

ChemTRAC

Dry Cleaning Solvent Disclosure Program

Public Consultation - Get Involved

The Board of Health has asked the Medical Officer of Health to report on a point of sale program to inform the public of the types of solvents (chemicals) used in dry cleaning. The City of Toronto is seeking input from the dry cleaning industry and the general public on the design of this program.

What is it all about?

As part of its consultation on this topic, the City of Toronto is seeking input from the dry cleaning industry and the general public on the design of the proposed point-of-sale display program to inform the public of the types of solvents (chemicals) used in dry cleaning.

What am I supposed to do?

You are invited to read the '**Discussion Document**' below and then send us your feedback or comments by e-mail to publichealth@toronto.ca with **dry cleaning** in the subject line no later than **13 April 2017**.

"Discussion Document" Proposal: Dry Cleaning Solvent Disclosure Program

Introduction

The Board of Health has asked the Medical Officer of Health to report on a point of sale program to inform the public of the types of solvents (chemicals) used in dry cleaning. The City of Toronto is seeking input from the dry cleaning industry and the general public on the design of this program.

Some of the solvents (chemicals) used by dry cleaners are a concern for public health because of their environmental and health impacts. The goal of this proposed program is to inform the public, workers and dry cleaning owners of the environmental and health effects of dry cleaning solvents.

How is the City getting input?

Dry cleaners

Toronto Public Health would like to hear from dry cleaner operators. A letter has been mailed to dry cleaning businesses in Toronto inviting owners/operators to provide input by:

- Taking part in a short telephone or online survey, and
- Sending comments by e-mail to publichealth@toronto.ca with **dry cleaning** in the subject line no later than **13 April 2017**.

The public and other stakeholders

A preliminary public survey of 750 City of Toronto residents 18 years and older was conducted online in November 2016 using the Ipsos proprietary panel. The objective of the survey was to understand the public's level of concern regarding the environmental and health effects of dry cleaning and interest in the possibility of a dry cleaning solvent disclosure program. Members of the public and other stakeholders are now being invited to provide feedback regarding the proposed program by sending an e-mail to publichealth@toronto.ca with **dry cleaning** in the subject line no later than **13 April 2017**.

Toronto Public Health will reach out to various stakeholders and provide additional opportunities for input during the next phase and before any proposal goes to City Council for consideration.

Background Information

Who are dry cleaners?

Dry cleaners are businesses that offer cleaning services for clothing and other household items. Many dry cleaners offer laundry services in addition to dry cleaning. A dry cleaner may do all of their cleaning on site or may send a portion or all of the items out to a cleaning facility. Depots are stores that receive articles which are then sent to be cleaned at another location.

What is dry cleaning?

Dry cleaning is a method to clean fabrics that uses solvents other than water. In traditional dry cleaning, fabrics are pre-treated with solvents for stains if needed, then placed in a machine in which clothes are soaked with solvent and additives. The liquid is then removed and the clothes are taken out dry. The clothes are then pressed and hung or folded.

What are dry cleaning solvents?

Dry cleaning solvents are chemicals other than water used to remove soil, greases, paints and other unwanted substances from fabrics. Solvents used in dry cleaning include perchloroethylene, n-propyl bromide, high flashpoint hydrocarbons, acetals, glycol ethers, carbon dioxide (CO₂) and siloxanes.

Health Effects of Dry Cleaning Solvents

The solvents used in dry cleaning may have health and environmental impacts, which range from short term (acute) health impacts such as dizziness, headaches and skin irritation to long term (chronic) health impacts such as cancer, damage to organs and to reproduction and development.

Because of the health effects of perc, the dry cleaning industry has worked at reducing the amount of perc they use with improved technology and are phasing out its use by replacing with substitutes. Substitutes include N-propyl bromide, silicone-based solvents, specifically decamethylcyclopentasiloxane, hydrocarbons, propylene glycol ethers, acetal and carbon dioxide.

