

# Keeping the workplace healthy and safe.

## *How do you implement informed substitution?*



Better safe than sorry.

**It *can* be done.** Less toxic cleaning products can be used on the job. It's an important step towards the goal of a healthy workplace.

Informed substitution is a best practice to work towards the prevention goal. It protects people and our environments more effectively than just controlling the use of toxic substances and products (e.g., with dilution, ventilation, protective gear).

British Columbia requires many employers to have occupational health and safety programmes. Employers go beyond these “rules” with best practices that evolve over time. Cleaning products offer an opportunity to do this.

As we've shown, those best practices for cleaning products require a purchasing/procurement policy that has informed substitution goals, is used and reviewed, and is changed based on lessons learned. It also should be integrated with the occupational health and safety programme and joint health and safety committee activities.

### Informed substitution is our goal

Informed substitution means replacing chemicals of concern with safer, less toxic chemicals, processes or methods. At the same time, those using the approach consider unintended consequences and keep the odds of them happening to a minimum (and hopefully none).

To find informed substitutes, start by asking "Is it necessary?" If not, remove the chemical or product.

If it is needed, compare the hazards of the chemicals of concern with those of the alternatives. The goal is to ensure the intrinsic health and environmental characteristics of substitutes are safer, i.e., that they are less hazardous to people and our environments.

## What are the steps?

**As a project,** *Tools for Informed Substitution* focused on cleaning products used in B.C. government buildings. We followed some of the same steps that joint health and safety committees and procurement/purchasing staff can take to find less toxic cleaning products.

### The principles to implement informed substitution are:

- **prevent** people getting sick or hurt by hazards
- prefer **precaution** (i.e., better safe than sorry) rather than waiting for something to happen
- when we find hazards, look for solutions that **eliminate** the problem, not ones that just limit the harm.

The graphic below lays out the steps we used. They are part of the “plan, do, check, and act” process used in many workplaces. With a bit more detail, our steps were:

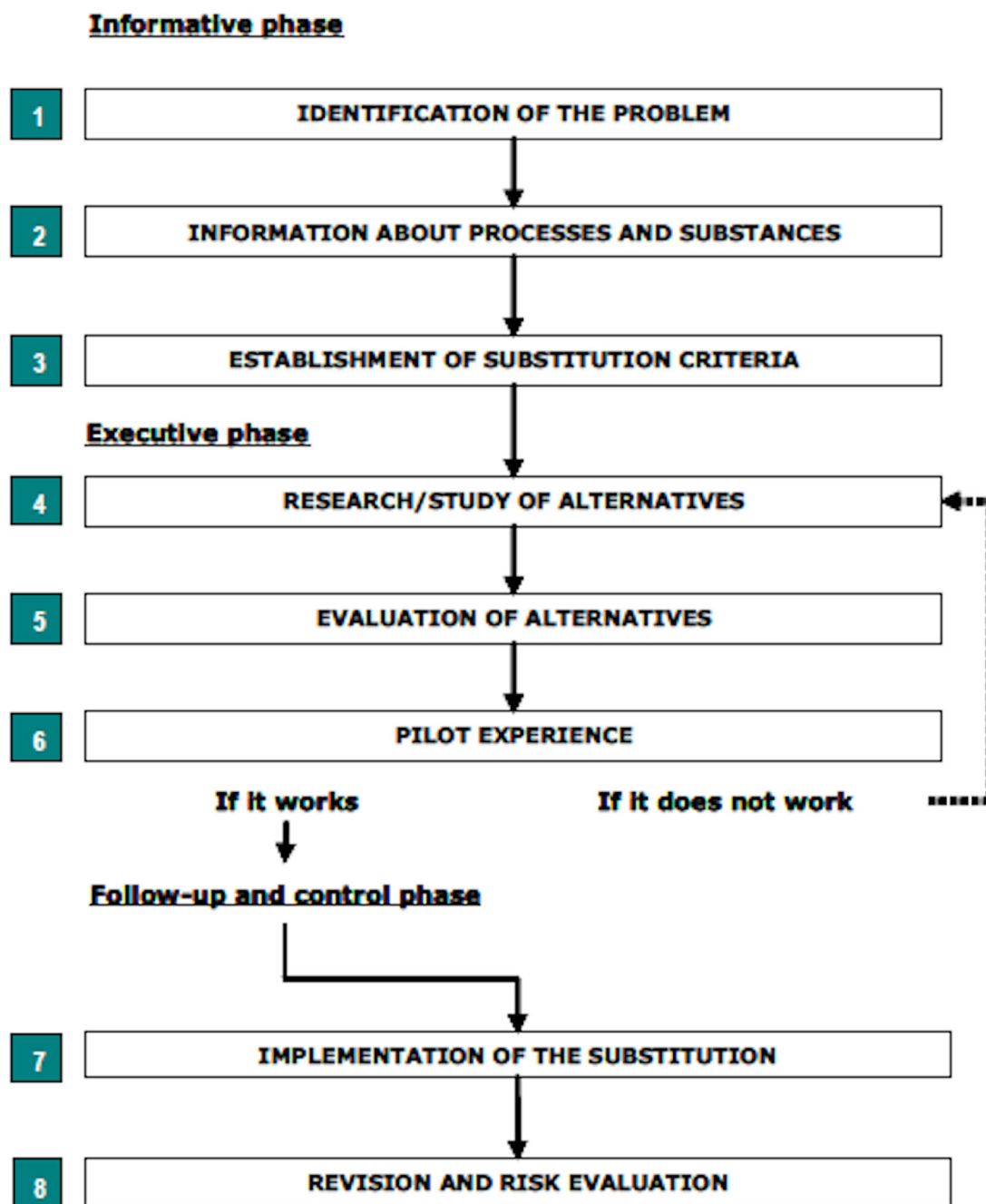
✓ We got the data sheets for the products used to clean the government buildings.

