

INVENTORY AND ACTION PLAN ON NEW POPs

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Introduction

The NIP comprises the 12 initial POPs, the 9 new POPs added to the Convention Annexes in 2009, Endosulfan, listed in 2011 during the COP 5 and hexabromocyclododecane (HBCD), listed during COP 6, in 2013.

The existing information are fragmented and dispersed throughout various information systems and registers in both private and public sectors, but often they do not exist or are not available. Additionally, the absence of regulated controls reflects directly on the development of the National Inventories of new POPs of industrial use, hampering the collection of information on these substances.

Thus, given the lack of an information source that could provide official consolidated data on the status of production, use, import and export of new POPs of industrial use in Brazil, the Ministry of Environment carried out an indicative inventory of these substances and of products/stockpiles that may contain them, to provide inputs for the development of the NIP for the Stockholm Convention. As to the legal status in Brazil of these new POPs of industrial use, there is no legislation that establishes specific bans or restrictions for each of them, nor concentration limits for products. Thus, regulatory measures should be established in order to determine obligations that will facilitate obtaining information on the situation of new POPs of industrial use in the country and set pertinent prohibitive and restrictive measures, in harmony with the provisions of the Stockholm Convention. They will also guide the process of environmental licensing and implementation of Best Available Techniques and Best Environmental Practices (BAT/BEP) by POPs using sectors and those that recycle articles containing POPs.

The aim of this activity was obtain an overview of the current and previous use of new POPs of industrial use in processes and articles and of the waste/recycling flows for developing action plan to address new POPs managements in Brazil.

Materials and methods

To carry out the NIP indicative inventories, the number of consultations was increased, seeking to identify all the industrial associations that could contribute with information on the current and historical uses of new POPs and on alternative substances. The following priority sectors were consulted: flame retardants, polymers, electrical and electronic equipment, coatings, waste of electrical and electronic equipment, car recycling, metal plating, household and industrial cleaning products, photography as well as ant control baits and pesticides.

Development of indicative inventories was based on theoretical analysis, questionnaires and telephone contacts to answer questions, that is, methods that did not require visits or elaborate data collection and analysis.

As there was little information on the status of new POPs in Brazil, the survey was carried out using questionnaires.

Results and discussion:**Inventory Summary****HBB**

There is no information on the past use of this product in Brazil or on the existence of stocks or products containing this substance. Even so, inquiries to obtain information on HBB were made for the same categories consulted for PFOS and PBDEs. All replies indicate that the companies did not use this substance nor had they stocked articles or wastes with HBB. From 1997 to 2013, there were no imports or exports of polybrominated biphenyls. It was not possible to obtain data for 1989-1996, since there was no specific customs code for these products. Since hexabromobiphenyl was used as a flame retardant, particularly during the 1970s, the stocks and wastes of products and articles were eliminated decades ago or, if still existing, should not be relevant (UNIDO, UNITAR, UNEP 2012a). Thus, this substance will not be further investigated in the Action Plan.

PeCB

The inventory did not identify if PeCB was used as a flame retardant or dye accelerator and carrier in Brazil

(Van de Plassche et al., 2002 in UNEP, 2007). With regards to the use of PeCB as a component of the mixture to reduce viscosity in PCB products, it is possible to find the substance in small concentrations in equipment that use PCB due to the fact that such equipment is still found in use in Brazil. Although it is not possible to determine the amount of PeCB in equipment in Brazil, management measures undertaken to phase out PCB will contribute to eliminate PeCB and PeCB release sources. The company's representative in Brazil is the only one to have a license to produce and market quintonzene in the country. In consultations with the Brazilian company, we were informed that it manufactures quintonzene without using PeCB. However, it did not clarify if PeCB was used in the past. There are no records of recent use and production of PeCB in Brazil. In this manner, it is possible to conclude that PeCB is not used in industrial processes in the country. However, the substance may be present in equipment that still uses PCB. Since the use of pentachlorobenzen (PeCB) was not identified, it will not be a priority in the Action Plan.

PBDES

These substances were not produced in Brazil and it was not possible to verify if these POPs were imported as a substance. During the consultations for the POP-PDEs inventory, most of the replies state that the institutions do not use articles containing c-pentaBDE and octaBDE or that they do not use decaBDE. Others informed that they were unsure whether they use or had used PBDEs in articles they produce or import. Some replies indicated that these POPs could have been used in the past, or that decaBDE could still be used. However, data from the inventory indicate that these products are present in electrical and electronic equipment and in imported vehicles, and that recycling of these products contains PBDEs.

