



## ROTTERDAM CONVENTION

SECRETARIAT FOR THE ROTTERDAM CONVENTION  
ON THE PRIOR INFORMED CONSENT PROCEDURE  
FOR CERTAIN HAZARDOUS CHEMICALS AND PESTICIDES  
IN INTERNATIONAL TRADE



### FORM FOR NOTIFICATION OF FINAL REGULATORY ACTION TO BAN OR SEVERELY RESTRICT A CHEMICAL

Country:

Guyana

#### SECTION 1 IDENTITY OF CHEMICAL SUBJECT TO THE FINAL REGULATORY ACTION

1.1 Common name

Octabromodiphenyl ether commercial mixtures, typically containing hexabromodiphenylether, heptabromodiphenyl ether, octabromodiphenyl ether, nonabromodiphenyl ether and decabromodiphenyl ether

1.2 Chemical name according to an internationally recognized nomenclature (e.g. IUPAC), where such nomenclature exists

Octabromodiphenyl ether commercial mixtures typically containing:  
hexaBDE: hexabromodiphenyl ether (benzene, 1,1,1'-oxybis-, hexabromo derivative)  
heptaBDE: heptabromodiphenyl ether (benzene, 1,1'-oxybis-, heptabromo derivative)  
octaBDE: octabromodiphenyl ether (benzene, 1,1,1'-oxybis-, octabromo derivative)  
nonaBDE: nonabromodiphenyl ether (benzene, 1,1,1'-oxybis-, nonabromo derivative)  
decaBDE: decabromodiphenyl ether (bis(pentabromophenyl) ether (benzene, 1,1,1'-oxybis[2,3,4,5,6-pentabromo-])

1.3 Trade names and names of preparations

Bromkal 80; Bromkal79-8 DE, DE-79TM, ER 143; Tardex 80; FR 1208; Adine 404; Saytex 111

1.4 Code numbers

1.4.1 CAS number

hexaBDE 36483-60-0  
heptaBDE 68928-80-3  
octaBDE 32536-52-0  
nonaBDE 63936-56-1  
decaBDE 1163-19-5  
Depending on the isomeric form, CAS numbers for different congeners, e.g. 2,2',4,4',5,5'-hexabromodiphenyl ether (CAS No: 68631-49-2) or 2,2',4,4',5,6'-hexabromodiphenyl ether (CAS No: 207122-15-4) and 2,2',3,3',4,5',6-

- 1.4.2 Harmonized System  
customs code
- 1.4.3 Other numbers  
(specify the numbering  
system)

heptabromodiphenyl ether ( CAS No: 446255-22-7), or 2,2',3,4,4',5',6-heptabromodiphenyl ether (CAS No: 207122-16-5) can apply. There may be other isomeric forms of hexa- , hepta- octa- and nonabromodiphenyl ethers or decabromodiphenyl ether present in commercial octabromodiphenyl ether mixtures.

2909 30

Not Applicable

**1.5 Indication regarding previous notification on this chemical, if any**

1.5.1 ☒ This is a first time notification of final regulatory action on this chemical.

1.5.2 ☐ This notification replaces all previously submitted notifications on this chemical.

Date of issue of the previous notification: \_\_\_\_\_

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**SECTION 2**

**FINAL REGULATORY ACTION**

2.1 The chemical is: ☒ banned OR ☐ severely restricted

**2.2 Information specific to the final regulatory action**

2.2.1 Summary of the final regulatory action

Pesticides and Toxic Chemicals Control (Prohibited Pesticides and Toxic Chemicals) order No.4 of 2015 made under the Pesticides and Toxic Chemicals Control Act 2000 (No 13 of 2000) Prohibits the importation, sale and use of Octabromodiphenyl ether commercial mixtures, typically containing hexabromodiphenylether, heptabromodiphenyl ether, octabromodiphenyl ether, nonabromodiphenyl ether and decabromodiphenyl ether or any substance in any form containing Octabromodiphenyl ether commercial mixtures, typically containing hexabromodiphenylether, heptabromodiphenyl ether, octabromodiphenyl ether, nonabromodiphenyl ether and decabromodiphenyl ether.

2.2.2 Reference to the regulatory document, e.g. where decision is recorded or published

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Official Gazette of Guyana dated 2nd April, 2015.

