



Environment
Canada

Environnement
Canada



Benzene in Canadian Gasoline: Report on the Effect of the Benzene in Gasoline Regulations 2000

by

Joanna Bellamy, Oil, Gas and Energy Branch, Air Pollution Prevention Directorate, Environment
Canada and

Nicole K. Sicotte, Co-op Student, University of Waterloo

October 2001

Canada 

1.0 SUMMARY

This report reviews how primary suppliers have responded to the *Benzene in Gasoline Regulations* of the *Canadian Environmental Protection Act* ¹ and summarizes the effects the regulations have had on the composition of gasoline in 2000. All of the information summarized in this report was provided to Environment Canada by the primary suppliers, pursuant to the requirements of the regulations.

The *Benzene in Gasoline Regulations* came into effect on July 1, 1999, fulfilling a recommendation of the federal-provincial Task Force on Cleaner Vehicles and Fuels. In 1995, the Task Force recommended to the Canadian Council of Ministers of the Environment (CCME) that benzene in gasoline be reduced through a federal regulation to 1% by volume and that aromatics (or equivalent benzene tailpipe emissions) be frozen at 1994 levels. The CCME endorsed this recommendation. Consequently, the federal government passed the federal *Benzene in Gasoline Regulations* on November 26, 1997.

The *Benzene in Gasoline Regulations* introduced a new approach to controlling fuel composition by allowing regulatees the option to elect to use a yearly pool average as the basis for compliance. This option provides regulatees considerable flexibility in meeting the requirements of the regulations. The regulations are primarily focused on primary suppliers (refiners, blenders and importers) who can affect the composition of gasoline. There is also a per-litre limit for benzene at the point of sale. In addition to setting a limit for gasoline benzene content, the regulations also set a limit for the benzene emission number (BEN) of gasoline, a number that relates gasoline composition to estimated emissions of benzene from vehicles.

The regulations have been very successful in achieving both of the recommendations of the Task Force: reported benzene levels have been significantly reduced and reported aromatic levels are about the same as they were in 1994. Figures 1.1 and 1.2 show how benzene and aromatics levels have changed since the coming into force of the regulations. Figure 1.3 shows that average ambient benzene concentrations, measured at Environment Canada monitoring stations across Canada, have fallen by over 50% since 1992.

Primary suppliers reported that, with the exception of one batch, gasoline supplied in Canada in 2000 met the regulated requirements with respect to benzene concentration and BEN. Independent audits (required for those electing to be on a yearly pool average) found several instances of non-compliance with the administrative requirements of the regulations. Most primary suppliers outlined corrective action to address these issues. Environment Canada views the audits as a crucial component of the enforcement provisions of the regulations.

