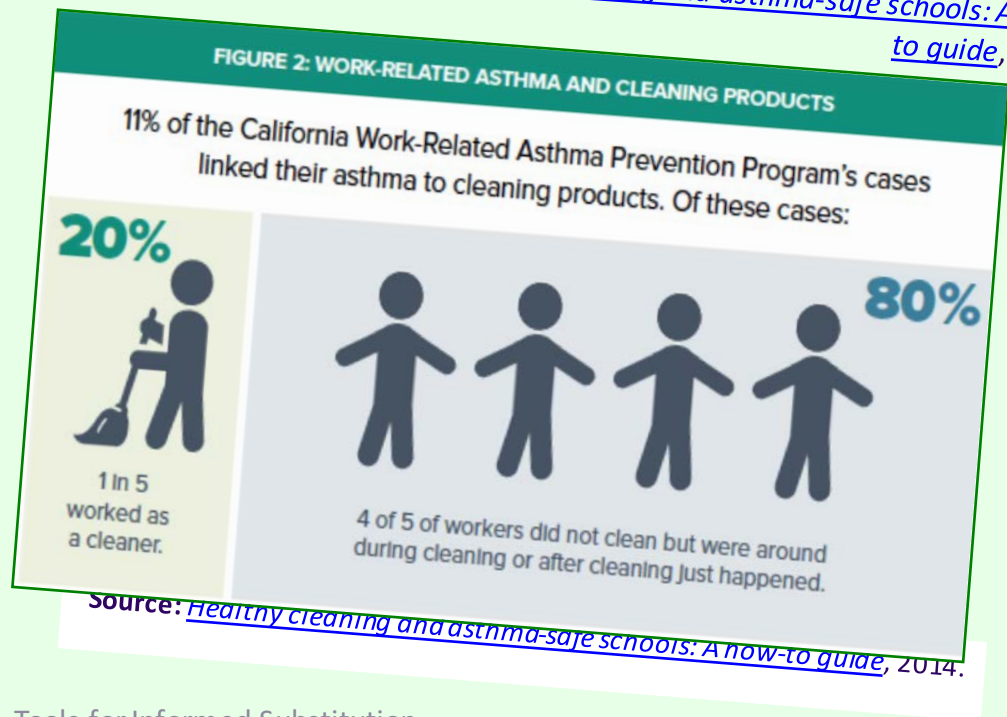
Quats may not be getting as much media attention as triclosan, but a growing number of scientific studies conducted over the past ten years link exposure to quats with adverse respiratory effects, particularly for those who use them professionally... "There's a pretty convincing body of evidence that they are asthmagens," Pechter says of quats.

(Can killing germs be hazardous to your health? Questions about "quats", 2014)

Avoid using bleach -- it can harm

Like many disinfectants, bleach is often used unnecessarily as a daily cleaner. Bleach is an asthmagen (which means it may cause asthma) and can make existing asthma worse. It also is corrosive and can damage eyes and skin. Bleach can be fatal if swallowed, gives off a potent vapor, and if mixed with ammonia or acids, can create gases that cause lung damage and death.

(Healthy cleaning and asthma-safe schools: A how-to guide, 2014)

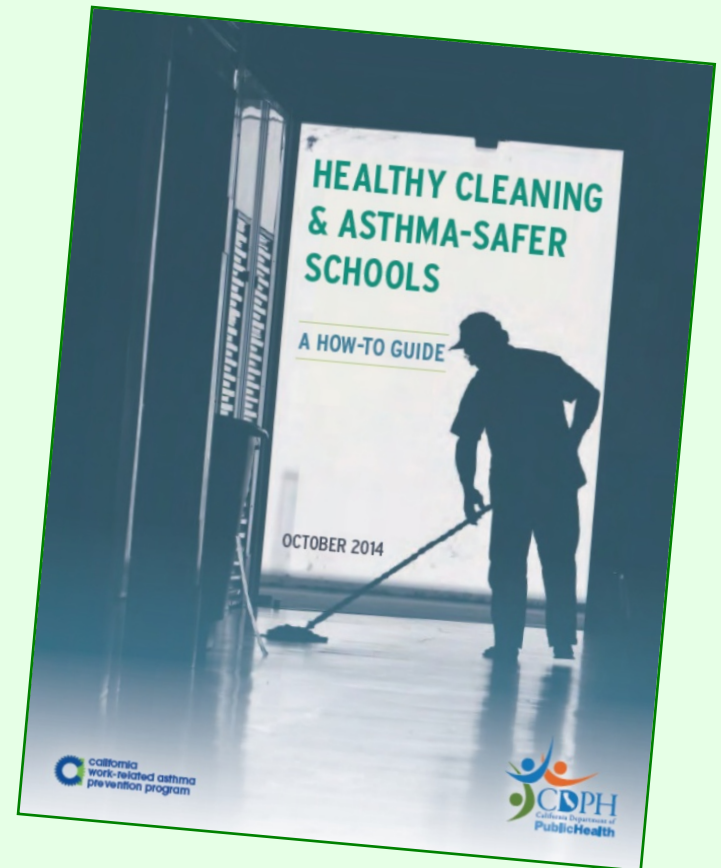


The questions are:

- 1. Is it necessary (to have that toxic chemical)?***
- 2. What's the best alternative?***

No smell is a good smell. Green cleaning products are often color and fragrance free. Traditional cleaning products have added color and fragrances that can cause throat irritation and breathing difficulty. For this reason, green cleaning products do not always have strong scents.

