

## **Voluntary Plan in Japan concerning the Risk Management of Selected Brominated Flame Retardants**

14 July 1995

Brominated flame retardants are widely used to make flame retarded synthesized resins, rubbers, elastomers and fibres, all of which are the component materials for various electric and electronic products and parts including computers (essential items in modern society) and for automobiles, vehicles, construction materials and interior decoration materials. They also contribute to the prevention of damage to human and economic resources caused by fire accidents. Recently in Japan, more stringent voluntary regulations than before have been implemented in order to increase the safety of products such as cars and home electric products against fire. In response to such demands, our industry, which supplies flame retardants, has also been making efforts to increase safety against fire.

Currently, DBDPO\*1, OBDPO\*2 and TBBA\*3 are widely used for this purpose because these compounds have excellent characteristics as flame retardants, and also because, due to their high bromine content, a relatively small amount is enough to produce the required effect.

Meanwhile, regarding the environmental effect and safety, it was confirmed by studies based on the "Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances" that bioaccumulation was not high. In addition, these substances have been used world-wide for more than 20 years, and the results of risk evaluation conducted by OECD show that the potential for the occurrence of health and environmental problems is small in each stage of manufacture, the mixing into the resins, the forming and processing and the finishing of the products.

In Japan, PBB's are not commercially manufactured or imported by the voluntary decision of the manufacturers and importers. Furthermore, the commercial production and import of PBDPO's\*5 besides DBDPO and OBDPO, have been abandoned, again by their initiative. Consequently, among the selected brominated flame retardants subject to OECD regulation, only three flame retardants, DBDPO, OBDPO and TBBA, are manufactured, imported and sold inside and outside of Japan.

In Japan, these selected brominated flame retardants are manufactured in a closed system, and the products are manufactured and shipped in adequately controlled facilities. The production facilities are regularly maintained, tested and repaired, halting production for a certain period so that the process is perfectly controlled.

In addition, process and quality control are reviewed as necessary, introducing the most recent technology to assure the uniformity of the products.

Further to the above, these brominated flame retardants are manufactured in certain sections of well-administered chemical plants, and these plants are managed in accordance with the relevant Japanese legislation for the control of the environment and workplace conditions.

Safety information is supplied to the primary users through Manufacturing Safety Data Sheets (MSDS). Safety information from abroad is also freely supplied through workshops, and so on, of the Flame Retardants Conference of Japan.

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As stated above, we, the nine members of the committee on the OECD Program of the Flame Retardants Conference of Japan, have properly implemented various measures for risk management. With regard to a long-term vision, we will continue implementing actions based on the Responsible Care Program which is promoted by the Japan Chemical Industry Association, and as we declare below, we shall strive to improve risk management based on the OECD discussions on selected brominated flame retardants.

#### Future Actions

#### I. Risk management

1. On the initiative of our member companies, we do not and will not manufacture or import PBB's and PBDPO's except DBDPO and OBDPO.
2. Only technology capable of manufacturing products of more than 97% purity (by current analytical methods) will be used for the manufacture of DBDPO.
3. For the manufacture of OBDPO, the concentration of low-brominated substances will be kept to a minimum using practical methods which are either used now or may be developed in the future.
4. For the manufacture of DBDPO, OBDPO and TBBA, the waste products from the production process will be treated and disposed through the best available techniques to minimise release into the environment.
5. The most recent information on the products will be obtained and supplied to the primary users so that they can safely use DBDPO, OBDPO and TBBA.
6. Various actions currently implemented will be continued including complying with relevant legislations, process and product quality control and the supply of required information to the primary users. The most recent theories and techniques will be introduced where applicable to risk management for the selected brominated flame retardants to promote activities for environmental protection and for ensuring safety.

#### II. Environmental exposure

7. Maximum effort will be made to prevent contamination and accidents during the manufacture, transport and handling of DBDPO, OBDPO and TBBA.
8. A close relationship will be maintained with the primary users so that DBDPO, OBDPO and TBBA will be used properly and that the waste products will be controlled appropriately to minimise their release into the environment by making the most recent information available.

#### III. International cooperation

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We will cooperate with international research programs on the toxicity of selected brominated flame retardants.

#### IV. Situation reporting

The progress of these activities will be reported to the Japan Chemical Industry Association every 12 months.

The Flame Retardants Conference of Japan

Member companies of the Committee on the OECD Program

ASAHI GLASS CO., LTD  
ALBEMARLE ASANO CORPORATION  
TEIJIN CHEMICALS LTD  
TOSOH CORPORATION  
NIPPOH CHEMICALS CO., LTD  
BROMOKEN (FAR EAST) LTD  
MANAC Incorporated  
MIKI & Co., LTD  
MITSUI TOATSU FINE CHEMICALS, INC.

Note \*Selected brominated flame retardants are PBBs\*1, PBDPOs\*2 and TBBA\*3 and they are currently under discussion at OECD

\*1 DBDPO: Decabromodiphenyloxide

\*2 OBDPO: Octabromodiphenyloxide

\*3 TBBA: Tetrabromobisphenol A

\*4PBBs: Polybromobiphenyls

\*5 PBDPOs: Polybromodiphenyloxides