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Progress Report on the Code of Practice for the Management of Tetrabutyltin in Canada

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Environment Canada
Inquiry Centre
10 Wellington Street, 23rd Floor
Gatineau QC K1A 0H3
Telephone: 819-997-2800
Toll Free: 1-800-668-6767 (in Canada only)
Fax: 819-994-1412
TTY: 819-994-0736
Email: enviroinfo@ec.gc.ca

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Annex 1: [Code of Practice for the Management of Tetrabutyltin in Canada \(PDF; 444 KB\)](#)

Introduction

Organotin substances are tin compounds having 1, 2, 3 or 4 organic groups attached and are designated as mono-, di-, tri- or tetraorganotin, depending on the number of tin-carbon bonds in the molecule. Organotins are mainly used in the vinyl processing industry and as pesticides. Tetrabutyltin, the substance that is the subject of this report, has the chemical formula $(C_4H_9)_4Sn$ and is used in Canada as a starting material for the synthesis of mono- and dibutyltin compounds for use in polyvinyl chloride (PVC) processing.

Pursuant to section 68 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999), a [Follow-up to the 1993 Ecological Assessment of Organotin Substances on Canada's Domestic Substances List \(PDF; 267 KB\)](#) was published by Environment Canada in the *Canada Gazette*, Part I, on August 8, 2009. The assessment report concluded that tetrabutyltin meets the criterion set out in paragraph 64(a) of CEPA 1999. It was also found that tetrabutyltin can be harmful to sensitive aquatic organisms at low concentrations. There is further concern with this substance if released into the environment because commercial formulations of tetrabutyltin may contain up to 30% of tributyltins, and tetrabutyltin can break down by dealkylation into tributyltins. Tributyltins are substances that were also assessed and were found to meet the criterion set out in paragraph 64(a) and also meet the criteria for persistence and bioaccumulation as defined by the *Persistence and Bioaccumulation Regulations* made under CEPA 1999.

To meet the objective of achieving the lowest level of releases that are technically and economically feasible, as identified in the [Risk Management Approach for Non-Pesticidal Organotin Compounds \(PDF; 153 KB\)](#) dated August 2009, Environment Canada published in November 2011 a [Code of Practice for the Management of Tetrabutyltin in Canada \(PDF; 444 KB\)](#) (herein referred to as the "Code of Practice").

Approximately one year after the publication of the Code of Practice, Environment Canada conducted a site visit to the only facility to which the Code of Practice applied. The purpose of this visit was to determine the degree of implementation of the Code of Practice at this facility. This report outlines the result of the visit.

Purpose of the Code of Practice

The purpose of the Code of Practice is to minimize releases of tetrabutyltin to the aquatic environment by identifying best management procedures and practices for activities involving the import, distribution, manufacture and use of tetrabutyltin. The Code of Practice does not apply to importers of the substance as a component of dry blended vinyl compounds, or to the transportation of tetrabutyltin given that this matter is addressed by the [Transportation of Dangerous Goods Regulations \(PDF; 8.3 MB\)](#).

This Code of Practice provides best management practices for the following activities: packaging, storage and secondary containment; handling and dispensing; uncontrolled, unplanned or accidental releases. It also details best management practices concerning empty packaging, waste disposal, record keeping, reporting, training and management systems.

Targets

When the Code of Practice was published, Environment Canada indicated that facilities covered by the Code of Practice, at the time of its publication, would have one year after its publication to implement its requirements. It was also noted that, to determine the degree of implementation, facilities covered by the Code of Practice may be requested after that period to submit documentation on how the main elements of the Code of Practice were implemented. Upon reviewing this documentation, a follow-up site visit may be conducted by Environment Canada.

Results

One year following the publication of the Code of Practice, only one facility in Canada used tetrabutyltin. After reviewing the documentation that was submitted by the facility, Environment Canada officials conducted a site visit to the facility on March 20, 2013, to confirm that the Code of Practice was being implemented. During the site visit, the verifiers identified 10 areas for improvement. Following the visit, the facility provided supporting documentation demonstrating that all of the 10 areas for improvement had been addressed by August 2013. Following the review of this documentation, Environment Canada concluded that the facility can be considered as having fully implemented all of the procedures and practices in the Code of Practice.

Conclusion

By implementing all applicable best management practices of the Code of Practice, which was confirmed by Environment Canada's verification, the facility contributed to the achievement of the risk management objective of minimizing releases of tetrabutyltin to the aquatic environment.

Next Steps

To ensure the continuous implementation of the Code of Practice, Environment Canada may request supporting documentation in the future from the current facility covered by the Code of Practice.

If there are any new activities involving tetrabutyltin in Canada, the facilities covered by the Code of Practice will be requested to submit documentation on how its main elements are being implemented.

Contact

Plastics Unit
Chemical Production Division
Environment Canada
351 St. Joseph Blvd., 11th Floor
Gatineau QC K1A 0H3
Email: pgpc-cmp.dppc-cpd@ec.gc.ca

Background

Between August 1994 and March 2000, the Minister of the Environment received notifications for nine organotin substances as “new” and/or “transitional” substances pursuant to subsection 26(2) of the 1988 *Canadian Environmental Protection Act* (CEPA 1988), now subsection 81(1) of CEPA 1999 (the statute that has repealed and replaced CEPA 1988). These substances were proposed for importation or manufacture in Canada for the following uses: as stabilizers for PVC products; as intermediates used in the manufacture of organotin stabilizers, which was the case of tetrabutyltin; and as material preservatives for building material formulations.

These new and transitional substances were assessed, and it was concluded that the nine substances, including tetrabutyltin, are entering or may enter the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity. Therefore, these substances met the criterion set out in paragraph 64(a) of CEPA 1999.

On March 23, 2005, a Notice under subsection 84(5) of CEPA 1999 was published in the *Canada Gazette*, Part I. It specifies the conditions under Ministerial Condition No. 13618 pertaining to the use, release and disposal of tetrabutyltin in Canada.

Following the publication of the Code of Practice, the Ministerial Condition for tetrabutyltin was rescinded on December 15, 2012, given that the Code of Practice has incorporated most of the main elements of the requirements of the Ministerial Condition and that it applies to all importers, distributors, manufacturers and users of tetrabutyltin in Canada. Tetrabutyltin was subsequently listed on the Domestic Substances List on February 26, 2014.

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Additional information can be obtained at:

Environment Canada

Inquiry Centre

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Gatineau QC K1A 0H3

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Email: enviroinfo@ec.gc.ca