Control status of Type I Monitoring Chemical Substances

March 26, 2008

1. Present status of application of CSCL*

As the result of revision of CSCL in 2003, persistent and highly bioaccumulative existing chemical substances are designated as Type I Monitoring Chemical substances until their toxicity is determined. Accordingly, it is requested that the actual conditions including the amounts of manufacture and import and their use be investigated. Thirty-five substances have been designated hitherto.

*CSCL: Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

- 1) Substances designated on September 22, 2004
 - (1) Mercury (II) oxide
 - (2) 1-tert-butyl-3,5-dimethyl-2,4,6-trinitrobenzene
 - (3) Cyclododeca-1,5,9-triene
 - (4) Cyclododecane
 - (5)1,2,5,6,9,10-Hexabromocyclododecane
 - (6) 1,1-Bis(tert-butyldioxy)-3,3,5-trimethylcyclohexane
 - (7) Tetraphenyltin
 - (8) 1,3,5-Tribromo-2-(2,3-dibromo-2-methylpropoxy)benzene
 - (9) O-(2,4-Dichlorophenyl) = O-ethyl phenylphosphonothioate
 - (10) 1,3,5-Tri-tert-butylbenzene
 - (11) Polybromobiphenyl (Br:2-5)
 - (12) Dipentenedimer or its hydrogenated derivatives
 - (13) 2-Isopropylbicyclo [4.4.0]decane or 3-isopropylbicyclo [4.4.0]decane
 - (14) 2,6-Di-tert-butyl-4-phenylphenol
 - (15) Diisopropylnaphthalene
 - (16) Triisopropylnaphthalene
 - (17) (The designation was cancelled on November 10, 2007.)
 - (18) 2,4-Di-tert-butyl-6-(5-chloro-2H-1,2,3-benzotriazol-2-yl)phenol
- 2) Designated on February 23, 2005.
 - (19) Chlorinated paraffin (C11, Cl=7-12)
 - (20) Diethylbiphenyl
 - (21) Hydrogenated terphenyl
 - (22) Dibenzyltoluene
- 3) Designated on January 13, 2006.
 - (23) Triethylbiphenyl
 - (24) N,N-Dicyclohexyl-1,3-benzothiazole-2-sulfenamide
 - (25) 2-(2H-1,2,3-Benzotriazol-2-yl)-6-sec-butyl-4-tert-butylphenol

- 4) Designated on January 29, 2007.
 (26) 2,4-Di-*tert*-butyl-6-[(2-nitrophenyl)diazenyl]phenol
 (27) Perfluoro (1,2-dimethylcyclohexane)
 (28) 2,2',6,6'-Tetra-*tert*-butyl-4,4'-methylenediphenol
- 5) Designated on May 31, 2007.
 - (29) Perfluorododecanoic acid
 - (30) Perfluorotridecanoic acid
 - (31) Perfluorotetradecanoic acid
 - (32) Perfluoropentadecanoic acid
 - (33) Perfluorohexadecanoic acid
 - (34) Perfluoroheptane
 - (35) Perfluorooctane
 - (36) 2,2,3,3,4,4,5-Heptafluoro-5-(perfluorobutyl)oxolane and/or 2,2,3,3,4,5,5-heptafluoro-4-(perfluorobutyl)oxolane
- Notification of the amount of manufacture, etc. for FY 2006 Among the 28 substances that had been designated by January 2007, 15 substances were manufactured or imported, of which the following 12 substances were manufactured or imported in volumes of 1 ton or more.

(See Attached sheet 1 for the manufacture and import quantities during the period from FY 2004 to FY 2006.)