✓ We checked what the SDSs said about the hazards of the ingredients, and what others had to say about them, using the screening tools (Pharos, RISCTOX, ChemHAT).

✓ We found there were some quite hazardous ingredients in a few products and only about 25 percent had an ecolabel.

**Figure 6.1**

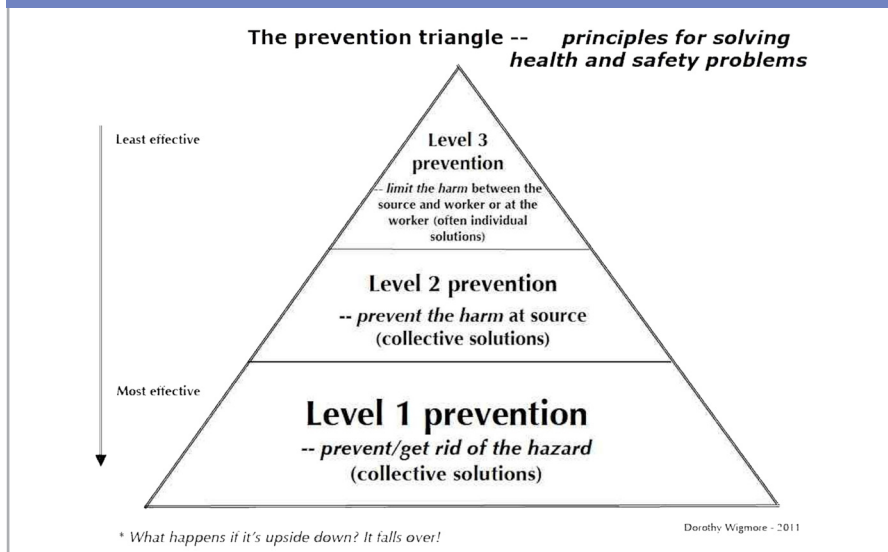
From Safe chemicals - safe products. Guidelines to enforce the “substitution principle”. Based on ISTAS’s Guía para la sustitución de sustancias peligrosas en la empresa. Manual práctico para la intervención (Guide for the substitution of dangerous substances in the workplace. Practical guidelines for intervention). The Guide is available in Spanish.