- **Perchloroethylene** (perc) is a common solvent used in dry cleaning. Some agencies such as the World Health Organization and the U.S. Environmental Protection Agency (EPA) have concluded that exposure to perc likely causes cancer. Other health effects are seen through breathing in perc over long-term, including harmful effects on the central nervous system, kidney, liver and reproduction and development. People who work with perc on a daily basis may experience this type of exposure. Breathing in high levels of perc for short periods of time is associated with irritation of the nose and throat, dizziness, nausea and unconsciousness. Perc's ability to easily evaporate means that the public is exposed to perc that is released into the air during the dry cleaning process and from the small amounts of perc that are released from dry cleaned clothes brought home.
- **N-propyl bromide** (nPB, Dry-Solv®) is a 'drop-in' replacement for perc but it was found to cause cancer in rat studies (NTP 2011) and to be highly neurotoxic (CARB 2008).
- **Siloxane** (e.g., D5, GreenEarth®): There is some evidence to indicate that silicone based solvents cause cancer (DCC 2005) and have central nervous system effects, reproductive and developmental impacts (TURI 2012). These solvents have also shown to have high persistence in sediment, air and to be toxic to aquatic life (USEPA PBT 2006).
- **Hydrocarbons** (e.g., DF-2000™): Hydrocarbons are the most commonly used solvents to replace perc in dry cleaning operations. However, these solvents are volatile organic compounds (VOCs) which contribute to the formation of ground level ozone (TPH 2007). They can also have an effect on the central nervous system (TURI 2012) and can be toxic to aquatic life (USEPA PBT 2016). Hydrocarbons are highly flammable and require specialized equipment to protect against fire or explosion.
- **Propylene glycol ethers** (e.g. Solvair®) and **acetal solvents** (e.g., Solvon K4): These solvents have limited data on the environmental and health impacts. For example, IARC and the US EPA have not evaluated if they cause cancer due to insufficient data. While there is information regarding the acute effects, there is limited data on its effect on the central nervous system,

internal organs or other chronic health effects (TURI 2012). Models of the persistence, bioaccumulation and toxicity to the environment indicate they may have low to moderate aquatic toxicity (USEPA PBT 2016).

- **Carbon dioxide** (CO₂) cleaning combines liquid CO₂ with special cleaning agents. To remain a liquid, CO₂ must remain under pressure which poses a safety hazard. Carbon dioxide is an asphyxiant; release in an enclosed and unventilated space could cause unconsciousness or death by suffocation. This type of cleaning requires expensive machinery and there are currently no dry cleaners in Toronto that use it.

It should be noted that some dry cleaning solvents are fairly new to the market, which means the health and environmental impacts may not be listed on the Material Safety Data Sheets (MSDS). The lack of information on the MSDS may be misinterpreted as an indication of a solvent's safety, which can be misleading for dry cleaners seeking safer solvents.

For a detailed description of dry cleaning solvents and their environmental and health effects, the Toxics Use Reduction Institute has done and published [a comprehensive review](#) .

Are there safer alternatives?

Wet cleaning: Professional cleaning that uses water-based processes to clean “dry clean only” fabrics (including wool or silk) is called wet cleaning. Wet cleaners provide garment cleaning service by using wet cleaning method as opposed to using perc or other solvents. Current wet cleaning methods use computer-controlled washers and dryers, along with biodegradable soaps and specialized finishing equipment, to prevent fabric shrinkage and damage. Wet cleaning is not the same as laundering, which immerses items in water. Laundering is not used for "dry clean only" fabrics.

How can you compare the methods for Cleaning Garments?

Massachusetts Toxic Use Reduction Institute (TURI) has compared perc and the alternatives. TURI considered environmental impacts such as persistence (water, soil, sediment and/or air) bioaccumulation, aquatic toxicity and human health impacts including central nervous system effects, carcinogenicity, and reproductive toxicity. It then ranked the solvents and wet cleaning based on their overall potential for adverse impacts as shown in the table below.

Solvent/Method Name	Commercial/Common Name	Potential Health and Environment Impacts
Tetrachloroethylene	Perc	Most Concern
N Propyl bromide	Drysolv, Fabrisolv	Most Concern
Siloxane	Green Earth, D5	More Concern
Propylene glycol ethers	Solvair, Rynex 3, Gen-X	Some concern
Acetal	Solvon K4	Some concern
Hydrocarbons	DF2000, EcoSolv	Some concern
Carbon dioxide	Not applicable	Little concern
Wet cleaning method	Not applicable	Least concern

Source: Assessment of Alternatives to Perchloroethylene for the Dry Cleaning Industry (TURI, 2012).

What is the City proposing?

The City of Toronto is proposing a dry cleaner solvent point of sale disclosure program. The details of the program, including the information on the signs, will be set out in a report to the Board of Health. The report will take the results of the business community and public consultations into consideration as well as best practices and evidence-based decision-making. If the Board of Health adopts the recommendations in the report the report will be forwarded to City Council for consideration.

