Resource for Greening Commercial Launderers
Pollution Prevention Information

Version 1.0
December 2010

Greening of Commercial Launderers

Toronto's ChemTRAC program includes an Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423) that requires local businesses to track and report their use and release of 25 priority substances. The ChemTRAC program provides an opportunity for you to identify strategies for improving your environmental performance. Strategies include those that reduce the use and release of the 25 priority substances. Strategies may also reduce the use and release of other chemicals that may have a health and/or an environmental impact. This Greening Resource for Commercial Launderers will help you understand the chemicals that you are using and find ways to reduce or eliminate their use. For additional resources, including a Guide to Reporting, visit http://www.toronto.ca/chemtrac/.

Commercial launderers

Commercial launderers provide laundered items, such as linens for the food services industry, hospitals, and hotels, industrial work uniforms and related work clothing, industry wiping (shop) towels, and dust control items (such as treated mops, rugs and walk-off mats). Items may belong to the launderer and be supplied to the users on a rental or contract basis, or they may be the customer's own goods.

Priority Substances and Other Chemicals of Concern

Toronto Public Health has identified 25 substances of priority health concern that are commonly used and released by businesses in the City of Toronto. As part of ChemTRAC, the Environmental Reporting and Disclosure Bylaw requires businesses and facilities to track and report on any of the listed priority substances that a facility manufactures, uses or releases to the environment if the amounts are equal to or above the reporting limits. In addition to the priority substances, industrial processes commonly use and release other chemicals of concern that may have a health and/or an environmental impact that are subject to the bylaw.

Commercial launderers use and produce some of these priority substances and other chemicals of concern. Each of these chemicals can have an impact on human health and/or the environment. Below are the substances that may be used or produced by your facility and its operation. This is not an exhaustive list.

Substances that may be used or produced by your commercial laundering facility and its general operations

Chemical Sources	Priority Substances Tracked by ChemTRAC	Other Chemicals of Concern*
Soiled items may contain:	• Heavy metals: - Chromium - Lead - Cadmium - Nickel - Mercury • Volatile Organic Compounds (VOCs[1]) (from towels/wipes soaked in solvent, oils and lubricants) • 1,4-Dichlorobenzene (from dyes or moth-proofing materials)	• Biohazardous materials, such as blood • Disinfectants: o Phenols (e.g., benzyl-4-chlorophenol) o Halogens (e.g., bleach) o Alcohols (e.g., ethyl alcohol) o Aldehydes (e.g., glutaraldehyde)
Laundering chemicals may contain:	• Acrolein (as a 'builder') • 1,4-Dichlorobenzene (in laundering chemicals) • Trichloroethylene (pre-cleaning agent) • VOCs (in soaps and sizing agents)	• Biocides (to eliminate odours) • Bleaches (primarily sodium hypochlorite) • Detergents (surfactants, such as nonylphenol and its ethoxylates (NPE); acids; alkalines)
Processing items (drying, pressing) may produce:	• VOCs • Particulate matter[2] ($PM_{2.5}$) • Nitrous oxides (NOx)	
Equipment cleaning and maintenance operations may use or produce:	• VOCs • Trichloroethylene	
Collecting and delivering laundry items:	• Nitrogen Oxides (NOx) • Particulate matter ($PM_{2.5}$)	

Notes:

* Chemicals that may have a health and/or an environmental impact.

1. VOCs are emitted as gases from certain solids or liquids. Smog forms when VOCs are combined with nitrous oxides (NOx) in sunlight.
2. Particulate matter (PM) consists of airborne particles in solid or liquid form (e.g., dust). $PM_{2.5}$ is airborne particulate matter with a mass median diameter less than 2.5 micrometre.