**Figure 6.2**

“The prevention triangle” by Dorothy Wigmore. From *Seeing the workplace with new eyes*. Available at [https://www.dropbox.com/s/17x41sjs30uqmym/Prevention triangle 11 with precaution.pdf?dl=0](https://www.dropbox.com/s/17x41sjs30uqmym/Prevention%20triangle%2011%20with%20precaution.pdf?dl=0).

- ✓ After setting priorities for products that required substitution, we looked for less hazardous or non-toxic options among the ecolabels.
- ✓ Using randomly-chosen examples from the ecolabel results, we checked out their data sheets and information, again using the screening tools.
- ✓ We recommended substitutes for pilot testing (i.e., use, feedback).



In addition, the steps should be done in a context that includes:

- a health and safety programme that includes a good procurement policy and evaluation of activities related to it; and
- processes to involve all those using and affected by hazardous products (workers, their representatives/unions, employers, affected community) present in the workplace.

## *What are the benefits of informed substitution?*

Informed substitution has many benefits. They include:

- ✓ fewer occupational health hazards for workers, unions and employers to deal with;
- ✓ less harm to workers, their families, and others in the workplace (i.e., fewer illnesses, diseases, incidents);
- ✓ healthier workers, which can show up as less sick time or absenteeism;
- ✓ fewer hazards to the outside environment and communities;
- ✓ fewer costs for workers compensation, replacing absent workers, re-training new workers, accommodating injured ones, or responding to environmental issues; and
- ✓ improved practices within the organization/company.

British Columbia was the first jurisdiction in Canada to mandate substitution as a key part of its occupational health and safety regulations. It does this with prevention of hazards as the goal, and limiting harm (controlling hazards) as the least effective methods.

Too often we are discouraged from pursuing this objective. We're told or think that alternatives are too expensive, or they're too hard to find.

That's not true. We just need the right tools to find them. This toolkit has some of the best ones available to do that. As for the cost, "green" informed substitute products and methods can save employers money, especially if they consider all the costs of using harmful products (e.g., the *Health and Safety Smart Planner* from the Institute for Work & Health).

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

### **What can health and safety reps and staff do?**

Workers and their joint health and safety committee representatives can work with supervisors and employers to implement best practices around informed substitution. Audits are useful, as are using inspections (required of joint committees) to get on-the-ground feedback and information.

We have a two-part checklist for health and safety committees and staff to use to audit informed substitution for cleaning products. The first part deals with the documents that should be reviewed, while the second part is for the follow-up inspection. It's at the end of this section.

### **What if you're a worker?**

Workers can do things on their own, or with others (e.g., co-workers, health and safety representatives, union). For those who do any cleaning work (including at home), questions might include:

- What cleaning tasks am I (asked) to do?
- What products or tools am I using for each one?
- What are they supposed to do (e.g., clean, disinfect)?

- What are their hazards? How could they affect my health?
- How do I find out about those hazards? Who's supposed to tell me?
- What training do I get about the hazards and how to do the work?
- Are these products necessary? If I could use less toxic products or methods, how would I do this work differently? With what?

Information to pull together (for doctors, health and safety reps, joint committees) includes:

- a list of all the products and tools you use, by task;
- information about how you use the product (e.g., spray, dilute);
- what products seem to affect you and how;
- what you know about how others are affected; and
- your questions.

## **What about supervisors, employers, and procurement staff?**

Employer representatives can work with the joint committee, workers, and their representatives/union(s) to contribute to best practices for informed substitution of cleaning (and other) products.