The basics of the proposed program would be to require dry cleaners in Toronto to post a sign (described further down in this guide) that lists the solvents used in the dry cleaning process. The sign would be posted in a publicly visible location. The purpose of the posting would be to provide information about the solvents used in dry cleaning and possibly the potential health and environmental risks associated with the solvents.

Why is the City considering this?

The Board of Health was approached by community groups and dry cleaners with their concern about some dry cleaners advertising 'environmentally friendly' and 'organic' services when in some cases they may not be. In order to address this concern and promote pollution prevention the **Board of Health** requested the Medical Officer of Health to report back on the implementation of a point of sale dry cleaner solvent display program.

ChemTRAC is one of several City of Toronto pollution prevention programs. The purpose of these programs are to improve the health of people in Toronto by reducing the use and release of toxic substances into the environment. Due to the health concerns associated with perc, it is a substance that must be reported to **ChemTRAC**, which is a program designed to increase public awareness of priority chemicals and reduce pollution from industrial and commercial sources.

The benefits of public disclosure programs, such as ChemTRAC and the proposed dry cleaning solvent disclosure, include increased awareness about the health and environmental impacts of toxic chemicals. Increased awareness of potential harms caused by solvents used in dry cleaning can promote safer handling of the chemicals and their wastes and encourage the switch to safer products or process such as wet cleaning.

When would the program be implemented?

It is anticipated that the program would come into effect in 2018 with a one year phase-in period for awareness and education.

Would the program require the dry cleaning facilities to switch to different solvent(s)?

No, this would simply require dry cleaning facilities and collection depots to display the solvent disclosure sign.

How will the program be enforced?

If approved by City Council, the program would be implemented through a by-law. There would be financial penalties for non-compliance with the by-law.

What do I need to know about the Point of Sale Solvent Disclosure Sign?

Where would the sign be posted?

The signs would need to be posted in a publicly visible location, such as where consumers drop off or pick up their dry cleaning. If the business is web based or accepts web orders the sign would need to be clearly displayed on the website.

Who would be responsible for filling out the signs?

It would be the responsibility of the owner/operator of dry cleaning facilities and depots to obtain a sign (either by printing it out from the City's website or by requesting a print copy), to mark the solvents used accurately, to post it in a publicly visible location and to keep the sign current.

What would the sign look like?

Some possible designs are shown below. Toronto Public Health is looking for your input on the design of the notifications and information that the signs would include.

The information that would be included in the sign may include the potential health and environmental effects of the solvents. This will partly be determined by the results of the consultations being conducted by the City. If the health and environmental effects are noted on the disclosure signs, it would be based on the most up-to-date, accurate research by recognized bodies, including the World Health Organization, International Agency for Research on Cancer (IARC) and the Massachusetts Toxics Use Reduction Institute (TURI).

The City is exploring the following options for the point of sale solvent disclosure sign.

Option 1: A solvent disclosure sign that indicates the name of the solvent(s) used by the business;

Option 2: A solvent disclosure sign that indicates the name of solvent(s) used by the business along with a colour code for each solvent that provides a general guide to the health and environmental risks for the solvent; or

Option 3: Cleaners that only provide wet cleaning services would display an 'Environmentally Friendly' sign.

Option 4: Two signs would be used: one if the establishment uses solvents and another if the establishment offers wet cleaning. Cleaners that offer dry cleaning and wet cleaning would post two signs, one indicating the solvents that are used and the second indicating that environmentally friendly wet cleaning services are offered.

Option 1: A sign that indicates the name of the solvent(s) used

TORONTO DRY CLEANING SOLVENT USE NOTICE

This establishment offers the following services (mark all that apply)

Services

- ✓ Laundry
- ✓ Dry cleaning
- Professional wet cleaning

Solvent(s) used for dry cleaning (mark all that apply)

	Solvent Name	Commercial/Common Name
✓	Tetrachloroethylene	Perc
	N Propyl bromide	Drysolv, Fabrisolv
✓	Siloxane	Green Earth, D5
	Propylene glycol ethers	Solvair, Rynex 3, Gen-X
	Acetal	Solvon K4
	Hydrocarbons	DF2000, EcoSolv
	Carbon dioxide	
	Other:	

More information about the health and environmental impacts of the above named solvent(s) can be found at toronto.ca/health

Option 2: A sign that indicates the name of the solvent(s) used along with a colour code