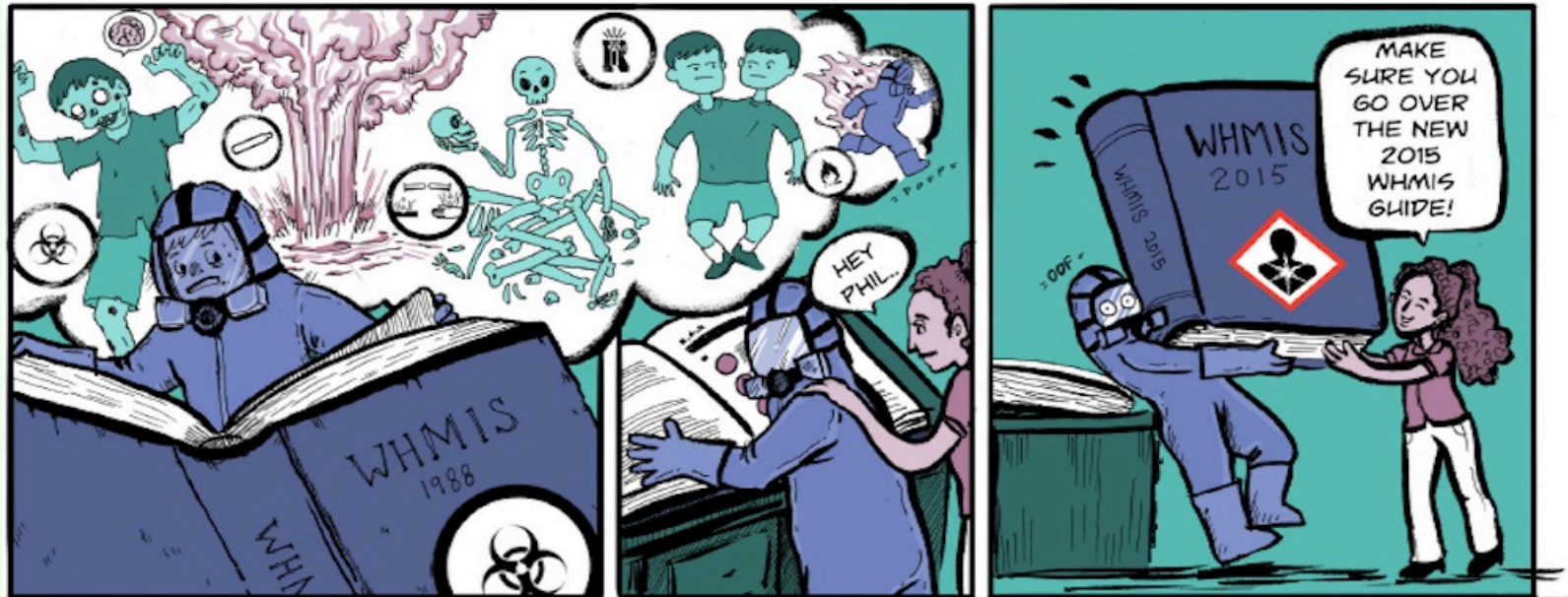
(San Francisco Environment Fact Sheet:
Module 1 Introduction. General green
cleaning)



We started with right-to-know

**From the right -to-know
to the need to act.**

*What's the "new" WHMIS and B.C.'s
safer substitution regulation?*



So you can be even more prepared.

B.C. has an expanded worker RTK



5.2 General information requirement

If a worker is or may be exposed **to a chemical agent**, or biological agent designated as a hazardous substance in section [5.1.1](#), which could cause an adverse health effect, the employer must ensure that

(a) the identity of the chemical agent or biological agent, its possible effects on worker health and safety and any precautions required to protect the health and safety of the worker are clearly indicated by labels, MSDSs, or other similar means,

(b) the information required by paragraph (a) is clearly communicated to the worker



Linked to informed substitution: a first in North America

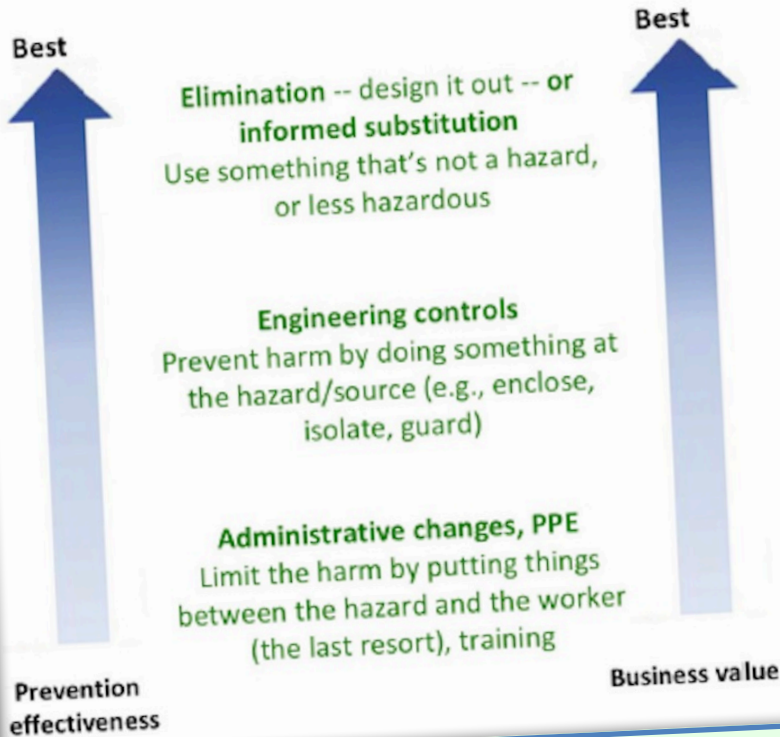
5.55 Type of controls

(1) If there is a risk to a worker from exposure to a hazardous substance by any route of exposure, the employer **must eliminate the exposure, or otherwise control it below harmful** levels and below the applicable exposure limit established under [section 5.48](#) by