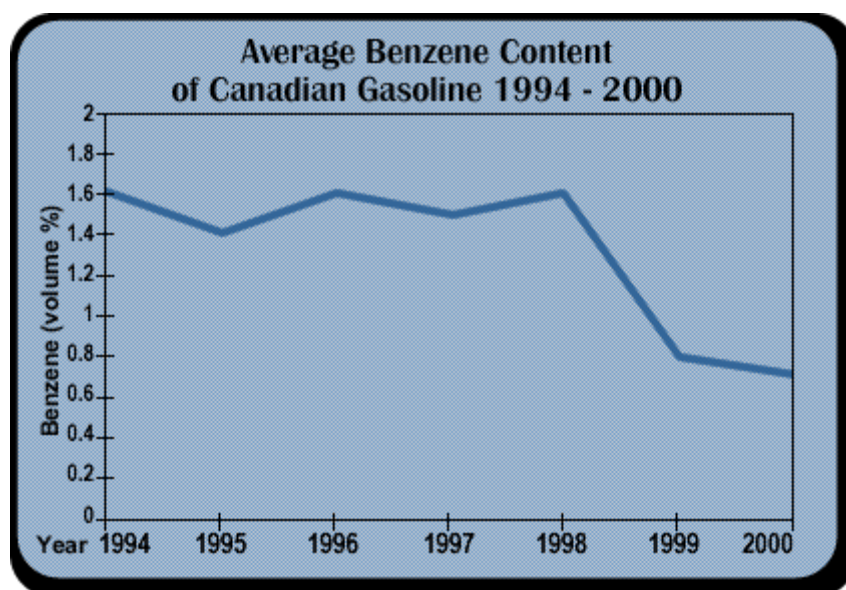


Figure 1.1

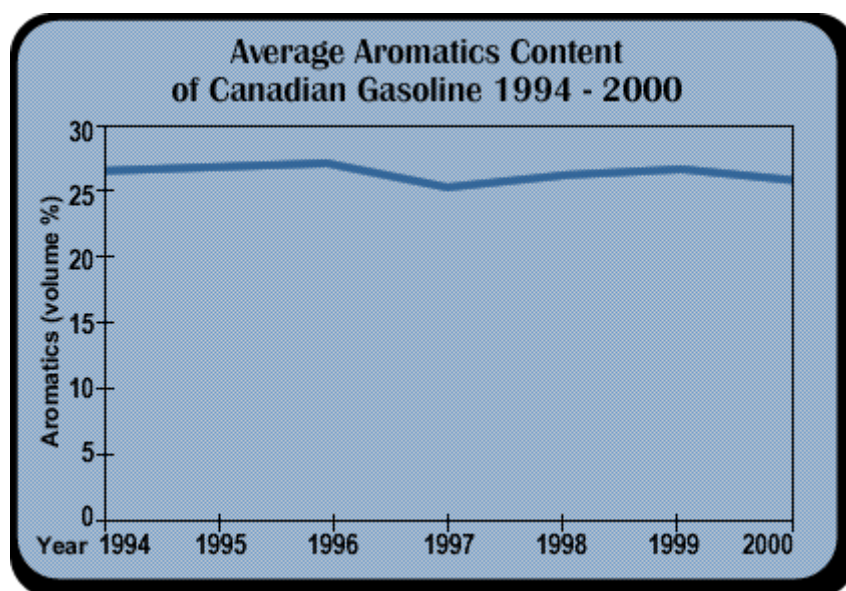


Figure 1.2

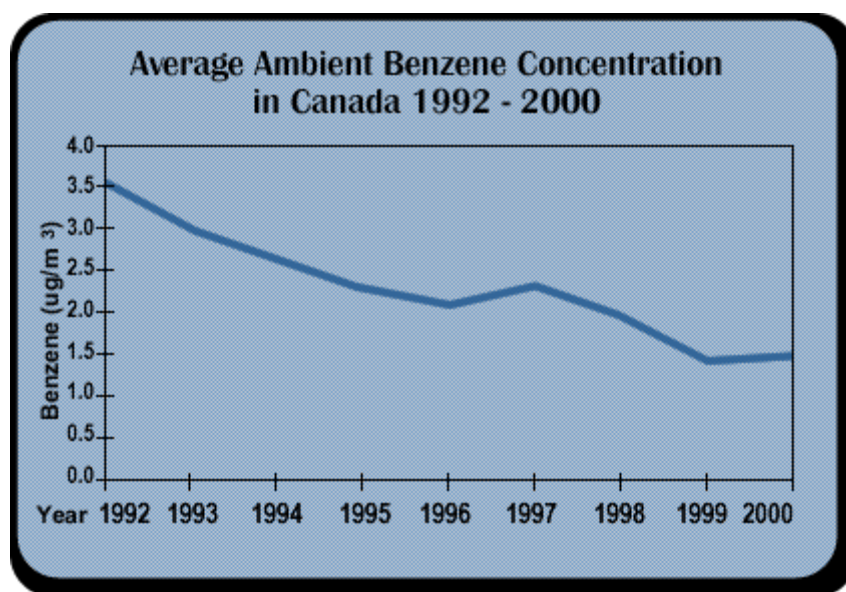


Figure 1.3

Source: Tom Dann (Environment Canada), personal communication, 2001.

¹ SOR/97-493, as amended by SOR/99-204.