AGREEMENT OF THE MEMBER STATE COMMITTEE

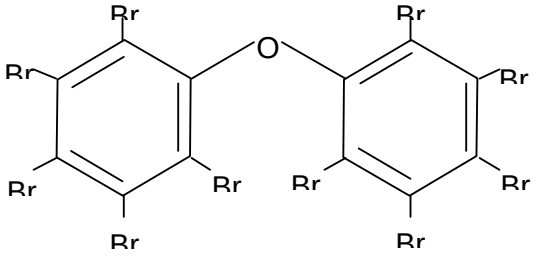
ON THE IDENTIFICATION OF BIS(PENTABROMOPHENYL) ETHER [DECABROMODIPHENYL ETHER]

AS A SUBSTANCE OF VERY HIGH CONCERN

According to Articles 57 and 59 of Regulation (EC) 1907/2006[1]

Adopted on 29 November 2012

This agreement concerns

Substance name:	**Bis(pentabromophenyl) ether**
	[decabromodiphenyl ether, decaBDE]
EC number:	**214-604-9**
CAS number:	**1163-19-5**
Molecular formula:	**$C_{12}Br_{10}O$**
Structural formula:	

[1] Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

The United Kingdom presented a proposal in accordance with Article 59(3) and Annex XV of the REACH Regulation (9 August 2012, submission number CW003970-26) on identification of *Bis(pentabromophenyl) ether [decabromodiphenyl ether]* as a substance of very high concern because of its PBT/vPvB properties.

The Annex XV dossier was circulated to Member States on 3 September and the Annex XV report was made available to interested parties on the ECHA website on the same day according to Articles 59(3) and 59(4).

Comments were received from both Member States and interested parties on the proposal.

The dossier was referred to the Member State Committee on 19 November and agreed in the written procedure of the Member State Committee with closing date of 29 November 2012.

Agreement of the Member State Committee in accordance with Article 59(8):

Bis(pentabromophenyl) ether [decabromodiphenyl ether] **is identified as a substance meeting the criteria of Article 57 (d) as a substance which is persistent, bioaccumulative and toxic and of Article 57 (e) as a substance which is very persistent and very bioaccumulative, both in accordance with the criteria and provisions set out in Annex XIII of Regulation (EC) 1907/2006 (REACH).**

UNDERLYING ARGUMENTATION
FOR IDENTIFICATION OF SUBSTANCE OF VERY HIGH CONCERN

Persistence, Bioaccumulation and Toxicity:

Decabromodiphenyl ether [decaBDE] is widely detected in the European environment, residing mainly in sediments and soils at concentrations up to several milligrams per kilogram (parts per million) on a dry weight basis. It is also present in many types of aquatic and terrestrial wildlife species (including tissues of sensitive life stages such as bird eggs) at numerous geographical locations; although tissue concentrations are often low (close to the limits of analytical detection, or below), it can attain concentrations up to a few hundred micrograms per kilogram (parts per billion) on a wet weight basis in some top predators.

Primary degradation half-lives in sediment and soil significantly exceed 180 days, indicating that decaBDE is 'very persistent' according to the Annex XIII criteria. On the basis of the available data, it can also be concluded that there is a high probability that decaBDE is transformed in soil and sediments to form substances which either have PBT/vPvB properties, or act as precursors to substances with PBT/vPvB properties, in individual amounts greater than 0.1% over timescales of a year. Transformation to such substances within biota provides an additional pathway for the exposure of organisms. High persistence combined with wide distribution in the environment creates a high potential for lifetime exposure and uptake in organisms, and a pool of the substance in many localities that will act as a long-term source of degradation products through both abiotic and biotic transformation.

The PBT/vPvB nature of the principal transformation products of deca BDE, i.e. tetra-, penta-, hexa- and heptaBDE congeners, has already been recognised by their inclusion as persistent organic pollutants (POPs) in Annex A of the Stockholm Convention, implemented in the EU as Commission Regulation (EU) No. 757/2010.

Experiments have shown that nonaBDEs can be degraded to octaBDEs by anaerobic bacteria (Gerecke et al., 2005 and 2006). He et al. (2006) and Lee and He (2010) have shown that octaBDE can be biodegraded by anaerobic bacteria collected from a range of locations to hexa-, penta- and tetraBDEs. Stapleton et al. (2004b) showed that Common Carp (*Cyprinus carpio*) exposed to BDE-99 and BDE-183 (a penta- and a heptaBDE congener, respectively) via the diet could metabolise these substances to BDE-47 (a tetraBDE congener) and BDE-154 (a hexaBDE congener) respectively. It therefore seems likely that nona- and

octaBDE congeners are also precursors of the congeners with PBT/vPvB (respectively POP) properties. Indeed, UNEP (2007) concluded that the octa- and nonaBDE congeners are also likely to lead to significant adverse human health and/or environmental effects, such that global action is warranted, due to their transformation to other PBDEs.

The following conclusions are reached for each congener group.

Congener group	**Persistence**	**Bioaccumulation**	**Toxicty**
TetraBDE	vP	vB	T
PentaBDE	vP	vB	T
HexaBDE	vP	B, some are vB	T
HeptaBDE	vP	B, based on weight of evidence	T
OctaBDE	vP	Probably not B	Possibly T
NonaBDE	vP	Probably not B	The lack of relevant data means that it is not possible to reach a conclusion.

Summary of PBT profiles for specific congener groups

- TetraBDE congeners meet the PBT and vPvB criteria.
- PentaBDE congeners meet the PBT and in some cases the vPvB criteria.
- HexaBDE congeners meet the PBT and in some cases the vPvB criteria.
- HeptaBDE congeners meet the vP and T criteria. They do not appear to meet the B or vB criteria based on an estimated fish BCF, but the weight of available evidence suggests that they can be considered to be B. HeptaBDEs are therefore considered to be a PBT substance.
- OctaBDE congeners meet the vP criteria, but probably do not meet the B criteria. They possibly meet the T criteria[2].

[2] The European Commission has proposed to identify octaBDE as a "Priority Hazardous Substance" in the context of the Water Framework Directive, because of its PBT properties (EC, 2012). However, it is understood that this refers to the commercial product, on the basis of its lower molecular weight PBDE content. The Environmental Quality Standard for "brominated diphenyl ether" only concerns the sum of six tetra- to heptaBDE congeners.

- NonaBDE congeners meet the vP criteria, but probably do not meet the B criteria. There are insufficient data to conclude on T.

Conclusion:

DecaBDE is very persistent and widely detected in many environmental compartments (including wildlife species). On the basis of the available data it can be concluded that there is a high probability that decaBDE is transformed in the environment to form substances which themselves have PBT/vPvB properties, or act as precursors to such substances, in individual amounts greater than 0.1% w/w over timescales of a year.

DecaBDE is therefore considered to meet the definition of a PBT/vPvB substance in accordance with Annex XIII of the REACH Regulation, and thereby fulfils the criteria in Articles 57(d) and (e).

Reference:

1. Support Document *Bis(pentabromophenyl) ether [decabromodiphenyl ether]* (Member State Committee, 29 November 2012)