		,	Unit. ton
Name of chemical substance	Manufacture and	Shipment by use	
	import quantities		
(3) Cyclododeca-1,5,9-triene	345	Raw material for	345
		Hexabromo	
		cyclododecane	
		(flame retardant)	
		Total	345
(5) 1,2,5,6,9,10-Hexabromo	3,937	Flame retardant for	
cyclododecane		resins	2,900
		Flame retardant for	
		fabrics	596
		Others	52
		Export	172
		Total	3,720
(11)	1	Others	1
Polybromobiphenyl(Br:2-5)		Total	1
(12) Dipentenedimer or its	2	Others	1
hydrogenated derivatives		Total	1
(15) Diisopropylnaphthalene	774	Solvent for	
		pressure-sensitive	

(Unit: tons)

		paper	448
		Heat media	127
		Solvents	162
		Others	19
		Export	13
		Total	769
(18)	549	Absorbent for	809
2,4-Di-tert-butyl-6-(5-chloro		ultraviolet light	
-2H-1,2,3-benzotriazol-2-yl)			
phenol		Total	809
(19) Chlorinated paraffin	10	Plasticizer	1
(C11, Cl=7-12)		Metalworking	
		lubricant	10
		Total	11
(21) Hydrogenated terphenyl	373	Heat media	248
		Solvents	50
		Others	88
		Total	386
(22) Dibenzyltoluene	905	Heat media	790
		Others	5
		Export	90
		Total	885
(24) N,N-Dicyclohexyl	3,383	Tire Vulcanization	
-1,3-benzothiazole		accelerator	1,894
-2-sulfenamide		Others	2
		Export	1,458
		Total	3,354
(25)	1	Absorbent for	
2-(2H-1,2,3-Benzotriazol-2-yl)		ultraviolet light	1
-6-sec-butyl-4-tert-butylphenol		Total	1
(28) 2,2',6,6'-Tetra- <i>tert</i> -butyl	187	Additive agent for	
-4,4'-methylenediphenol		rubber	2
		Additive agent for	
		resins	85
		Others	90
		Total	177

There is no notification of the amount of manufacture or import relating to the following substances.

- (1) Mercury (II) oxide
- (2) 1-tert-butyl-3,5-dimethyl-2,4,6-trinitrobenzene
- (4) Cyclododecane
- (6) 1,1-Bis(tert-butyldioxy)-3,3,5-trimethylcyclohexane

- (8) 1,3,5-Tribromo-2-(2,3-dibromo-2-methylpropoxy)benzene
- (9) O-(2,4-Dichlorophenyl) = O-ethyl phenylphosphonothioate
- (13) 2-Isopropylbicyclo [4.4.0]decane or 3-isopropylbicyclo[4.4.0]decane
- (14) 2,6-Di-tert-butyl-4-phenylphenol
- (16) Triisopropylnaphthalene
- (20) Diethylbiphenyl
- (23) Triethylbiphenyl
- (26) 2,4-Di-tert-butyl-6-[(2-nitrophenyl)diazenyl]phenol
- (27) Perfluoro (1,2-dimethylcyclohexane)

3. Results of monitoring investigations

The results of recent monitoring investigations of Type I Monitoring Chemical Substances conducted by the Ministry of the Environment are as follows: (Source: "Chemicals in the Environment — Report on Environmental Survey and Monitoring of Chemicals" 2006 Edition, published by the Ministry of the Environment)

1) 1,2,5,6,9,10-Hexabromocyclododecane(5)

Water quality was investigated in FY 2003, and no traces of this substance were detected in any of the 60 samples (taken at 20 points).

Bottom sediments were investigated in FY 2003, and traces of this substance were detected in three samples (taken at one point out of a total 15 points) out of the total 45 samples tested. The range of detection was between 0.085 and $0.14\mu g/g$ -dry.

Living organisms (fish) were investigated in FY 2004, and traces of this substance were detected in three samples (taken at one point out of a total six points) out of the total 18 samples tested. The range of detection was between 0.043 and $0.077 \mu g/g$ -wet.

2) Diisopropylnaphthalene(15)

Bottom sediments were investigated in FY 2005, and traces of this substance were detected in 17 samples (taken at six points out of a total seven points) out of the total 21 samples. The range of detection was between 0.0037 and $7.5\mu g/g$ -dry.