Since no information was obtained from the electrical and electronic equipment sector that could be used in the inventory, we used the draft Guidance for developing the inventory of polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention, developed by UNITAR for the Stockholm Convention. The estimated amount of c-octaBDE in electrical and electronic equipment was approximately 1.6t thousand tonnes (174.9 tonnes of hexaBDE and 683.9 tonnes of heptaBDE). The Action Plan will include activities for the collection of information on the sector, the development of a guide to promote the sorting out of equipment that contain POP-PBDEs, the use of technologies that reduce releases of these substances and to indicate the kind of uses that will not be permitted for recycled plastics containing POP-PBDEs. These activities shall be executed in collaboration with the sector, which may also contribute to promoting the BAT/BEP Guide among recycling companies and workers.

The amount of c-pentaBDE in vehicles in use was 39.5 tonnes and in end-of-life vehicles was 694.0 tonnes, making a total of 733.5 tonnes of c-pentaBDE. The amount of POP-PBDEs in end-of-life vehicles is considerably larger than in vehicles in use and some of these vehicles must have already been sent to final disposal. It was estimated that of the total 694,015.0 Kg of POP-PBDEs from end-of-life vehicles, only 10,410.2 Kg are recycled. The existence of appropriate tools and technologies for the implementation of the National Solid Wastes Policy and to adopt appropriate strategies to better manage each waste, hazardous or otherwise, and enable their proper disposal. Regarding the recycling of vehicles in Brazil, despite the low rate of occurrence (1.5%), an option that has been used is sending carcasses to steel mills, which have shredders that can remove the ferrous and non-ferrous materials of ELVs.

Other uses

Since no significant data was obtained on the use of POP-PBDEs in these sectors, we conclude that these uses of POP-PBDEs will not be a priority for the plan of action.

PFOS, its salts and PFOSF

To carry out the PFOS indicative inventory in Brazil, inquiries were made by sending questionnaires to all associations and institutions identified according to the categories that might use these chemicals in their processes or articles. Out of the list of possible uses of PFOS, the only use categories that were identified in the country during the inventory were: sulfluramid-based bait insecticide and metal plating.

In the final result of the inventory, the total amount of PFOS, its salts and PFOSF was obtained through the sum of the average amounts used by the two categories that have known uses, according to table 1 below:

Table 1. Average total amount of PFOS, its salts and PFOSF used in Brazil per year

Category	Average amount of PFOS/PFOSF Kg/year
Sulfluramid-based bait insecticide	50,745

Metal plating	1,876
Total	52,351

Since sulfuramid and metal plating were the only two categories identified until now for which there is proven use of PFOS/PFOSE, these sectors will be considered a priority for the action plan.

HBCD

According to information received, HBCD is used in the building, electronics, automotive and textile industries in Brazil. According to ABIQUIM, 7 of its associates manufacture and process polystyrene and other 3 work with this product. However, it stated that it was difficult to measure the number of small and medium companies that work with this product. HBCD is only used as a flame retardant in concentrations of 0.3 to 0.7% for: expanded polystyrene (EPS); extruded polystyrene (XPS) and high-impact polystyrene (HIPS).

The annual production of expanded polystyrene in Brazil used in the production of processed products was 96,124 tonnes in 2012, mostly used in the building sector, which uses it as a flame retardant for applications on cast slabs, blocks, roofing tiles, linings, gutters, friezes and panels. Data from the Brazilian Expanded Polystyrene Association (ABRAPEX) indicate that approximately 62.9 thousand tonnes/year of EPS and 20 thousand tonnes/year of XPS were produced, making a total of 82.9 thousand tonnes in Brazil, in 2008. EPS is also recycled in Brazil. It is estimated that around 7 thousand tonnes/year are returned to the production process for recycling. More than 80% of this amount was collected by the recyclers associated to the Socioenvironmental Institute for Plastics (Plastivida). Imports of HBCD are increasing, having gone from 90 tonnes in 2012 to 115 tonnes in the first nine months of 2013 alone. HBCD is used in Brazil for the manufacture of EPS, XPS and HIPS that are used as thermal insulation in the building industry and as flame-retardant additive in industrial uses. The uses of HBCD in Brazil still require further investigation; however, uses in the production of EPS and XPS can already be considered priorities.