Here are a few essentials:

- Prepare an inventory of all the cleaning products used in the workplace or organization (of the products and their ingredients). (The joint committee and health and safety staff can use this in their audits.)
- Cross-reference the inventory with up-to-date data sheets and a list of ingredients by product and task.
- Ensure each product label is up-to-date. Indicate which ones have an ecolabel, and when it expires.
- With input from the joint committee and health and safety staff, prepare a procurement/purchasing policy that:
  1. sets goals of preventing workers getting sick or hurt from cleaning products, and informed substitution of toxic substances to achieve that;



2. uses third-party certification standards (ecolabels);
  3. is part of the occupational health and safety programme;
  4. includes a system to report hazards and symptoms that may be linked to cleaning products;
  5. is fragrance-free;
  6. prohibits outside cleaning products coming into the workplace; and
  7. assigns responsibilities for implementation, recognising the need to link health and safety reps and procurement staff.
- Establish effective lines of communication amongst the joint health and safety committee, health and safety staff, and those responsible for buying cleaning products.
  - Regularly evaluate the procurement policy, the communications process, and the system for reporting symptoms or hazards. Make changes as needed.
  - Ensure the policy is included in sub-contractors' health and safety programmes. Make periodic checks of how well they are implementing the policy.
  - Every year, check that the procurement policy (especially requirements to purchase third-party ecolabel products or use less toxic methods) is enforced. Check for new standards and products with those labels. Add them to the inventory as soon as possible.

## *What does all this add up to?*

**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.

These kinds of third party certifications, and the products that qualify for them, are considered to be the best available on the market today. There's always room for improvement as certification criteria account for new information about hazards and alternatives. Therefore, it's good practice to check regularly to see if products still have their certification or if there are new products for new criteria.

## Some resources for screening chemicals (especially in cleaning products)

It's important to use reliable sources to get information about the hazards of chemicals. We recommend these as a starting point; some are discussed or used in this toolkit.

- **CAREX Canada** (for information about work and environment cancer-causing hazards);
- **California Safer Consumer Products program's list of chemicals of concern** (candidate chemicals);
- **ChemHAT** (also has some information about alternatives);
- **Environmental Working Group** for databases such as **Skin Deep** (about personal care products) and the **Guide to Healthy Cleaning**;
- **GHS chemical hazard classifications** (e.g., from the European Union, Japan);
- **GreenScreen** for safer chemicals;
- New Jersey Department of Health **chemical information sheets**;
- **Pharos** database from the **Healthy Building Network**;
- **RISCTOX** database about hazardous chemicals;
- Substitute It Now (SIN) list and Sinimilarity tool from **Chemsec**; and
- **The Endocrine Disruption Exchange** (TEDX)

There also are materials about the hazards facing cleaning workers, which include information about the chemicals and ergonomic hazards that may be related to how they are applied. For example, the European Agency for Safety and Health at Work has three resources:

- Preventing harm to cleaning workers.
- The occupational safety and health of cleaning workers, and
- Cleaners -The situation of cleaners and ways for improvement.



CCOHS also has a booklet, ***Health and Safety Guide for Custodial Workers***, which can be purchased from its website.

## *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

- **Warner Babcock Institute for Green Chemistry** (headed by John Warner, one of the “fathers” of green chemistry, designing less toxic chemicals).

Also see *Making the substitution principle the cornerstone of sustainable chemical policies and moving towards clean production and innovation* by one of this toolkit’s authors, Bev Thorpe.

Some specific documents are:

- Clean Production Action resources such as **The guide to safer chemicals, Commons principles for alternatives assessment,** and **Triclosan and Triclocarban GreenScreen Assessments;**
- **Healthy cleaning for asthma-safer schools website** (California Department of Public Health’s Occupational Health Branch) has useful materials such as forms (for doing an **inventory**, choosing **products to test** in the workplace, and **evaluation** of tested products), lists of resources, a sample **policy**, and a short **video**;
- Lowell Center for Sustainable Production teamed up with others to produce **Advancing safer chemicals in products. The key role of purchasing;**
- Occupational Health Branch, California Department of Public Health’s **Certification standards help employers and cleaners buy safer cleaning products**
- Responsible Purchasing Network’s **webinar** series and purchasing guide for **cleaners**;
- **Seeing the workplace with new eyes** (A guide for committees and reps): Prepared for Manitoba workplaces, there are many tools for committee processes (e.g., setting priorities, making decisions), inspections (especially ergonomics), making body and workplace maps, and applying general health and safety principles (e.g., the prevention triangle);
- San Francisco’s report, **Safer products and practices for disinfecting and sanitizing surfaces;** and
- toolkits focussed on schools, that can be used more broadly, at **<http://www.cleaningforhealthyschools.org/>**, CASLE’s **Choosing “Healthy” Alternatives for Cleaning and Maintenance,** and the Coalition for Healthier Schools’ **Healthy purchasing for healthy schools. A guidance memo. Green cleaning + five more product categories to help make schools healthier.**

Also see individual sections for relevant resources.