- (a) **substitution,**
- (b) engineering control,
- (c) administrative control, or
- (d) personal protective equipment

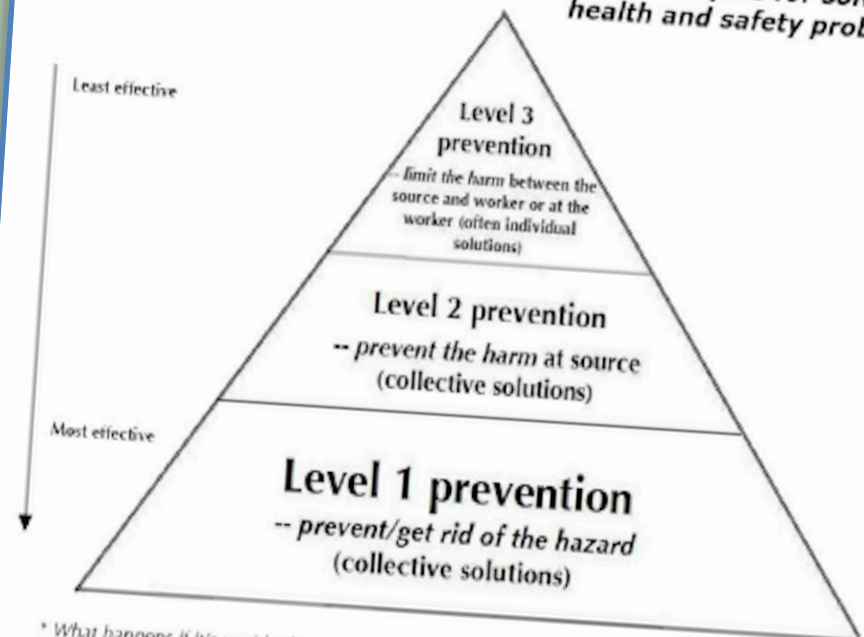
Best practice: We need to get there

Hierarchy for preventing work-related illnesses, injuries, diseases



The hierarchy of prevention

The prevention triangle -- principles for solving health and safety problems



* What happens if it's upside down? It falls over!

Dorothy Wignore - 2011

How did we find informed substitutes?

1. Gathered data sheets
2. Noted how many products were Ecologo or Green Seal certified (= $\pm 25\%$ of the total)
3. Screened the ingredients of each product using on-line databases
4. Prioritized the most hazardous ingredients for substitution
5. Found alternatives on line



We screened the ingredients listed on data sheets using:

Tools for informed substitution:

Products used, toxic ingredients/ecolabels found, substitutes recommended

Product	Manufacturer/supplier	Purpose	Chemical ingredient of concern	Pharos Tool classification	DfE SCIL list	Hazard of concern
0026-PS Scrub'n Shine Creme Cleanser	Armstrong Manufacturing Inc.	Industrial cleaner	Alcohol ethoxylate			
0026-PS Scrub'n Shine Creme Cleanser	Armstrong Manufacturing Inc.	Industrial cleaner	Laurie acid diethanolamide (68603-43-9)	LT-1		
0026-PS Scrub'n Shine Creme Cleanser	Armstrong Manufacturing Inc.	Industrial cleaner	Sodium dodecylben-zene sulphonate (25155-30-0)	LT-P1		
0026-PS Scrub'n Shine Creme Cleanser	Armstrong Manufacturing Inc.	Industrial cleaner	Nepheline syenite (37244-96-5)	LT-U	Yes	
Accel (concentrate)	Virox Technologies	Disinfectant	Hydrogen peroxide (4%) (7722-84-1)	LT-U		
Accel Concentrate Use Solution (1:16 and Higher)	Virox Technologies	Disinfectant	Hydrogen peroxide (.1 - .3 %) (7722-84-1)	LT-U		
Accel TB wipes (US)	Virox Technologies	Disinfectant wipe	Hydrogen peroxide (.5 %) (7722-84-1)	LT-U		
Block & Screen XL (urinal screen) FP#ESAB72	Fresh Products		Can irritate eyes, skin, respiratory system. These products can have perfumes, bacteria; could have para-di-chlorobenzene and other toxics			

