



Performance Report – Pollution Prevention Planning Notice for the Synthetic Rubber Manufacturing Sector in Respect of Isoprene

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

Last updated: December 2013

The facility subject to the P2 Planning Notice for the Synthetic Rubber Manufacturing Sector has prepared and initiated the implementation of its P2 plan.

This report summarizes the information in the Declaration of Preparation that was received.

Isoprene was found to be toxic to human health under the *Canadian Environmental Protection Act, 1999* (CEPA 1999). A P2 Planning Notice (Notice) was selected as the instrument to respond to the requirements of CEPA 1999 for this toxic substance.

The objective of this Notice is to reduce potential human exposure to isoprene in the vicinity of the facility releasing this substance to air. The facility subject to the Notice has expressed its commitment to implement its P2 plan and meet the risk management objective of the Notice. The facility committed to reduce by 80% its emissions below the base year 2009, by the end of the reporting period (i.e. June 2016), using best available techniques economically achievable.

Anticipated results indicate that isoprene releases to the environment will be reduced effectively by using several P2 techniques.

Context

In June 2012, Environment Canada published a P2 Planning Notice in the *Canada Gazette*. The Notice applies to any person or class of persons who, on the date of publication of the Notice or anytime thereafter, meets the following two criteria:

(a) owns or operates a facility within the synthetic rubber manufacturing sector which, at any time, purchases, imports or uses 100 kg/yr or more of isoprene;

AND

(b) is involved in one or more of the following activities:

- Manufacturing of butyl rubber, halobutyl rubber, styrene-isoprene-styrene block copolymers, polyisoprene (cis-1,4-polyisoprene) rubber, styrene-isoprene rubber, any other type of synthetic rubber.
- Any other type of manufacturing activity within the synthetic rubber manufacturing sector that involves the use of isoprene.

Note that isoprene storage is included in these activities.

Affected persons must prepare and implement a P2 plan, based upon consideration of all the factors to consider listed in the Notice, including determining industrial releases of isoprene to air and reducing on-site releases of isoprene to air by 80% relative to their 2009 base year releases. In addition, information must be submitted to Environment Canada twice during the implementation of the Notice, once in 2013 and in a final submission due in 2016.

To date, one (1) facility in Canada has reported meeting these criteria and submitted a Declaration of Preparation in the summer of 2013. This facility declared that it manufactures butyl rubber and halobutyl rubber. This submission is available to the public on Environment Canada's website at www.ec.gc.ca/planp2-p2plan, and the information presented in this document is derived from this submission.

The facility indicated its intent to implement a set of actions to reduce its emissions. One of these actions was already completed in 2011. The remaining actions are planned to be completed between 2013 and 2015. The facility is expecting to fully implement its P2 plan by June 9, 2016.

Anticipated results

Chart 1 illustrates the anticipated reduction in on-site releases of isoprene to air from the reporting facility. Based on submitted information, 17 401 kg of isoprene were released to air in the Base Year (2009), and 14 791 kg were released to air

in the Preparation Year (2012). Once the P2 plan has been implemented, isoprene releases are expected to be reduced by 80%, to approximately 3 480 kg.