## *Some resources for informed substitution for consumers*

We all are consumers. In that role, we can choose cleaning products, tools and equipment we use. We also can advocate for non-toxic and safe products being used in our children's schools, community centres, etc. To keep up to date about what's best, check out:

- Canadians for a Safe Learning Environment (**CASLE**)'s many materials, guides, etc. for schools;
- Environmental Defence (Canada) has a 2015 report, ***The Dirty Truth: How toxic cleaning products are putting Canadians at risk.***
- Environmental Working Group's ***Guide to healthy cleaning:***
- Informed Green Solutions' variety of **materials**, especially if you're concerned about child care facilities;
- San Francisco Department of Environment's information about **cleaning products** for homes; and
- Women's Voices for the Earth's **materials** about cleaning products.

# *Informed substitution of cleaning products*

## **An audit checklist for health and safety committees**

This checklist is one way to audit how well your workplace occupational health and safety (OHS) programme deals with informed substitution for cleaning products (and other chemicals too).

Designed for health and safety committees and health and safety staff, it has two parts. The first asks questions about the documentation you should have, and what it tells you. The second is for checking on implementation and communication. People may have questions, so there is a space at the end to keep track of them.

For each question, there are three possible answers: **(Y)** for “Yes”, it’s fine now; **(NI)** says the situation needs improvement, and there is an opportunity for informed substitution); and **(N)** for “no”, this not a satisfactory situation, it may be harmful so it’s a priority for substitution and/or other action.

### **1. Documentation**

What information do you need? Be sure you have:

- the inventory of products used, and their ingredients;
- information about which products are ecolabel certified;
- the most recent product data sheets (WHMIS 2015 versions could be available);
- by task, a list of all the products used (with name, ingredients, methods used to apply them);
- recorded or reported incidents (i.e., first aid, workers comp reports of illnesses, injuries);

- complaints reported (e.g., bad smell, problems with using the product, time issues); and
- a copy of the procurement policy.

## **2. Implementation and communication**

Aside from the questions, it also might help to have hand-outs about the new labels and pictograms. That could make it easier to check on what is supposed to be on containers used in the workplace and what the pictograms mean. You could use the ones here for labels and the ones here for pictograms.

The checklist has rows to add your own questions too. These could change depending on the area you're inspecting, the shift, or your experiences with inspections.

# 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)				

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?
What is the process to make sure it's implemented and kept up-to-date?	(Y) (NI) (N)				
How many products have ecolabels?	(Y) (NI) (N)				
Are microfiber products used?	(Y) (NI) (N)				
Are workers using any hazardous cleaning products (according to the SDSs and labels)?	(Y) (NI) (N)				
Are workers getting sick from, or reporting problems with using, any products? (see Section B too)	(Y) (NI) (N)				
Do any workers have/need accommodation (e.g., for reproductive health, allergic or sensitivity reactions)?	(Y) (NI) (N)				
Have all the products been screened with Pharos or other on-line tools?	(Y) (NI) (N)				
If so, were any results LT-1 or LT-P1 or chemicals of high concern?	(Y) (NI) (N)				



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?
If products are hazardous or workers are getting sick, can the products or methods be replaced with ecolabel products or less harmful methods?	(Y) (NI) (N)				
Are the toxic substances or methods necessary? If so, why?	(Y) (NI) (N)				