**2.2.3 Date of entry into force of the final regulatory action**

2nd April 2015

**2.3 Category or categories where the final regulatory action has been taken**

**2.3.1 All use or uses of the chemical in your country prior to the final regulatory action**

No Known use of the chemical in Guyana Prior to the final regulatory action

**2.3.2 Final regulatory action has been taken for the category** ☒ Industrial

Use or uses prohibited by the final regulatory action

No Known use of the chemical in Guyana Prior to the final regulatory action

Use or uses that remain allowed (only in case of a severe restriction)

All Formulation or preparation and all use prohibited by the final regulatory action

**2.3.3 Final regulatory action has been taken for the category** ☐ Pesticide

Formulation(s) and use or uses prohibited by the final regulatory action

Formulation(s) and use or uses that remain allowed  
(only in case of a severe restriction)

**2.4 Was the final regulatory action based on a risk ☒ Yes or hazard evaluation?**

☐ **No** (If no, you may also complete section 2.5.3.3)

**2.4.1** If yes, reference to the relevant documentation, which describes the hazard or risk evaluation

Reference to the Decision Guidance Document on Octabromodiphenyl ether commercial mixtures, typically containing hexabromodiphenylether, heptabromodiphenyl ether, octabromodiphenyl ether, nonabromodiphenyl ether and decabromodiphenyl ether as prepared by UNEP and FAO

**2.4.2** Summary description of the risk or hazard evaluation upon which the ban or severe restriction was based.

**2.4.2.1** Is the reason for the final regulatory action relevant to human health? ☒ Yes

☐ No

If yes, give summary of the hazard or risk evaluation related to human health, including the health of consumers and workers

The commercial octaBDE product (c-OctaBDE) classified as a reproductive toxicant, due to its effects on human health, with the risk phrases "may cause harm to unborn child", and "possible risk of impaired fertility". Studies and assessments provided evidence that c-OctaBDE may cause adverse effects, such as effects on reproductive organs and effects on development of the foetus. Effects of repeated exposure to c-OctaBDE consistently indicated that the liver was the key target organ, and liver effects had been observed in animal studies. It was assumed that in humans, components of c-OctaBDE might bioaccumulate in adipose tissue. Alterations in thyroid homeostasis were reported with

organochlorine compounds for many species, including humans. A thyroid hormone like affinity for the serum transport protein transthyretin was shown for hydroxylated PCBs.

**Expected effect of the final regulatory action**

The Possibility of Risks and Exposure to this chemical by humans decreased.

2.4.2.2 Is the reason for the final regulatory action relevant to the environment?

☒ Yes

☐ No

If yes, give summary of the hazard or risk evaluation related to the environment

congeners of c-OctaBDE seem to resist degradation and thus have the potential to persist in the environment for a long time. They have potential for bioaccumulation and in addition there was monitoring evidence of biomagnifications

TetraBDE, pentaBDE and hexaBDE congeners met the criteria for persistence and bioaccumulation, as defined by the Persistence and Bioaccumulation Regulations of CEPA 1999. Further, some PBDE congeners (tetra-, penta-, hexa-, hepta-) have been identified as Persistent Organic Pollutants (POPs) under the Stockholm Convention and the UNECE POP-protocol and as such are recognized as environmentally and biologically persistent substances that may undergo long-range environmental transport (POPRC, 2007). With regards to the biological persistence of , c-OctaBDE, HexaBDE is demonstrated to show a significant potential for bioconcentration and biomagnification; heptaBDE on the other hand biomagnifies through the food web. Available data suggests that aquatic species bioconcentrate and bioaccumulate c-OctaBDE from their environment (POPRC, 2007).

**Expected effect of the final regulatory action**

Reduce the exposure to aquatic organism and other animals.

**2.5 Other relevant information regarding the final regulatory action**

2.5.1 Estimated quantity of the chemical produced, imported, exported and used

	Quantity per year (MT)	Year
produced	NIL	
imported	NIL	
exported	NIL	

used

NIL

- 2.5.2 Indication, to the extent possible, of the likely relevance of the final regulatory action to other states and regions

Not Applicable

- 2.5.3 Other relevant information that may cover:

- 2.5.3.1 Assessment of socio-economic effects of the final regulatory action

None expected since this product has not been used in the country for at least twenty years.

- 2.5.3.2 Information on alternatives and their relative risks, e.g. IPM, chemical and non-chemical alternatives

None

- 2.5.3.3 Basis for the final regulatory action if other than hazard or risk evaluation

None

- 2.5.3.4 Additional information related to the chemical or the final regulatory action, if any

None

**SECTION 3****PROPERTIES****3.1 Information on hazard classification where the chemical is subject to classification requirements****International classification systems**

e.g. WHO, IARC, etc.