Living organisms (fish) were investigated in FY 2005, and traces of this substance were detected in 29 samples (taken at 10 points out of a total 18 points) out of the total 54 samples. The range of detection was between 0.00019 and $0.027\mu g/g$ -wet.

Living organisms (shellfish) were investigated in FY 2005, and traces of this substance were detected in nine samples (taken at three points out of a total six points) out of the total 18 samples. The range of detection was between 0.00023 and $0.0020\mu g/g$ -wet.

3) 2,4-Di-*tert*-butyl-6-(5-chloro-2*H*-1,2,3-benzotriazol-2-yl)phenol(18)

Water quality was investigated in FY 2005, and traces of this substance were detected in 68 samples (taken at 25 points out of a total 44 points) out of the total 152 samples. The range of detection was between 0.000094 and $0.028\mu g/L$

4. Status of voluntary control of Type I Monitoring Chemical substances

1) Activities for reduction of environmental emissions of flame retardants made from bromine compounds

With respect to 1,2,5,6,9,10-Hexabromocyclododecane (5) (HBCD), the Flame Retardant Chemicals Association of Japan, BSEF Japan, and other associations of manufacturers and importers of flame retardants have been promoting risk control of the total supply chain through the Voluntary Emissions Control Action Program (VECAP) since January 2007.

Furthermore, using this as a pivotal point in reducing emissions, users of HBCD and concerned parties in February 2008 finalized an action plan for reducing environmental emissions (see Attached Sheet 2). An estimate based on this action plan indicates that by 2014 environmental emissions are projected to have been reduced by at least 99.9% compared to FY 2006 levels (see Attached sheet 3).

(1) Flame retardants for resins

The Extruded Polystyrene Foam Industry Association has been promoting voluntary controls to reduce environmental emissions since January 2006. Furthermore, it is scheduled to reduce the use of HBCD by 5% by the end of FY 2013 through reviewing contents of products and the required flame retardancy for each application (base year: 2007).

This year, the Expandable Polystyrene Association introduced voluntary controls to reduce environmental emissions; furthermore, it is targeting replacement of all currently used substances with alternative substances by the end of 2012 by investigating the possibility of conversion to alternative substances and the supply capacity for such substances.

(2) Flame retardants for fabrics

The Japan Textile Federation has studied measures for reducing use of HBCD in textile products and aims to completely abolish use of HBCD by the end of 2013 by promoting conversion to flame-retardant raw materials and replacing HBCD with alternative substances so that both use and emissions of HBCD can be reduced. In terms of immediate measures that can be implemented in advance of total abolition, dyeing companies are planning to investigate methods of reducing emission volumes.

Meanwhile, the Japan Automobile Manufacturers Association, Inc. is targeting the total abolition of HBCD in fabrics by the end of 2010 through an ongoing program to progressively reduce the use of HBCD.

2) Present status of voluntary control of vulcanization accelerator for tires

With regard to *N*,*N*-Dicyclohexyl-1,3-benzothiazole-2-sulfenamide (24) (DCBS, commonly called "DZ"), the Vulcanization Accelerator DZ Voluntary Control Committee of the Japan Dyestuff and Industrial Chemicals Association established a voluntary control plan in March 2006, and risk control measures are being implemented not only by the manufacturers of DCBS but also in cooperation with users. The status of activities is published annually on the association's website.

Its application is limited to adhesion of steel and rubber, which compose the core portion of a tire; conversion to alternative substances was completed for uses with rubber in products other than tires by the end of 2007. (Reference)DCBS is used in adhesion of steel and rubber that compose the core portion of the tire, not the portion that undergoes wear through contact with the road surface. It is further suggested that DCBS added to the tire reacts with sulfur (as a vulcanizing agent) and zinc oxide (as a vulcanization accelerator) with the result that virtually no traces of the substance remain in the tire.

In the monitoring investigation conducted by Ministry of the Environment in 1998, no DCBS was detected in any of the samples out of the total 39 samples (taken from 13 points) of water quality and bottom sediments.

3) Present status of voluntary control of Chlorinated paraffin

Production of Chlorinated paraffin (19) has been suspended since FY 2006 and imports were halted this year.