**B: Implementation and communication** (based on conversations and inspections)

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?
What do the workers know about the health and environmental hazards of each product they use?	(Y) (NI) (N)				
What do the supervisors know about the health and environmental hazards of each product used?	(Y) (NI) (N)				
How do workers tell supervisors about chemical hazards or their effects? How well is it working?	(Y) (NI) (N)				

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?
How do workers tell health and safety reps about chemical hazards or their effects? How well is it working?	(Y) (NI) (N)				
How well do workers know how to use the new WHMIS 2015 SDSs? (Ask for an explanation.)	(Y) (NI) (N)				
Where are SDSs kept? Is access easy and unrestricted?	(Y) (NI) (N)				
Do workers know how to get them, at any time?	(Y) (NI) (N)				
Do workers understand the new WHMIS 2015 labels? (Ask for an explanation.)	(Y) (NI) (N)				
Do workers know how to report hazards or symptoms that may be linked to cleaning products?	(Y) (NI) (N)				
Do workers know they should not use any product if it creates a hazard to themselves or others?	(Y) (NI) (N)				
Have they used this responsibility?	(Y) (NI) (N)				

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)				

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?
Does what's provided fit each worker? Is it right for each product and task?	(Y) (NI) (N)				
Do any workers need accommodation (e.g., for reproductive health, allergic or sensitivity reactions)?	(Y) (NI) (N)				
Are there ergonomic design or other hazards from using the cleaning products or methods?	(Y) (NI) (N)				

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?
	(Y) (NI) (N)				
	(Y) (NI) (N)				
	(Y) (NI) (N)				
	(Y) (NI) (N)				
	(Y) (NI) (N)				

What questions do workers or supervisors have about the cleaning products or methods they're using?

---

# TOOLS FOR INFORMED SUBSTITUTION

HOW DO YOU FIND SAFER CHEMICALS FOR THE WORKPLACE?

