



Performance Report: Pollution Prevention Planning and Siloxane D4

Pollution Prevention (P2) Planning is a process by which organizations can improve their environmental performance by strategically planning to reduce or eliminate pollution before it is created.

Updated: December 2013 (based on data from Schedule 1)

The facilities subject to the P2 Planning Notice in respect of siloxane D4 (D4) in industrial effluents have prepared their P2 plans as required.

This report summarizes the information that was received in their “Declaration That a Pollution Prevention Plan Has Been Prepared and Is Being Implemented” (Schedule 1 of the Notice).

The facilities subject to the Notice have committed to adopting several measures to meet the reduction target stated in the Notice.

D4 was declared toxic to the environment under the *Canadian Environmental Protection Act, 1999*. A P2 Planning Notice was selected as the risk management instrument for this substance.

The risk management objective in the Notice is to reduce total D4 releases to the aquatic environment from the sum of all persons subject to the Notice, by 80% from the preparation year levels, by the end of the implementation period.

The facilities subject to the Notice must achieve and maintain a total D4 concentration in industrial effluents less than or equal to 17.3 µg/L or a total quantity of D4 released in industrial effluents less than or equal to 3 kg/year.

The facilities subject to the Notice were required to submit a “Declaration That a Pollution Prevention Plan Has Been Prepared and Is Being Implemented” by July 1, 2013.

Pollution Prevention Planning Notice Requirements

On June 2, 2012, the Minister of the Environment published a *Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in Respect of Cyclotetrasiloxane, octamethyl- (Siloxane D4) in Industrial Effluents*.

The Notice applies to any person who owns or operates an industrial facility that, during the calendar year 2011 or any time thereafter, meets all the following criteria:

- (a) Manufactures or uses D4 or a mixture containing D4 where the total quantity of D4 manufactured or used is equal to or greater than 100 kg per calendar year; and
- (b) As a result of manufacture or use of D4 or a mixture containing D4, releases an effluent containing D4 at any final discharge point of the facility.

The Notice also applies to any person who is the successor or assign of the persons identified.

Some exceptions, stated in the Notice, apply.

Facilities subject to the Notice must prepare and implement a P2 Plan, taking into account all the factors to consider stated in the Notice, including reduction target, and sampling and analysis of industrial effluents. In addition, three interim progress reports must be submitted to the Minister during implementation of the P2 plans. These interim progress reports will help assess effectiveness of the Notice in achieving its risk management objective.

Summary of Anticipated Results

Seven facilities submitted a Declaration that a Pollution Prevention Plan Has Been Prepared and Is Being Implemented. One of these declarations is incomplete, and the Department is following up.

Table 1 summarizes information provided in the Declarations of Preparation and Implementation submitted by the persons subject to the Notice and states the actions to be taken in their P2 Plans.

Table 1: Methods and Activities Identified by Facilities in Their Declaration to Reduce Releases of D4 in Their Effluents

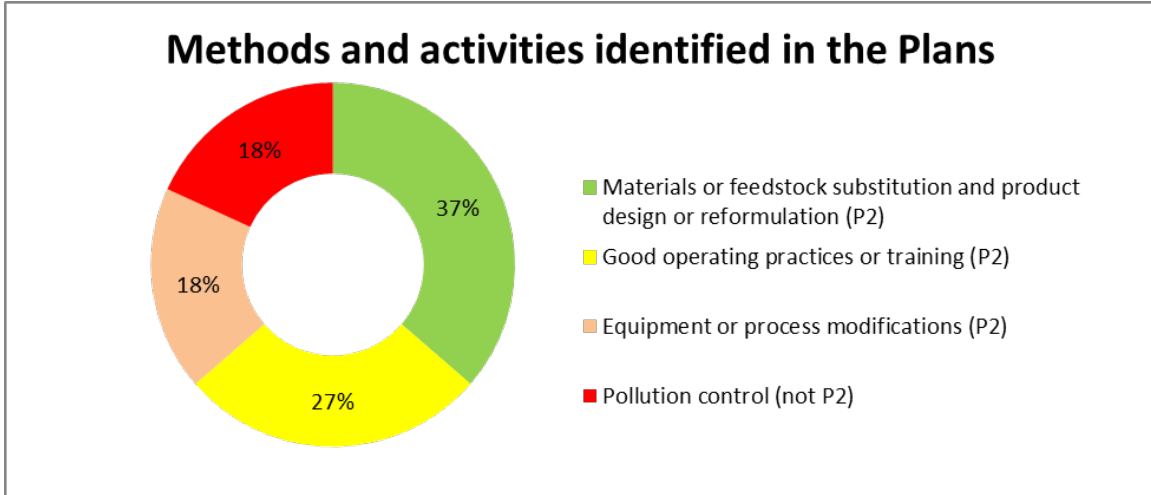
Method	Planned actions
Materials or feedstock substitution and product design or reformulation	Gradual elimination of D4 in manufactured goods Finding alternative solutions to using D4
Equipment or process modifications	Improving reactor cleaning methods in order to decrease water use and effluent volume
Good operating practices or training	Applying better systems operations and maintenance practices
Pollution control	Activated carbon filter Combined flocculation/activated carbon treatment system

In implementing their P2 plans, most of the affected facilities expect to be able to reduce releases of D4 in their effluents. Most of the facilities have stated that they are confident about meeting the reduction target.

Anticipated Actions to Be Taken by Facilities to Achieve the Risk Management Objective

Pollution prevention is about anticipating and preventing pollution instead of reacting to it after the fact. Pollution prevention does not stand alone; it is part of an ongoing pollution management approach that is comprised of prevention, control and clean-up. Pollution prevention focuses on avoiding the creation of pollutants rather than trying to manage them after they have been created. The federal government believes that pollution prevention is the most effective means of protecting our environment, eliminating costly waste and promoting sustainable development. Pollution prevention actions were preferred by 82% of affected facilities.

Chart 1: Distribution of Methods and Activities Identified by the Facilities Subject to the Notice to Reduce Releases of D4 in Their Industrial Effluents



Background

What is D4?

D4 is an industrial chemical that is currently imported into Canada. It is mainly used in the manufacture of silicone polymers and copolymers. D4 is also used in personal care products and can be found in a variety of other products including defoamers, lubricants, cleaning products, adhesives, sealants and coatings.

D4: Why is pollution prevention important?

D4 was declared toxic under the *Canadian Environmental Protection Act, 1999*. The final Screening Assessment Report concluded that D4 meets the criteria for persistence as set out in the *Persistence and Bioaccumulation Regulations*. D4 was assessed for all environmental media including air, water and soil, and it was determined that the presence of this substance in the aquatic environment is a source of concern.

Sources

- Pollution prevention information
<http://ec.gc.ca/p2/Default.asp?lang=En&n=88D8B369-1>
- Text of the P2 Planning Notice in respect of Siloxane D4
www.gazette.gc.ca/rp-pr/p1/2012/2012-06-02/html/sup2-eng.html
- Information on declarations submitted by facilities
www.ec.gc.ca/cepap2/r001/m001/s004.cfm?chks2=27&chks3=35&provID=0&cfL64=Y2I0eT0mcG9zdGFsX2NvZGU9&localpost=local&chkss=1&uL=E
- Screening Assessment Report for Siloxane D4
www.ec.gc.ca/ese-ees/default.asp?lang=En&n=4996570F-1