Furthermore, whereas this substance has mainly been used as a metalworking lubricant, the Japan Metal Working Fluids Association, representing users of the lubricant, suspended purchasing in FY 2006.

- 4) Other substances voluntarily controlled by manufacturers and importers
 - (1) It is understood that producers of Dipentenedimer or its hydrogenated derivatives (12) have ceased production as of this year. There are no imports.
 - (2) Production of 2-(2*H*-1,2,3-Benzotriazol-2-yl)-6-*sec*-butyl-4-*tert*-butylphenol (25) stopped in 2006 and import quantities have decreased significantly.
 - (3) As to synthesized organic heat media^{note)}, the Heat Media Voluntary Control Committee of the Japan Dyestuff and Industrial Chemicals Association has established a voluntary control plan for risk management, and provides users with guidance and information on exposure control. The status of these activities is reported once a year and published on the association's website.
 - (4) It is also reported that manufacturers and importers of 2,4-Di-*tert*-butyl-6-(5-chloro-2*H*-1,2,3-benzotriazol-2-yl)phenol (18) are promoting conversion to alternative substances.

The current statuses mentioned above indicate that steady progress is being made in measures for reducing environmental emissions of Type I Monitoring Chemical Substances that have been actually manufactured or imported. Clearly, continuation of such measures is important.

Note: The following five substances: Diisopropylnaphthalene (15), Diethylbiphenyl (20), Hydrogenated terphenyl (21), Dibenzyltoluene (22), and Triethylbiphenyl (23). However, Diethylbiphenyl (20) and Triethylbiphenyl (23) were not manufactured or imported in either FY 2005 or FY 2006.

(Attached sheet 1)

			(Unit: tons	
		Fiscal year		
	2004	2005	2006	
(3) Cyclododeca-1,5,9-triene	302	345	345	
(5) 1,2,5,6,9,10-Hexabromocyclododecane	3,443	3,097	3,937	
(6) 1,1-Bis(tert-butyldioxy)-3,3,5-trimethylcyclohexane	108	-	-	
(11) Polybromobiphenyl(Br:2-5)	-	-	1	
(12) Dipentenedimer or its hydrogenated derivatives	-	1	2	
(15) Diisopropylnaphthalene	608	688	774	
(18) 2,4-Di-tert-butyl-6-(5-chloro-2H-1,2,3-benzotriazol-2-yl)phenol	753	532	549	
(19) Chlorinated paraffin(C11, Cl=7-12)	279	54	10	
(20) Diethylbiphenyl	350	-	-	
(21) Hydrogenated terphenyl	659	284	373	
(22) Dibenzyltoluene	649	729	905	
(24) N,N-Dicyclohexyl-1,3-benzothiazole-2-sulfenamide		3,453	3,383	
(25) 2-(2H-1,2,3-Benzotriazol-2-yl)-6-sec-butyl-4-tert-butylphenol		24	1	
(28) 2,2',6,6'-Tetra-tert-butyl-4,4'-methylenediphenol			187	

Changes in manufacture and import quantities of Type I monitoring chemical substances

Note: 2-(2H-1,2,3-Benzotriazol-2-yl)-4,6-di-tert-butylphenol (17) was designated as a Class I specified chemical substance on November 10, 2007.

(Attached sheet 2)