Understanding Your Company's Impacts: Commercial Laundering

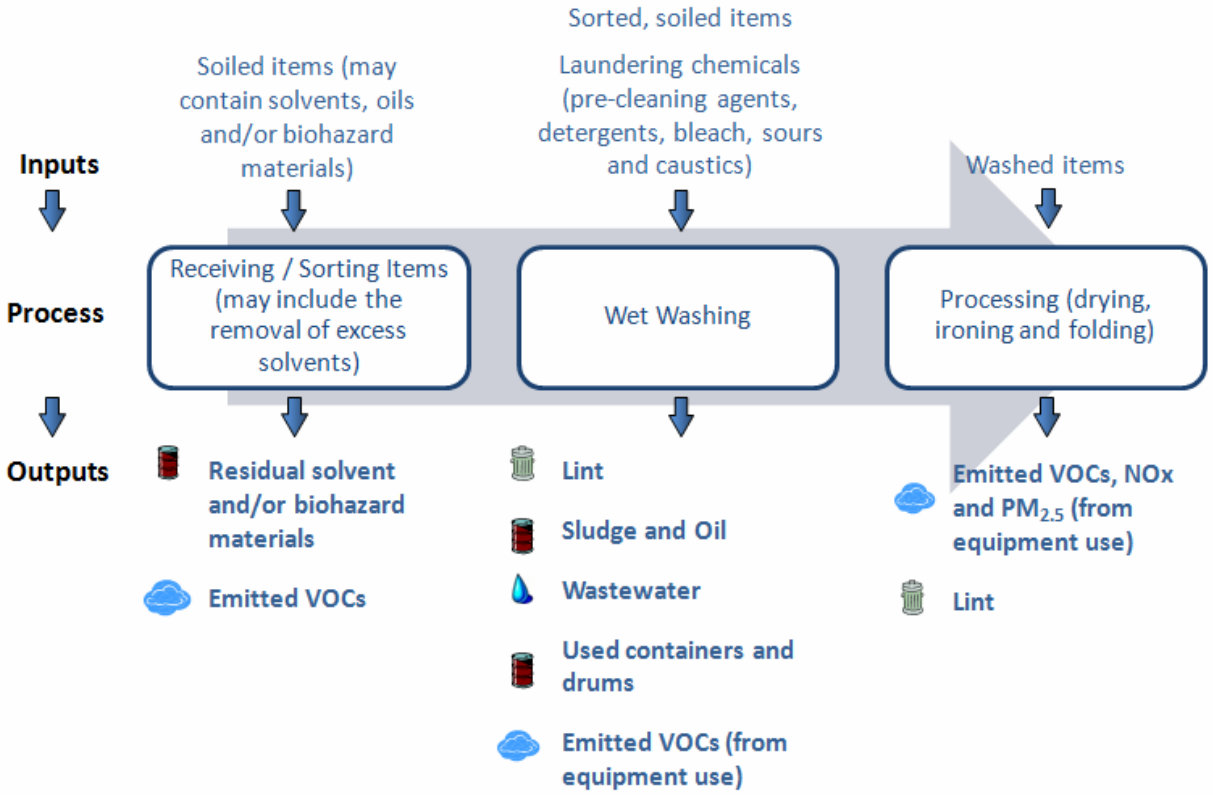
In commercial laundering, there are several activities or processes that contribute to the use and release of priority substances and other chemicals of concern. The use and release of chemicals depends on the type of process, as well as the equipment and chemicals that are used.

Priority substances and other chemicals of concern may be found in the soiled items of customers. Some facilities accept heavily soiled items, like shop towels, that may be soaked in solvent. Commercial launderers that accept solvent-soaked items need to rid the items of 'free liquids' before washing. Some laundry facilities accept items with biohazardous material, such as blood and germs, which if improperly handled and laundered may result in releases of infectious material to air and water.

Laundering detergents, bleach and other chemicals, such as acids and caustics, may contain priority substances and other chemicals of concern. Drying and ironing items may lead to the release of air emissions from equipment use. Facilities may use solvents or other disinfectants to clean and maintain equipment and other work spaces.

The following diagrams show the raw materials that may go into each process and the pollution that may come out of each process. Symbols show whether the wastes typically go to air, landfill, sewer systems and/or treatment facilities (as liquid or hazardous wastes).