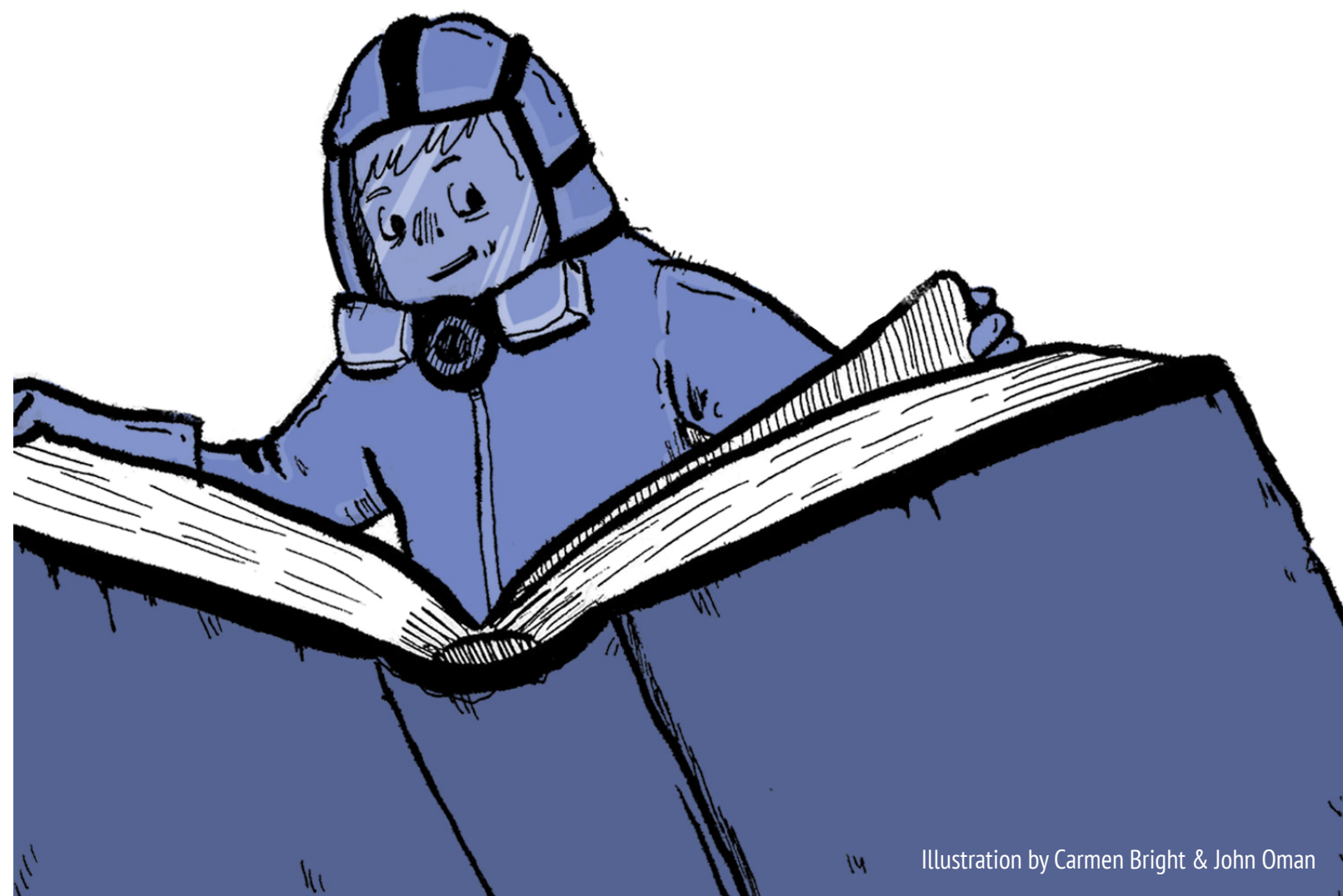


Illustration by Carmen Bright & John Oman

# Table Of Contents

## Introduction

### *Why this toolkit?*

## Section 1

### **Toxics in our cleaning products.**

#### ***Why do chemicals matter?***

- *How do cleaning products affect people and the environment?*
- *What resources are out there to help people understand how cleaning products can affect our health and environments?*
- *What's next? How do we find out what's a hazardous cleaning product?*

## Section 2

### **From the right -to-know to the need to act. *How can WHMIS 2015 and B.C.'s safer substitution regulation take us there?***

- *What's new with WHMIS?*
- *What are the new hazard symbols? What do they mean?*
- *What are the new labels? What are they supposed to say?*
- *How are data sheets different?*

- *Does WHMIS apply to every product used at work? At home?*
- *How can you use a SDS to get to safer substitutes? Moving from right-to-know to action*
- *Where can you get more information?*
- *What's next? Prioritizing the most hazardous cleaning products for substitution.*

## Section 3

### **Checking on chemicals of high concern. *What on-line tools can help?***

- *What information do you need before doing an on-line search?*
- *What's the Pharos database?*
- *How do you find a chemical's hazards with Pharos?*
- *What other on-line tools could you use?*
  - Chemical Hazard and Alternatives Toolbox (ChemHAT)
  - RISCTOX
- *What other resources can help us know what to avoid?*
- *What's next? Finding third-party ecolabel products*



## Section 4

**Finding informed substitutes. *How can you find third party certified ecolabel cleaning products?***

- *What are third party certified cleaning products?*
- *What's Ecologo?*
- *What's Green Seal?*
- *What's Safer Choice?*
- *What is SF approved?*
- *What else is available to help find informed substitutes?*
  - A Cleaning Solutions database
  - Microfibre mops and cloths
- *What resources are out there to help choose informed substitutes?*
- *What's next? Preparing a good procurement policy*

## Section 5

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

- *What are the best practices for green procurement policies?*
- *What about the costs?*
- *Where can you get more information?*
- *What's next? Implementing informed substitution in your workplace*

## Section 6

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

- *What are the steps?*
- *What are the benefits of informed substitution?*
- *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?*
- *What does all this add up to?*
- Some resources for screening chemicals (especially in cleaning products)
- Some resources for informed substitution for workplaces
- Some resources for informed substitution for consumers

## Appendices

**More resources about hazardous chemicals and informed substitution**

- Appendix 1
- Appendix 2
- Appendix 3