Voluntary measures for reducing environmental emissions of HBCD

								As of March 26, 2008.
		Transaction volume in FY 2006 note 1	Conversion to alternative substances or reduction of used amount	Reduction ratio	Measures for reducing emissions during production and from end products	Remarks		
Manufactur e and import	Ifactur and Manufacturer port			3,937 tons			 *Fine particles are collected by installing dust collectors. *Fine particles in wastewater are separated by sedimentation, and floating particles and dissolved constituents are treated by coagulation. *Waste fine particles, sludge, and packing materials are incinerated. 	*Activities to promote VECAP (risk management in the total supply chain) are being promoted.
	i T		· · · · · ·		*Used amount is reduced by reviewing the content in the			
Use	Flame retardant for resins	Extruded expanded polystyrene	Producer	2,900 tons	To see amount is reduced by revewing the content in the products and necessity of flame retardancy for each application. *Conversion to alternative substances is promoted by the total industry segment.	5% reduction by the end of 2013.	 * Fine particles are collected by installing dust collectors. * Environmental emissions due to wastewater are monitored. * Waste fine particles, sludge, and packing materials are treated as industrial waste (incinerated). * The industrial association is asking concerned parties to incinerate used expanded polystyrene products. 	*Fire protection and fire-resistant structures have been approved in accordance with the Building Codes.
		Bead expanded	Bead producer		*Conversion to alternative substances is promoted after establishing the technology for the practical use of alternative substances and investigating the supply capacity for these substances.	5% reduction by the end of 2010. 10% reduction by the end of 2011. 100% reduction by the end of 2012.	 * Fine particles are collected by installing dust collectors. * Environmental emissions due to wastewater are monitored. * Waste fine particles, sludge, and packing materials are treated as industrial waste (incinerated). * The industrial association is asking concerned parties to incinerate used expanded polystyrene products. 	*Use is limited to those applications that require flame retardancy (about 10%) such as fire protection measures in construction work (guided by Tokyo Fire Department).
		porystyrene	Foam molding producer				*The industrial association is asking concerned parties to incinerate used expanded polystyrene products.	*Some products are approved for fire protection and fire-resistant structures in accordance with building codes.
		Producer o retardant trea	of flame- itment agent	t	*Conversion to alternative substances and reduction of used volume are being studied.		*Fine particles are collected by installing dust collectors. *Waste fine particles, sludge, and packing materials are treated as industrial waste (incinerated).	
	Flame retardant for textiles	Dyeing companies			*To reduce the used volume, conversion from treating in the same bath with dyes to separate treatment and high- temperature treatment combined with special pretreatment to HBCD are being studied.	<u>Interior fabrics ></u> 4% reduction for interior fabrics by the end of FY 2009.	*To reduce emissions through wastewater discharge, a process to separate sedimentation before activated sludge treatment of HBCD-containing wastewater will be studied. *In respect of sludge, conversion from landfill disposal to incineration will be studied. *In addition, we will switch from purchasing in 20 kg cans to specifying 1 ton containers and suppliers w be asked to reduce the use of HBCD.	an .
		596 tons Interior fabric companies	*Review of required performance will be implemented for those products to which excessive flame retardancy is applied. *Conversion to flame-retardant raw materials will be promoted. *Conversion to flame retardants such as phosphorous compounds will be promoted. *Use of HBCD will be completely abolished by the end of FY 2013.	45% reduction by the end of FY 2011. 100% reduction by the end of FY 2013. <u><car fabric=""></car></u> 100% reduction by the end of 2010.		*Curtains used in theaters, inns, hotels, and hospitals must be "fire protection products" that meet the requirements for fire protection standards stipulated in the Fire Defense Law.		
		Car fabric c	companies		*Use of HBCD will be totally abolished by the end of 2010.		-	*Flame-retardant materials must be used in accordance with the safety standards based on the Road Trucking Vehicle Law.
	E E	xport and othe	ers	224 tons				

Note 1: Based on notifications by manufacturers and importers relating to production volume, etc. in accordance with the Chemical Substances Control Law. Note 2: Action plans are underlined.

(Attached sheet 3)

Effects of the action plans on reduction of environmental emissions of HBCD (estimated values)



Note 1: The emissions amount in FY 2006 is taken as 100.

Note 2: The environmental emissions by each industry category are calculated by multiplying the present ratio of environmental emissions for the category (based on declarations of companies' emissions/use amounts) by scheduled use amounts. The industry categories include: producers of extruded expanded polystyrene, producers of bead expanded polystyrene, and producers of treatment agents for flame-retardancy as well as dyeing companies.

Note 3: The scheduled use amounts are calculated based on the action plans for each industry category.