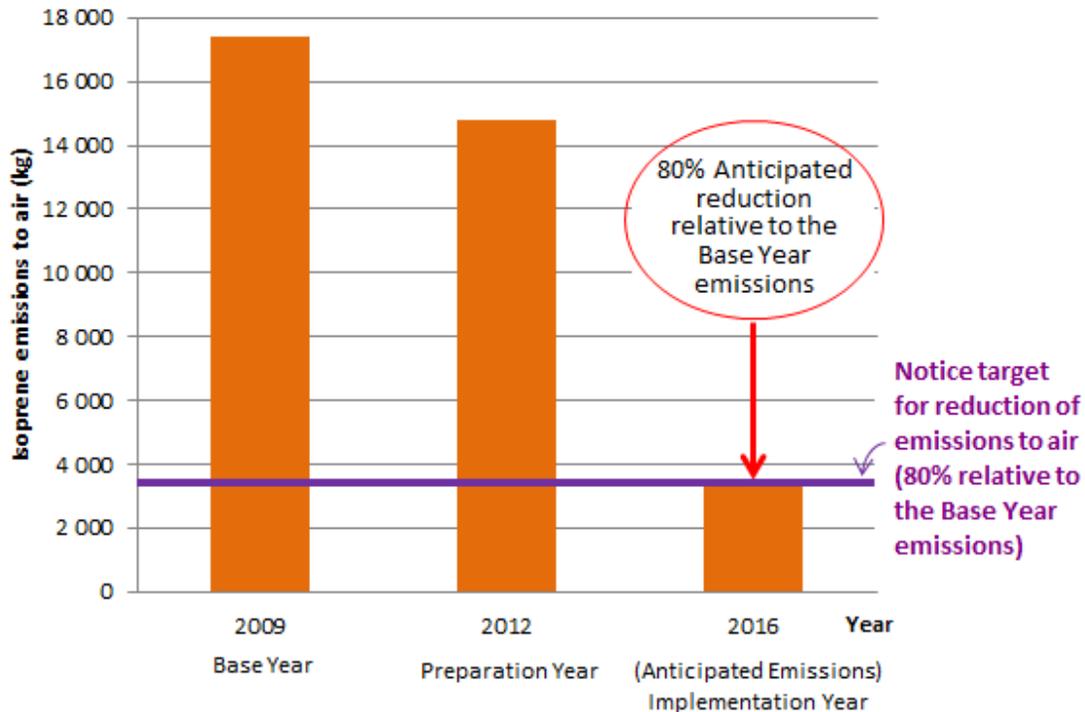


Chart 1: On-site emissions of isoprene to air – actual vs. anticipated¹

Releases of isoprene to air as reported in the National Pollutant Release Inventory

Chart 2 shows a chronology of Canadian emissions of isoprene from all facilities that met the reporting threshold within the National Pollutant Release Inventory (NPRI) since the development of the assessment of isoprene by Environment Canada and Health Canada in 2007. Emissions started to decline progressively in 2009 when the substance was found toxic to human health.

¹ The releases showed in this report are different than those currently available in the NPRI website. Errors occurred for the data reported for the years 2009 to 2012. This situation is in the process of being corrected.