1. Pharos/Green Screen List Translator



2. Chemhat

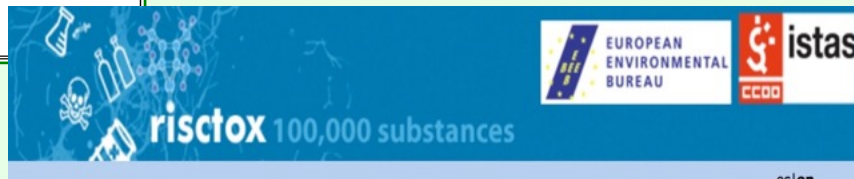
ChemHAT.org

Chemical Hazard and Alternatives Toolbox

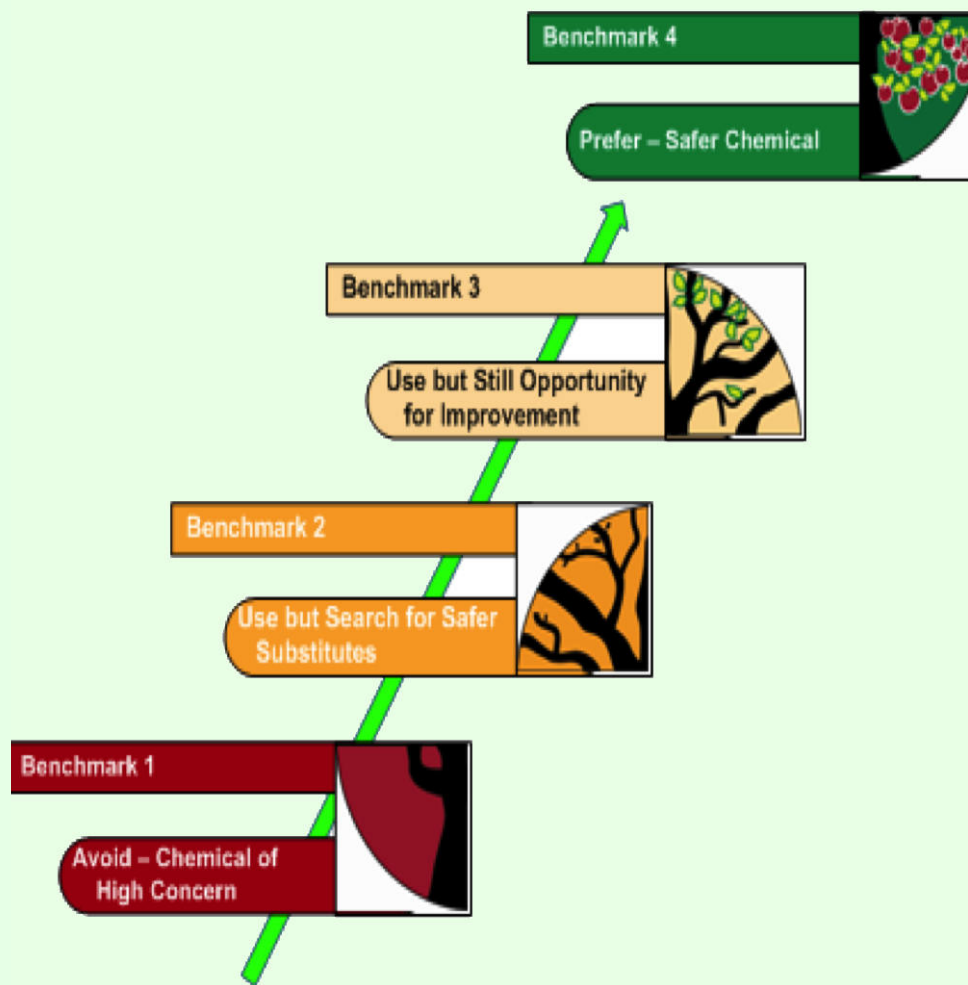
Home / Search About ChemHAT Safer Chemicals For Workers Breast Cancer Safer Families



3. Risctox



GreenScreen[®] List Translator



- is a quick way to find out if a chemical is a likely Benchmark 1 (avoid: it's a chemical of concern) or a possible Benchmark 1
- GS LT 1 (likely)
- GS LT-P1 (possible)

Example: “perc” found in graffiti remover is LT-1 chemical

Pharos Building Products Chemicals and Materials Certifications Dashboard Logout








Dashboard / Chemicals and Materials / [127-18-4] TETRACHLOROETHYLENE

[127-18-4] TETRACHLOROETHYLENE

[General Information](#) [Hazards](#) [Compound Groups](#) [Life Cycle Research](#) [View products containing this material](#)

[GreenScreen](#)

Direct Hazards:

CANCER	  US EPA - IRIS Carcinogens - (2005) Likely to be carcinogenic to humans + 12
DEVELOPMENTAL	 Lancet - Grandjean & Landrigan Neurotoxic Chemicals - Developmental neurotoxicant (2014)
REPRODUCTIVE	 Japan METI/MOE - GHS Classifications - Toxic to reproduction - Category 2
ENDOCRINE	  EC - Priority Endocrine Disruptors - Category 2 - In vitro evidence of biological activity related to endocrine disruption + 2
MAMMALIAN	 Japan METI/MOE - GHS Classifications - Specific target + 8

My Project Lists

- Drycleaning (cleaning materials)
- worksafe (cleaning materials)

Add to project list ▼

Add

A product with many LT-1s was a high priority for substitution

INO Graffiti Remover	INO Solutions	GreenScreen Benchmark 1 (which means avoid as this is a chemical of high concern).	Five other ingredients are LT-1 (probable GreenScreen Benchmark 1) Five are on the IARC cancer list (1A, 2A, 2B). Other effects a and dev neuroto irritatio
KaiBOSH Disinfectants/sanitizer	Kalvac, Inc.	LT-1 (two ingredients) LT-P (one ingredient)	One ingredient is on several cancer lists. Skin and respiratory sensi-tisers, asthmagen. One ingredient affects reproduction

BC government expects Ecologo or Green Seal cleaning products

Core Policy Manual Reference

(6.3.1 Procurement Planning- policy 14)