**Hazard class**


**Other classification systems**

e.g. EU, USEPA

**Hazard class**

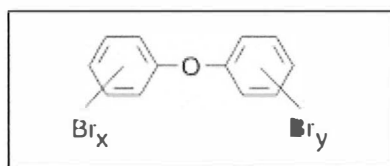
EU	<p>octaDBE (CAS-No. 32536-52-0):</p> <p>Classification pursuant to Directive 67/548/EEC:</p> <p>Repr. Cat. 2 - R61; May cause harm to the unborn child</p> <p>Repr. Cat. 3 - R62; Possible risk of impaired fertility</p> <p>Safety phrases:</p> <p>S53: Avoid exposure - obtain special instructions before use.</p> <p>S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).</p> <p>Classification pursuant to Regulation (EC) No 1272/2008 implementing the UN GHS:</p> <p>Repr. 1B – H360Df - May damage the unborn child. Suspected of damaging fertility.</p> <p>(Source: <a href="http://esis.jrc.ec.europa.eu/">http://esis.jrc.ec.europa.eu/</a>)</p>



### 3.2 Further information on the properties of the chemical

#### 3.2.1 Description of physico-chemical properties of the chemical

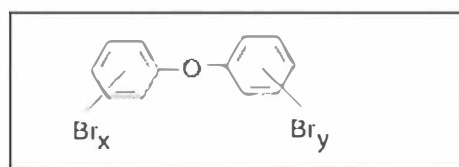
Basic physico-chemical properties of individual congeners (EU, 2003)					
Property	HexaBDE	HeptaBDE	OctaBDE	NonaBDE	DecaBDE
Water solubility [µg/L]	4.7	1.3	0.5	0.11	0.03
Log Kow	7.4	8	8.7	9.3	9.9
Vapour pressure [Pa]	5.5.10-6	5.7.10-7	5.9.10-8	6. .10-9	6.1.10-10
Koc [L/kg]	1,060,250	1,221,640	1,363,040	1,514,430	1,665,830
BCF [L/kg]	< 4	< 4	< 4	< 4	< 4
Other modeling input data (estimated using EPI program)					
Melting point [°C]	197	211	226	240	255
Boiling point [°C]	467	498	528	559	590
Rate constant for reaction with atmospheric hydroxyl radicals [cm <sup>2</sup> .s-1.molecule-1]	9.77.10-13	5.49.10-13	2.10.10-13	1.92.10-13	1.74.10-13



C<sub>12</sub>H<sub>4</sub>Br<sub>6</sub>O

where  $x + y = 6$

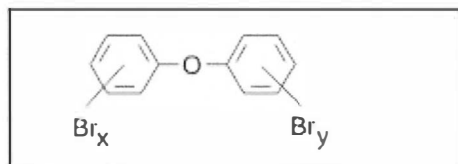
hexaBDE



C<sub>12</sub>H<sub>3</sub>Br<sub>7</sub>O

where  $x + y = 7$

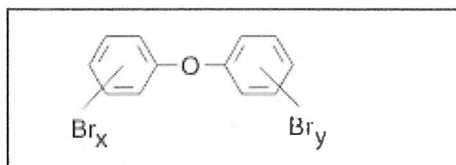
heptaBDE



C<sub>12</sub>H<sub>2</sub>Br<sub>8</sub>O

where  $x + y = 8$

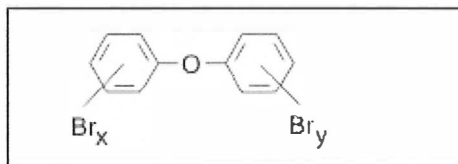
octaBDE



$C_{12}HBr_9O$

where  $x + y = 9$

nonaBDE



$C_{12}Br_{10}O$

where  $x + y = 10$

decaBDE

#### Reference

Decision Guidance Document (hexabromodiphenylether, heptabromodiphenyl ether, octabromodiphenyl ether, nonabromodiphenyl ether and decabromodiphenyl ether.) – FAO/UNEP

#### 3.2.2 Description of toxicological properties of the chemical

The acute oral, inhalation and dermal toxicity of octaBDE have been studied in rats and rabbits. The available data showed that the acute oral toxicity of octaBDE is low with LD50-values  $> 5\,000$  mg/kg. The acute inhalation of octaBDE (respirable particles) resulted in LC50-values  $> 50$  mg/L (0.05 mg/m<sup>3</sup>) (European Communities, 2003a).

#### Reference

Decision Guidance Document (hexabromodiphenylether, heptabromodiphenyl

ether, octabromodiphenyl ether, nonabromodiphenyl ether and decabromodiphenyl ether.) – FAO/UNEP

### 3.2.3 Description of ecotoxicological properties of the chemical

**Air-** In spite of its low volatility octaBDE may undergo long-range environmental transport via air and is found (POPRC, 2007). In an occupational setting inhalation of dust and skin contact are likely the predominant routes of human exposure via air (European Communities, 2003a). When octaBDE is heated the vapour pressure will rise with a concomitant increase in the SVC. Hence, higher temperatures or heating e.g. during processing and manufacture may increase human exposure by inhalation, and may also result in exposure to breakdown products such as polybrominated dibenzodioxins and dibenzofurans) may also be emitted (POPRC, 2007).