**Isoprene emissions
to air (kg)**

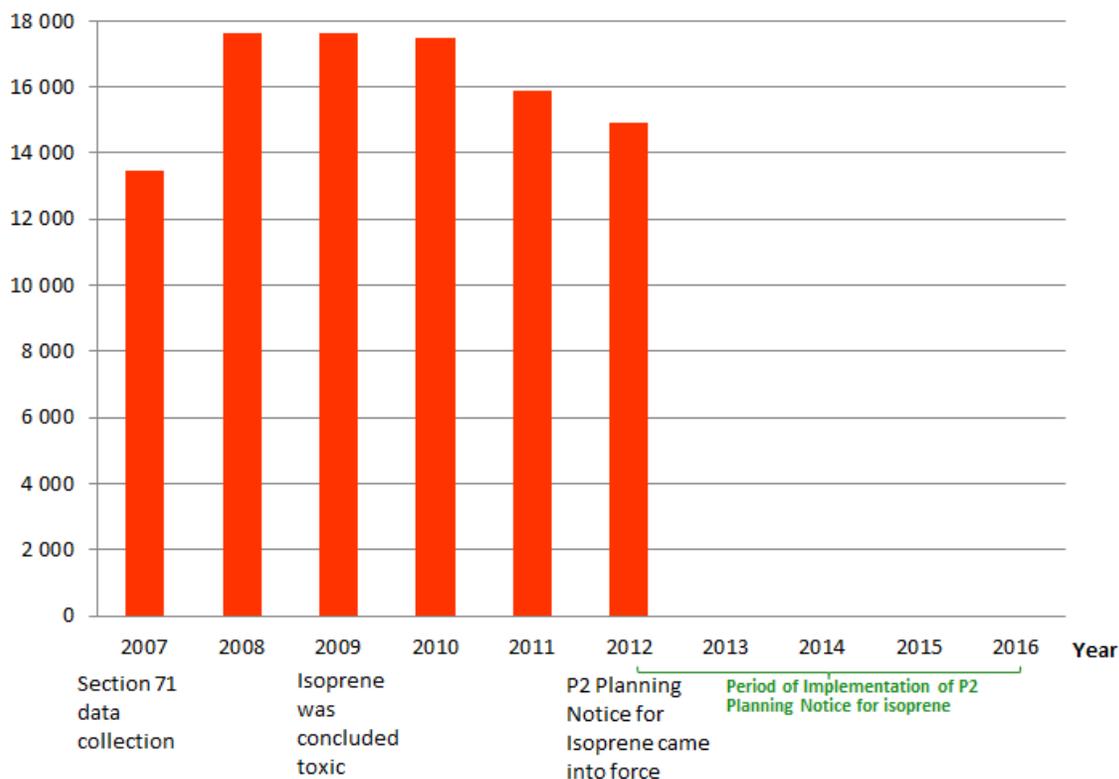


Chart 2: Releases of isoprene reported to the NPRI^{2,3}

In order to improve the monitoring of emissions of isoprene, Environment Canada has proposed to reduce the reporting threshold for isoprene for the NPRI, from 10 tonnes to 0.1 tonnes (100 kg). This change is currently proposed for implementation as of the 2014 reporting year, with a decision on this change expected during spring 2014. Facilities will be required to submit data for the 2014 reporting year in accordance with this change by June 1, 2015, with data to be made publicly available later in 2015. It is possible that total emissions will appear to increase after this date, but it would likely be a consequence of additional facilities reporting their emissions to NPRI (that had not previously been required to report) and not necessarily due to increase of use and releases of the substance.

² NPRI data as of November 8, 2013. Note that the 2012 data on isoprene releases to air reported to NPRI is preliminary (i.e. un-reviewed).

³ The releases showed in this report are different than those currently available in the NPRI website. Errors occurred for the data reported for the years 2009 to 2012. This situation is in the process of being corrected.

P2 actions planned to be taken to achieve the risk management objective

The federal government believes that pollution prevention is the most effective means of protecting the environment, eliminating costly waste, and promoting sustainable development. P2 focuses on avoiding the creation of pollutants, rather than trying to manage them after they have been created. As a factor to consider in preparing its P2 plan, the synthetic rubber manufacturing facility was asked to give priority to P2 activities. In 2012, 72% of the actions planned to be taken by the subject facility, during the implementation of its plan, were P2 methods (Chart 3), of which equipment or process modifications led the way (43%), followed by good operating practices and training (29%).

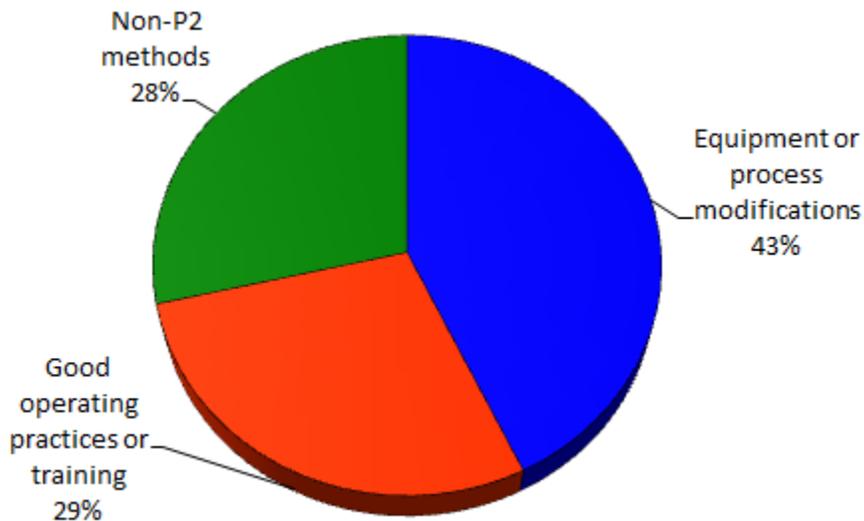


Chart 3: Distribution of P2 methods chosen by the facility subject to the Notice to reduce its emissions of isoprene

Sources

- Pollution Prevention Planning Online Reporting Tool and Database: <http://www.ec.gc.ca/planp2-p2plan/default.asp?lang=En&n=EF79BA93-1>
- Environment Canada. National Pollution Reporting Inventory website: <http://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=4A577BB9-1>

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