- *Ministries are encouraged to follow the Guidelines for Procurement of Environmentally Responsible Products and Services.*
- Shop at [Product Distribution Centre](#) first for EcoLogo certified biodegradable cleaning products. If you can't find it there, use the [Corporate Supply Arrangement](#) for Cleaning Equipment and Supplies, and ask for EcoLogo or Green Seal certified products.
- If you have to shop outside of Supply Services with your [Purchasing Card](#), ask for EcoLogo or Green Seal cleaning products

**So we searched for alternatives
online -- particularly Ecologo and
Green Seal**



Found a wide range of Green Seal cleaning products

The screenshot shows the Green Seal website's product search interface. At the top, the Green Seal logo is on the left, and a navigation bar contains links: 'about green seal', 'green living', 'green business', 'green governments & non-profits', 'news, events & publications', and 'find green seal products & services'. Below the navigation bar is a large green button labeled 'find green products & services'. To the left of the main content area is a green sidebar with a 'Products' section containing links to 'Cleaning Services', 'Hotels and Lodging Properties', and 'Restaurants and Food Services'. The main content area features a large image of four colorful cleaning bottles (orange, red, green, and blue). Below this image is a search filter section with 'Filter by:' labels and three dropdown menus for 'Standard', 'Category', and 'Manufacturer'. To the right of these is a 'Search by:' label followed by a text input field and a 'Go' button. At the bottom, there are four product category tiles: 'Household' (with an image of cleaning bottles), 'Construction' (with an image of a toolbox and a yellow hard hat), 'Paints & Coatings' (with an image of paint cans), and 'Printing & Writing' (with an image of a printer).

GREEN SEAL

about green seal green living green business green governments & non-profits news, events & publications find green seal products & services

find green products & services

Blog Get Involved Contact Us

Products

- ▶ Cleaning Services
- ▶ Hotels and Lodging Properties
- ▶ Restaurants and Food Services

Filter by:

Standard: - Select -

Category: - Select -

Manufacturer: - Select -

Search by: Enter keyword

Household

Construction

Paints & Coatings

Printing & Writing

<http://www.greenseal.org/FindGreenSealProductsandServices/Products.aspx>


We checked other on-line resources for ecolabel cleaning products



<http://www2.epa.gov/saferchoice>




<http://www.sfapproved.org/>




The Safer Choice Label

- [Learn About Safer Choice](#)
- [Resources for Manufacturers](#)
- [Safer Choice Standard](#)




Find Safer Products

- [Browse the Full Product Listing](#)
- [Find Safer Choices to Use in Your Community](#)



Safer Chemical List

- [Safer Chemical Ingredients List \(SCIL\)](#)
- [How to List on SCIL](#)










Related Programs

- [Design for the Environment \(DfE\) Alternatives Assessments](#)
- [DfE Life-Cycle Assessments](#)
- [DfE for Pesticides](#)

Find Safer Choice Products

e.g. company or product


 All-Purpose Cleaners	 Car Care Products
 Dish Soaps	 Floor Cleaners
 Laundry Products	 Tub and Tile Cleaners



SF APPROVED

Use less, buy the right thing

[batteries, cleaners, LED lights](#)




Carpet Cleaners, UL 2795 / Ecologo CCD-148 Certified

Manufacturer(s): [See products](#)
City Approved Vendor(s): [All City Approved Vendors](#)

Product/Service Type
Industrial

[More information](#)



Carpet Cleaners, Green Seal (GS-37) Certified



Manufacturer(s): [See products](#)
City Approved Vendor(s): [All City Approved Vendors](#)

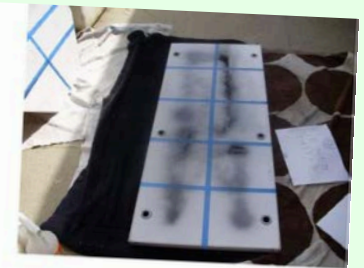
Product/Service Type
Industrial

[More information](#)

Guess what? Less “nasty” graffiti removers are available



INO Graffiti Remover	INO Solutions	GreenScreen Benchmark 1 (which means avoid as this is a chemical of high concern).	<p>Five other ingredients are LT-1 (probable GreenScreen Benchmark 1) Five are on the IARC cancer list (1A, 2A, 2B). Other effects are reproductive and developmental, neurotoxicity, skin irritation, water toxicity.</p> <p><u>CG310 Green Graffiti Remover</u></p> <p>Ecologo has <u>other graffiti removers</u>.</p> 	<p><u>Ecologic E49 Graffiti Remover</u> (and it's also a DfE Safer Choice)</p> 	SE. Approved has useful information about choosing graffiti removers.
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The IRTA formulated graffiti removers were tested by the agencies participating in the project. They were used for their routine purposes in removing spray paint, marker, stickers and adhesive residue. The agencies reported that the graffiti removers worked well for the intended purposes.

Where Can I Find Out More About the Alternative Graffiti Removers?

The description of the graffiti removers and the testing and the results of the graffiti project are available in a report entitled “Safer Alternative Graffiti Management Methods for California.” The report can be accessed on the IRTA website at www.irta.us. For more information, contact Katy Wolf at IRTA at (323) 656-1121 or kwolf.irta@earthlink.net.