TORONTO DRY CLEANING SOLVENT USE NOTICE

This establishment offers the following services (mark all that apply)

Services

- ✓ Laundry
- ✓ Dry cleaning
- Professional wet cleaning

Solvent(s) used for dry cleaning only (mark all that apply)

	Solvent Name	Commercial/Common Name	Potential Health and Environment Impacts
	Tetrachloroethylene	Perc	Most Concern
	N Propyl bromide	DrySolv, Fabrisolv	Most Concern
✓	Siloxane	Green Earth, D5	More Concern
	Propylene glycol ethers	Solvair, Rynex 3, Gen-X	Some concern
	Acetal	Solvon K4	Some concern
	Hydrocarbons	DF2000, EcoSolv	Some concern
	Carbon dioxide	Not applicable	Little concern

This information is based on the assessment of the Massachusetts Toxic Use Reduction Institute (TURI)

More information on the colours, solvents and the health and environmental impacts of the above solvent(s) can be found at toronto.ca/health

Option 3: A sign that indicates the establishment offers wet cleaning

TORONTO DRY CLEANING SOLVENT USE NOTICE

Environmentally Friendly Cleaning Available

We [only] provide environmentally friendly Professional Wet Cleaning Services. This process is an alternative to dry cleaning and has lower human health and environmental impacts compared to dry cleaning methods.

Option 4: Cleaners that offer dry cleaning and wet cleaning would post two signs

Signs as in Option 1 and 3: If an establishment offers both dry and wet cleaning services, it would display both signs.

TORONTO DRY CLEANING SOLVENT USE NOTICE

This establishment offers the following services (mark all that apply)

Services

- ✓ Laundry
- ✓ Dry cleaning
- Professional wet cleaning

Solvent(s) used for dry cleaning (mark all that apply)

	Solvent Name	Commercial/Common Name
✓	Tetrachloroethylene	Perc
	N Propyl bromide	Drysolv, Fabrisolv
✓	Siloxane	Green Earth, D5
	Propylene glycol ethers	Solvaair, Rynex 3, Gen-X
	Acetal	Solvon K4
	Hydrocarbons	DF2000, EcoSolv
	Carbon dioxide	
	Other:	

More information about the health and environmental impacts of the above named solvent(s) can be found at toronto.ca/health

TORONTO DRY CLEANING SOLVENT USE NOTICE

Environmentally Friendly Cleaning Available

We [only] provide environmentally friendly Professional Wet Cleaning Services. This process is an alternative to dry cleaning and has lower human health and environmental impacts compared to dry cleaning methods.

Signs as in Option 2 and 3: If an establishment offers both dry and wet cleaning services, it would display both signs.

TORONTO DRY CLEANING SOLVENT USE NOTICE

This establishment offers the following services (mark all that apply)

Services

- ✓ Laundry
- ✓ Dry cleaning
- Professional wet cleaning

Solvent(s) used for dry cleaning only (mark all that apply)

	Solvent Name	Commercial/Common Name	Potential Health and Environment Impacts
	Tetrachloroethylene	Perc	Most Concern
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References

- California Air Resources Board Fact Sheet [CARB]. (2008) **Dry cleaning alternative solvents:** health and environmental impacts. California.
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- National Toxicology Program [DCC]. (2011) **Toxicology and carcinogenesis studies of 1-bromopropane in F344/N rats and B6C3F1 mice.**
- Toronto Public Health [TPH]. (2007) **Reducing health impacts of perchloroethylene from dry cleaning in Toronto. Toronto, Ontario.**
- Toxics Use Reduction Institute [TURI]. (2012) **Assessment of alternatives to perchloroethylene for the dry cleaning industry.** Lowell, Massachusetts.
- US Environmental Protection Agency Office of Pollution and Prevention Toxics. [USEPA PBT] (2016). PBT Profiler. Last updated September 28, 2016 accessed at www.pbtprofiler.net

How to provide my input/comments/feedback?

Please **send** us your feedback or comments by sending an **e-mail** to publichealth@toronto.ca with **dry cleaning** in the subject line no later than **13 April 2017**.

Where Can I Learn More?

Want to learn more about Dry Cleaning Solvents?

Toronto Public Health has a **webpage** with information on the solvents, a list of resources on dry cleaning, and links to previous reports including the decision of the Board of Health that requested the Medical Officer of Health to report on a dry cleaning solvent disclosure program.

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