Conclusions on the Inventory of New POPs of industrial use

Indicative inventories identified that PFOS, its salts and PFOSE and HBCD are still in use in Brazil. Furthermore, the information received indicates that POP-PBDEs might have been used in the past and that these substances could be present in imported articles in use and in wastes. In general, the indicative inventory results indicate that information must be improved. Some categories, which are believed to use these substances must be further investigated.

As to information on exports/imports of new POPs, it is essential to improve specific custom codes for these products in order to enable better controls over imported quantities. In addition, expanding Ibama's consenting for importing these substances enables proper control of each operation.

Identification of articles containing POPs is also a challenge not only for Brazil, but for most of the country parties to the Stockholm Convention. Therefore, it is essential to improve customs control of articles containing these substances.

In conclusion, the action plan will include strategies for the sound management of articles and wastes containing new POPs, as well as strategies to reduce use, with a view to elimination, of the POPs that are still used in Brazil.

Main identified challenges and priorities for action

- 1) Adopt and implement a suitable legislative framework for the obligations related to the ban and/or use of industrial POPs in Brazil;
- 2) For PFOS, its salts and PFOSE:
 - a) Improve information on other possible uses of PFOS, prioritizing the categories that were thought to be suspect in the inventory, and then, the categories for which the risk of human exposure is greater;
 - b) Carry out studies to identify replacements for sulfuramid, evaluate the degradation of sulfuramid in PFOSE and environmental impact of applying these baits in an open environment;
 - c) Verify the techniques and practices used by the metal plating sector and identify measures to reduce risks of exposure and waste management practices in the sector by using BAT/BEP;
 - d) Carry out studies to identify and test replacements for PFOS in metal plating;
 - e) Promote measures to reduce risks of exposure to PFOS for the identified uses by applying BAT/BEP;
 - f) Ensure that residues of PFOS, its salts and PFOSE are managed in an environmentally sound manner;

g) Approve the elimination schedule for the use of PFOS in metal plating by the specific exemption period expiration date.

3) For HBCD:

a) Improve information on the uses of HBCD in Brazil and eliminate the uses for which there is no possibility of requesting a specific exemption, after the entry into force of the amendment to Annex A in November 2014;

b) Send the Secretariat a formal request for registration of specific exemption for the use of EPS and XPS in construction;

c) Carry out studies and prepare a programme to soundly manage EPS and XPS wastes that contain HBCD;

d) Sort out EPS/XPS so that only wastes that are not treated with HBCD are recycled;

e) Identify and test alternatives and present an elimination schedule for the use of HBCD according to the specific exemption period expiration date.

4) Measures to guarantee that destination and recycling of articles containing POP-PBDEs be performed in an environmentally sound manner

4.1) Actions related to recycling of waste of electrical and electronic equipment:

a) Survey of practices and techniques used by plastic recycling companies to verify the current situation and necessary improvements;

b) Preparation of a booklet to promote the adoption of best available techniques and best environmental practices for the recycling of WEEE, and dissemination of the BAT/BEP Guide among recycling companies as well as conducting seminars (workshops) and courses on BAT/BEP for the sector. The booklet will include a negative list of applications where the recycled material shall not be used, and a positive list specifying applications where these WEEE recycled materials can be used;

c) Financial support for plastic recycling companies to acquire screening tests to detect POP-PBDEs and equipment that reduce the releases of these substances and occupational exposure; and

d) Development of an elimination schedule for the recycling of articles containing POP-PBDEs before the deadline for specific exemptions ends in 2030.

4.2) Actions related to PBDEs in automotive vehicles

a) Adopt Best Environmental Practices through the implementation of Law No. 12,977, of May 20, 2014, which regulates and disciplines the dismantling activity of terrestrial motor vehicles in Brazil;

b) Support initiatives that promote the recycling of vehicles by the states; and

c) Support the adoption of Bill No. 67/2013, which amends Law No. 12.305, of August 2, 2010, establishing the National Solid Wastes Policy, to provide for reverse logistics of automotive vehicles.

5) Sales, Imports and Exports

a) Put together a Working Group to create specific MCN codes or highlights to identify POPs and develop strategies to control import and export operations of POPs.

6) Measures to identify and manage in an environmentally sound manner articles containing POPs

a) Create the Conasq Working Group to evaluate existing classification and labeling systems, and develop an appropriate system to improve the exchange of information on articles containing POPs by the supply chains;

b) Develop regulation for the identification of chemicals in articles and products, after the development of the Bill to establish control over industrial chemicals; and

c) Create a Discussion Group to include the issue related to production and consumption of articles containing POPs in the Action Plan for Sustainable Production and Consumption.

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