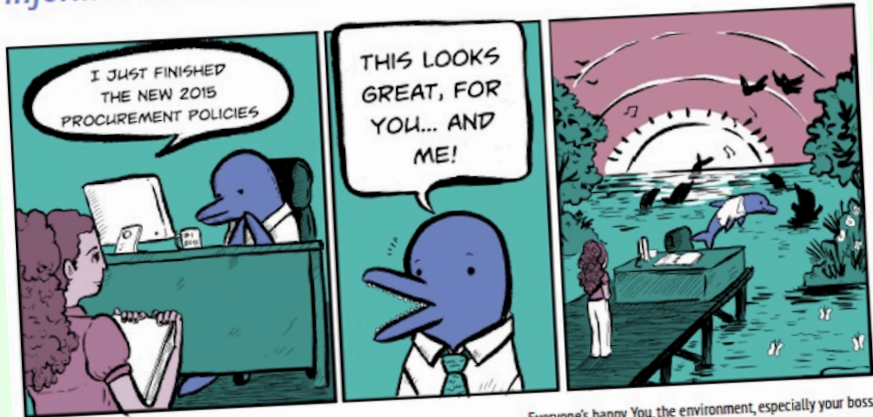
We found substitutes for 13 cleaning products with hazardous ingredients

Product	Manufacturer/ supplier	Screening result (Pharos)	Hazard(s)	Safer substitutes/alternatives		
				Ecologo	Green Seal	Others
Ultra General Cleaning/ Q128	Ultra Chem USA Inc.	LT-P1 (four ingredients)	One ingredient -- a "quat" -- causes respiratory sensitization/ asthma.	ECO Neutral Disinfectant (Buckeye)		See the asthma-safe disinfectants from Green
Carpet Spot and Stain Remover	Wood Wyant	LT-P1	Isobutane is a carcinogen	 Enviro-Solutions / ES92 H2O2 Carpet Stain Spot Remover More Ecologo substitutes are available.		
CaviWipes	Metrex Research	LT-P1	A "quat" in this is an eye and skin irritant, may cause asthma and is an aquatic toxicant.	 Diversey Oxivir® Disinfectant Cleaner		
Chewing Gum Remover	Dustbane	LT-P1	Isobutane is a carcinogen	No Ecologo op found.		

Product	Manufacturer/ supplier	Screening result (Pharos)	Hazard(s)	Safer substitutes/alternatives		
				Ecologo	Green Seal	Others
INO Dust mop treatment	Dissan Maintenance Products	LT-1	Odorless mineral spirits are on the IARC cancer list (1B). EU restricts use. Also a mutagen.			No need for chemical additives. Use micro-fiber mops 
INO Furniture polish	Dissan Maintenance Products	LT-1	Butane is on the IARC cancer list (1A), mutates genes, and is flammable.		 Bona Wood Furniture Polish (Note: this is GreenGuard Gold certified, another UL certification)	like Bona Hardwood Floor Mop Curve®
INO Graffiti Remover	INO Solutions	GreenScreen Benchmark 1 (which means avoid as this is a chemical of high concern). Five other ingredients are LT-1 (probable GreenScreen Benchmark 1)	Five are on the IARC cancer list (1A, 2A, 2B). Other effects are reproductive and developmental, neurotoxicity, skin irritation, water toxicity.	 CG310 Green Graffiti Remover Ecologo has other graffiti removers .	 Ecologic E49 Graffiti Remover (and it's also a DfE Safer Choice)	SF Approved has useful information about choosing graffiti removers.

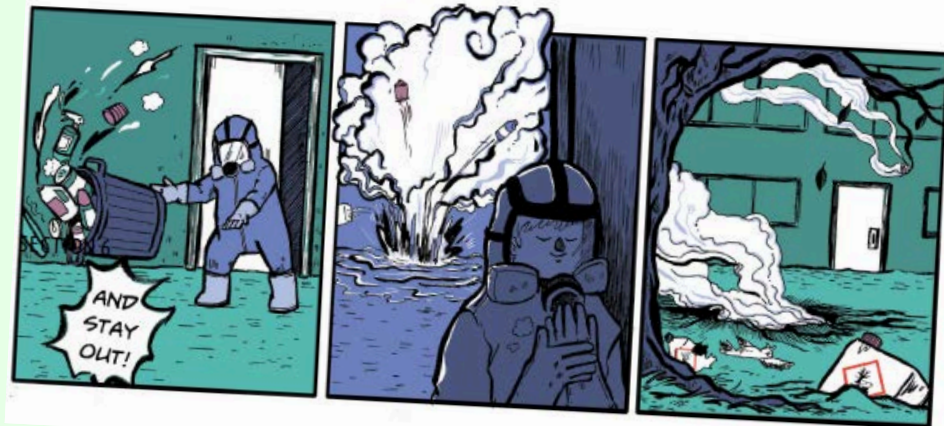
Reviewed good procurement practices, linked them to OHS

Buying safer cleaning products.
How do you set good procurement policies for informed substitution?



Everyone's happy. You, the environment, especially your boss.

Keeping the workplace healthy and safe.
How do you implement informed substitution?



Better safe than sorry.

What can you do to get informed substitution of cleaning products?

What can health and safety reps and staff do?

What if you're a worker?

What about supervisors, employers, and procurement staff?