Figure 1: Commercial Laundering



Symbols used in the flow diagram

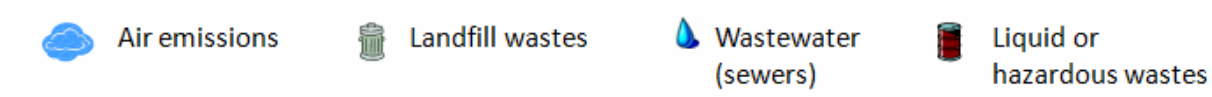
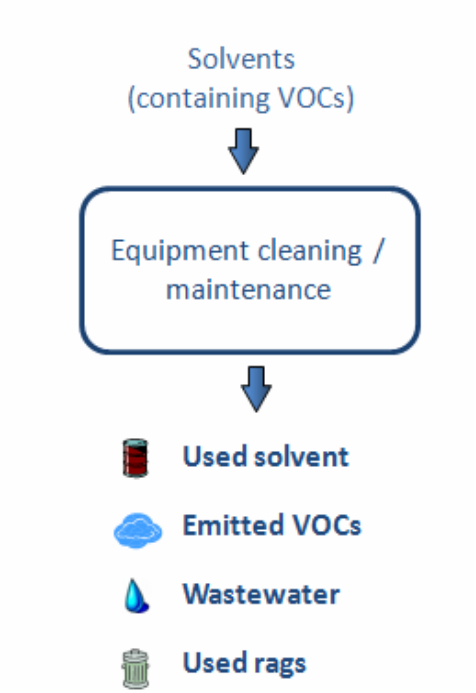
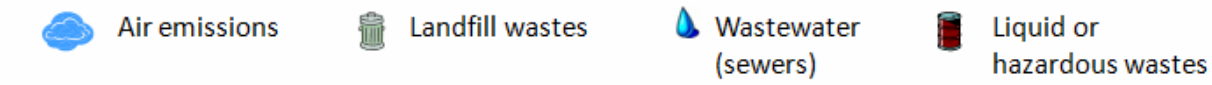


Figure 2: Equipment Cleaning and Maintenance



Symbols used in the flow diagram



Pollution Prevention Steps You Can Take

This information sheet identifies steps you can take to reduce or eliminate your use of the priority substances and other chemicals that may have a health and/or an environmental impact, and to prevent pollution in commercial laundering.

> The pollution prevention measures identified in this information sheet can reduce costs and/or increase profits. 

Pollution Prevention Assessments – A Good First Step

Before you go too far with any given measure, you may want to do a Pollution Prevention Assessment of your business. You may need an outside expert to help. A typical Pollution Prevention Assessment will include mapping process flows, reviewing equipment uses, evaluating the way you use and store chemicals, evaluating the way you use energy, as well as reviewing waste handling practices and discharges. This assessment helps you to identify many pollution prevention opportunities (and any regulatory compliance issues) and decide which steps to take first.

Pollution Prevention - A Key to Good Management

Good management of your chemical purchases, chemical use and waste disposal is very important. You can improve your environmental performance through Pollution Prevention by:

- identifying how you are using the priority substances and other chemicals of concern that may have a health and/or an environmental impact
- figuring out how much you are using of each chemical and estimating the related emissions (see the earlier description for more information on how to estimate chemical use and emissions)
- discussing the options to reduce or to eliminate these chemicals and, where feasible, taking action. Actions could include:
    - using a different product
    - changing how you apply or clean up the chemical product/waste
    - training staff on how best to apply and clean up the chemical product/waste, or
    - installing new technology
    - maintaining equipment to ensure that leaks and general efficiencies are managed
- tracking the amount of chemicals you use and see if it goes down over time, and
- reviewing progress and identifying whether or not you need to make changes to the company's practices and procedures.

Changes you could make in your facility

The following table lists many options to help you reduce or stop using the priority substances and other chemicals of concern in your facility. Some measures will cost more than others, and some will be easier to implement than others. Operators can implement certain measures by making minor changes in their day-to-day approaches; while others will require management to invest in new technologies.

The table provides a quick and simple way to take stock of what measures your business has already put into place and those measures that your business could apply. In completing the table, you are

encouraged to prioritize the actions you would take. While it is not exhaustive, the table identifies many pollution prevention opportunities for the Commercial Launderers sector. When assessing the options, please consider your facility-specific conditions and how each option might affect pollution releases to the air, land and water.