**Water-** Components c-OctaBDE are poorly soluble in water and estimated log K<sub>ow</sub>s are in the range from 6.1-9.9 (European Communities, 2003a).

#### Reference

Decision Guidance Document (hexabromodiphenylether, heptabromodiphenyl ether, octabromodiphenyl ether, nonabromodiphenyl ether and decabromodiphenyl ether.) – FAO/UNEP

## SECTION 4

## DESIGNATED NATIONAL AUTHORITY

Institution	Pesticides and Toxic Chemicals Control Board
Address	N.A.R.E.I Compound, Mon Repos, East Coast Demerara
Name of person in charge	Trecia David
Position of person in charge	Registrar, Pesticides and Toxic Chemicals Control Board
Telephone	592-220-8880
Telefax	220-8838
E-mail address	ptccb@guyana.net.gy



Date, signature of DNA and official seal:

*Trenia David*  
17/08/2015



**PLEASE RETURN THE COMPLETED FORM TO:**

Secretariat for the Rotterdam Convention  
Food and Agriculture Organization  
of the United Nations (FAO)  
Viale delle Terme di Caracalla  
00153 Rome, Italy  
Tel: (+39 06) 5705 2188  
Fax: (+39 06) 5705 3224  
E-mail: [pic@fao.org](mailto:pic@fao.org)

**OR**

Secretariat for the Rotterdam Convention  
United Nations Environment  
Programme (UNEP)  
11-13, Chemin des Anémones  
CH – 1219 Châtelaine, Geneva, Switzerland  
Tel: (+41 22) 917 8296  
Fax: (+41 22) 917 8082  
E-mail: [pic@pic.int](mailto:pic@pic.int)

**Definitions for the purposes of the Rotterdam Convention according to Article 2:**

(a) 'Chemical' means a substance whether by itself or in a mixture or preparation and whether manufactured or obtained from nature, but does not include any living organism. It consists of the following categories: pesticide (including severely hazardous pesticide formulations) and industrial;

(b) 'Banned chemical' means a chemical all uses of which within one or more categories have been prohibited by final regulatory action, in order to protect human health or the environment. It includes a chemical that has been refused approval for first-time use or has been withdrawn by industry either from the domestic market or from further consideration in the domestic approval process and where there is clear evidence that such action has been taken in order to protect human health or the environment;

(c) 'Severely restricted chemical' means a chemical virtually all use of which within one or more categories has been prohibited by final regulatory action in order to protect human health or the environment, but for which certain specific uses remain allowed. It includes a chemical that has, for virtually all use, been refused for approval or been withdrawn by industry either from the domestic market or from further consideration in the domestic approval process, and where there is clear evidence that such action has been taken in order to protect human health or the environment;

(d) 'Final regulatory action' means an action taken by a Party, that does not require subsequent regulatory action by that Party, the purpose of which is to ban or severely restrict a chemical.

6<sup>th</sup> June, 2017

Dr. Gamini Manuweera  
Programme Officer  
Secretariat of the Basel, Rotterdam & Stockholm Conventions  
International Environment House  
11-15 Chemin des Anemones  
Geneva, Switzerland

Dear Dr. Manuweera,

Thank you for the phone communication with Mr. Suresh Amichand on the 24<sup>th</sup> May, 2017 relative to the proposed changes on the notification forms submitted by Guyana.

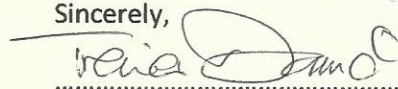
As the official DNA for Rotterdam Convention (RC) in Guyana, we have reviewed the nineteen documents on the Final Regulatory Action to ban or severely restrict a chemical sent to the RC secretariat and would recommend the following changes to the respective documents as follows:

Chemicals Common Names	Comments
Endosulfan	2.3.1 – Input comment – ( All applications as plant protection product)
Tetraethyl Lead	3.2.3 – Remove Comment – ( Dust: According to WHO(1995) dust is a significant source of exposure to lead, particularly for young children.....with dust lead levels)
Polychlorinated Biphenyls (PCBs)	2.3.3 – Remove both comments and input into 2.3.2 – (1. No known use.....regulatory action. 2. All formulations.....regulatory action)
Polybrominated Biphenyls (PBBs)	2.3.3 - Remove both comments and input into 2.3.2 – (1. No known use.....regulatory action. 2. All formulations.....regulatory action)
Octa-BDE	3.2.3 – Remove Comment and input into 3.2.2 – ( in an occupational setting inhalation.....European Communities, 2003a)

All for your information and action.

Thank you.

Sincerely,



Trecia David