Prepared an informed substitution audit form

Informed substitution of cleaning products

An audit checklist for health and safety committees

DATE: _____ TIME: _____ (AM/PM)

WORK AREA: _____

WHO DID THIS AUDIT? _____

THE SYMBOLS

(Y) = Yes: the situation is fine now

(NI) = Needs Improvement: the situation is average so take action to improve it; second level priority for informed substitution

(No) = No: this is an unsatisfactory situation, and may be harmful; priority for substitution and/or other action

A. Documentation (review all the documents with information, including all reports of injuries/illnesses)

TOPIC	IS THE SITUATION GOOD?	IF THE SITUATION IS NOT GOOD (Y), WHAT CAN BE DONE TO IMPROVE IT RIGHT AWAY?	BY WHOM?	BY WHEN?	FOLLOW-UP: WHAT'S BEEN DONE?
Are the labels and SDSs up-to-date?	(Y) (NI) (N)				
Is there a process to make sure that happens?	(Y) (NI) (N)				
Is the inventory up-to-date?	(Y) (NI) (N)				
Is there a process to make sure that happens?	(Y) (NI) (N)				
Is the procurement policy included in the health and safety programme?	(Y) (NI) (N)				

For joint health and safety committees to use, integrates health and safety (e.g., WHMIS/HazComm and other RTK rules) with procurement

TOPIC	IS THE SITUATION GOOD?	IF THE SITUATION IS NOT GOOD (Y), WHAT CAN BE DONE TO IMPROVE IT RIGHT AWAY?	BY WHOM?	BY WHEN?	FOLLOW-UP: WHAT'S BEEN DONE?
Have workers seen the procurement policy? Do they know where it is?	(Y) (NI) (N)				
What do they know about it (especially what it says about using ecolabels and microfibre products)?	(Y) (NI) (N)				
Are workers consulted about choosing less toxic products or methods? How is it done?	(Y) (NI) (N)				
Do workers know what an ecolabel is?	(Y) (NI) (N)				
Are workers trained about the right way to use each product for each cleaning task?	(Y) (NI) (N)				
Do the workers have the right tools and equipment to use the product?	(Y) (NI) (N)				
Do they use them correctly? If not, why not?	(Y) (NI) (N)				
If required, do workers have the right protective gear?	(Y) (NI) (N)				

Some resources for informed substitution for workplaces

There are a variety of resources to help with programmes, joint health and safety committee activities, and more. We recommend the following for informed substitution (especially for cleaning products):

- **Canadians for a Safe Learning Environment (CASLE);**
- **Clean Production Action** (including BizNGO and the **Chemical Footprint** project);
- **Ecologo *UL Sustainable Product Guide*** (for third-party certified products);
- **Green Clean Schools** (with lots of materials that can be used in other sectors);
- **Green Chemistry Initiative**, California Department of Toxic Substances Control;
- **Green Seal products and services** (for third-party certified products);
- **Healthy Building Network** (for building materials, Pharos database to check substitutes);
- **Informed Green Solutions** (for cleaning products, with lots of workplace materials);
- **Institute for Research and Technical Assistance** (Katy Wolf);
- **Lowell Center for Sustainable Production;**
- Ontario Toxics Reduction Act and related reports via a map of **toxics reduction**;
- **Responsible Purchasing Network** (especially for procurement issues);
- **Safer consumer products program** (California Department of Toxic Substances Control);
- San Francisco Department of Environment's **SF Approved** programme;
- **Transitioning to safer chemicals** (U.S. Occupational Safety and Health Administration/OSHA);
- Toxics Use Reduction Institute **CleanerSolutions database**; and

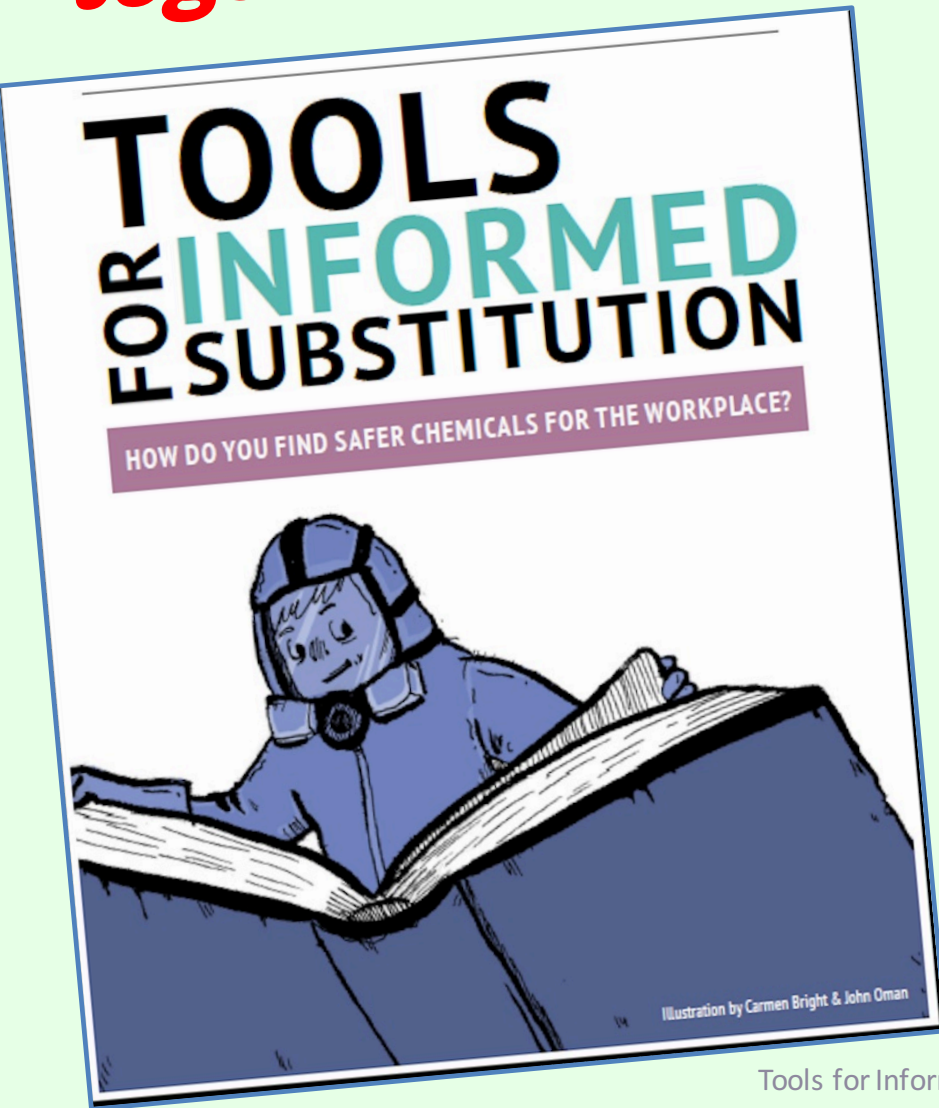
68 | Tools For Safer Substitutes: Section 6