The table identifies three general types of options and distinguishes each with a symbol:

Low-cost, good operating procedures – These measures involve operational and managerial changes that can reduce chemical use. They include simple changes to normal practices, process improvements, as well as training and good housekeeping opportunities. This measure does not need new technology purchases.

Choosing an alternative chemical – These measures involve replacing traditional products (such as solvents and cleaning products) with products that have less harmful properties. The ease and cost of these measures depends on the product and the process used.

New technology or system – These measures involve the installation of a new system, machine or process. The cost varies depending on the technology / system.

See **More Resources** for a list of helpful resources related to pollution prevention in the commercial laundering industry.

Pollution Prevention Opportunities	Type of Activity	Is the opportunity in place? Yes	No	N/A	If `No`, indicate the level of priority for action (High, Medium or Low)		
Receiving / Sorting Items							
Use the Toronto Green Bin Program to compost excess food wastes found in restaurant linens.		☐	☐	☐	H	M	L
Educate customers to reduce the amount of solvents sent to your facility and on the proper management of textiles.		☐	☐	☐	H	M	L
Train salespeople / customer representatives to work with customers to reduce the amount of solvents sent to your facility.		☐	☐	☐	H	M	L
Apply in-house procedures for the safe receipt, handling and processing of soiled shop towels.		☐	☐	☐	H	M	L
Invest in a pre-treatment technology to remove excess solvents from soiled items. Options include: • a centrifugation unit • dry-clean before water washing • steam / air strip items • press solvent soaked items		☐	☐	☐	H	M	L
Laundering							
Substitute less harmful products for harmful laundering chemicals (e.g., use products free of nonylphenol and its ethoxylates (NPE); use non-chlorinated bleaches)		☐	☐	☐	H	M	L
Reduce water consumption and associated wastewater releases by: • Educating and involving employees in water conservation • Locating all water use sources (bathrooms, wash sinks, hoses, dish machines, HVAC, cooling water, etc.) in the facility and identifying and implementing water conservation options, such as those outlined below.		☐	☐	☐	H	M	L
Water conservation options: • Instruct maintenance personnel to routinely inspect and repair any leaking water or steam lines as well as pumps and valves • Use lower water levels for smaller loads • Install continuous batch washers with counter-current flow • Install automated liquid injection wash systems or retrofit existing equipment where possible	   	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	H H H H	M M M M	L L L L
Processes (drying, pressing)							
Monitor your energy usage.		☐	☐	☐	H	M	L
Close equipment steam supply when not in use.		☐	☐	☐	H	M	L

 Low-cost, good operating procedures	 Choosing an alternative chemical	 New technology or system

Pollution Prevention Opportunities	Type of Activity	Is the opportunity in place? Yes	No	N/A	If `No`, indicate the level of priority for action (High, Medium or Low)		
Consider new equipment that may use less energy to operate. Consider operating savings as you assess the full cost of different equipment options.		☐	☐	☐	H	M	L
Waste, Wastewater and Residue							
If your facility has a direct sewage discharge, apply an appropriate pre-treatment method (e.g., solids/oil/water separator or DAF unit). Ensure compliance with the City of Toronto's Sewer Use Bylaw, if applicable.		☐	☐	☐	H	M	L
Regularly check operation of these pre-treatment units and remove collected contaminants. Dispose collected contaminants at an approved waste management facility.		☐	☐	☐	H	M	L
Maintenance, Management and Good Housekeeping							
Check combustion of boiler regularly to ensure highest efficiency and lowest consumption of energy.		☐	☐	☐	H	M	L
Keep your shop clean and your floors dry. Sweep floors and use dry or damp clean-up techniques.		☐	☐	☐	H	M	L
Review chemical suppliers' products regularly to look for the most environmentally-responsible products.		☐	☐	☐	H	M	L
Store chemicals according to manufacturer's recommendations and keep chemical storage away from drains.		☐	☐	☐	H	M	L
Provide appropriate spill containment in chemical storage and transfer areas.		☐	☐	☐	H	M	L
Keep an accurate inventory of products used (including chemical name, manufacturer, and MSDS sheet).		☐	☐	☐	H	M	L
Store chemicals according to need, with minimum inventory kept on hand.		☐	☐	☐	H	M	L
Keep lids on containers at all times when not in use to prevent loss of chemicals through evaporation and spills.		☐	☐	☐	H	M	L
Order detergents / solvents in containers sized for minimum storage time to reduce waste from expired products.		☐	☐	☐	H	M	L
Date containers when opened to ensure you use them before they expire to reduce waste from expired products.		☐	☐	☐	H	M	L
Use spigots and pumps when dispensing new materials and funnels when transferring wastes to storage containers to reduce spillage.		☐	☐	☐	H	M	L

 Low-cost, good operating procedures	 Choosing an alternative chemical	 New technology or system

Pollution Prevention Opportunities	Type of Activity	Is the opportunity in place? Yes	No	N/A	If `No`, indicate the level of priority for action (High, Medium or Low)		
For facility cleaning, substitute less harmful products, such as water-based biodegradable cleaners (no-VOC or low-VOC) or use recyclable solvents.		☐	☐	☐	H	M	L
Mark all containers to identify the contents to avoid improper handling or disposal.		☐	☐	☐	H	M	L
Train workers to follow the standard work procedures (such as set-up, cleaning, and spill response), good housekeeping, and correct material handling methods to make sure all operators follow the same steps to reduce chemical use and waste.		☐	☐	☐	H	M	L
Develop and post a spill response plan so that it is available for all employees.		☐	☐	☐	H	M	L
Make spill kits available at the chemical storage rooms or racks for easy access.		☐	☐	☐	H	M	L
Ask employees for pollution prevention suggestions.		☐	☐	☐	H	M	L
Fleet: Collecting and Delivering Items							
Train fleet drivers to reduce unnecessary idling of vehicles (there is 3 minute idle limit in the City of Toronto under the **Idling Control Bylaw**).		☐	☐	☐	H	M	L
Consider the purchase of fuel efficient and/or alternative fuel vehicles.		☐	☐	☐	H	M	L
Optimize your collection / delivery routes for increased fuel efficiency.		☐	☐	☐	H	M	L
Keep vehicles well-maintained (keep tires inflated; purchase 'Energy Conserving' oil; regularly replace oil).		☐	☐	☐	H	M	L

Contact us to provide your feedback on this resource or to suggest any additional pollution prevention resources (email chemtrac@toronto.ca or call 416-338-7600).

More Resources

Canadian Pollution Prevention Information Clearing House (CPPIC). 2010. Home Page.
http://www.ec.gc.ca/cppic/En/index.cfm

- The CPPIC provides a comprehensive list of pollution prevention resources for Canadian sectors and industries, such as best management practices, fact sheets and sector profiles. Conduct a 'Sector Search' to find resources most relevant to your industry (Personal and Laundry Services is found under the 'Other Services' sector link).

North Carolina Department of Environment and Natural Resources. 2002. Water Conservation Checklist: Industrial Laundering Operations – Every Drop Counts!
http://www.p2pays.org/ref/23/22005.pdf

- A brief document that lists possible short-term and long-term water conservation options and pollution prevention techniques for launderers and dry cleaners.

Ontario Laundry Task Force. 1996. Environmental Code of Management Practice for Laundry Operations.
http://www.p2pays.org/ref/15/14249.pdf

- A comprehensive document that provides laundries with information and tools to implement a Code of Management Practice (CMP). The CMP was developed by the Ontario Laundry Task Force in conjunction with the Ontario Ministry of Environment and Energy (MOEE) to create environmental requirements for all organizations in the laundry industry. Although this is a dated document, there are useful pollution prevention techniques under the following categories:
    - Chemical storage / inventories (e.g., develop a chemical inventory listing chemicals stored or used on-site)
    - Maintenance shop (e.g., separately store chlorinated and non-chlorinated solvents)
    - Motor vehicle service (e.g., keep waste oils separate from other wastes)
    - Waste disposal (e.g., appropriately label hazardous waste containers)
    - Incoming soiled goods (e.g., inspect goods for excess solvents and identify customers)