Keeping the workplace healthy and safe.
How do you implement informed substitution?

Provided lots of useful resources to find hazards and informed substitutes, for various needs

Whenever possible, we recommend that you use microfibre products or third party certified products from Ecologo or Green Seal. You also can consider products in the U.S. EPA's Safer Choice program. Avoid products that have fragrances, and check the California recommendations to avoid those linked to asthma.

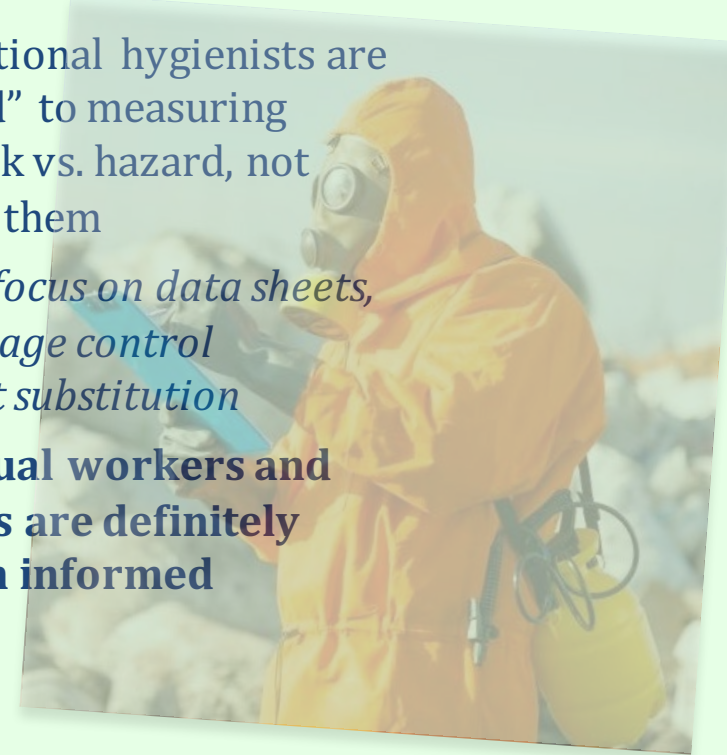
Produced a toolkit that pulls it all together ...



- ☐ reviews RTK rules
- ☐ explains the hazards of cleaning products, with emphasis on asthma
- ☐ provides step-by-step instructions for using various databases to find hazards of current products and informed substitutes for them
- ☐ looks at good procurement practices
- ☐ links procurement and OHS to implement informed substitution
- ☐ provides lots of resources and an audit form
- ☐ hope it will be “tested” -- and expanded to all chemical products -- in some Manitoba workplaces in 2019 and 2020, with funding from the Workers’ Compensation Board

Lessons learned include ...

- ❑ when work is contracted out, occupational health and safety (OHS) issues are much more difficult to address (especially with little oversight about contractors' practices)
- ❑ *power structure excludes workers in purchasing decisions (keeping it in the hands of "professionals")*
- ❑ less-than-effective OHS committee structures did not deal with barriers to introducing workers to informed substitution, so affected workers did not have opportunities to practice it
- ❑ *unions are weak in this OHS area*
- ❑ employers do not provide the resources needed to ensure purchasing policies are implemented
- ❑ *despite the law, regulators allow hazardous substances to be used, even if substitutes are available*
- ❑ many occupational hygienists are still "addicted" to measuring toxics and risk vs. hazard, not getting rid of them
- ❑ *OHS systems focus on data sheets, which encourage control measures, not substitution*
- ❑ **still, individual workers and OHS activists are definitely interested in informed substitution**



***And then this happened in
September ...***

WHAT SHOULD A MODERNIZED NAFTA DO?



PROMOTE GREATER ALIGNMENT ON CHEMICAL REGULATION

Strengthen and align a risk- and science-based approach to chemical regulation throughout North America, which can serve as a model for the rest of the world.

<https://www.americanchemistry.com/NAFTA-and-the-Chemical-Industry.pdf>

Risk-based chemicals management approach promoted in new Nafta

Industry groups praise sectoral annex approaches for chemicals, cosmetics
4 October 2018 / Canada, Mexico, United States



After more than a year of intense negotiations, the US, Canada and Mexico have reached an agreement on an updated North American Free Trade Agreement (Nafta) that promotes a risk-based approach to chemical regulations for the region.



What are your questions?