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LCD TV
(Non-Halogen)
(Phosphorus) 가
가
가 (Bromine)
(P4) 2008 1-4
가 800%
가

가
가
2008 3 EU
TBBPA(Tetra-Bromobisphenol-A)가

(Inorganic) 가
KC가
(Aluminium Hydroxide)
2009 50% 가
가
(IEC)가

가
가

TBBPA

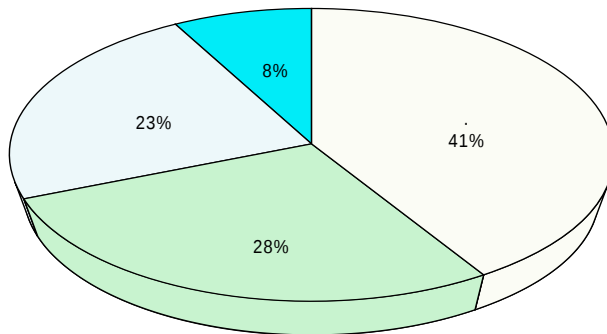
, , , 가

, ,

가

가

(2011)



) CMRI

TBBPA

(: M/T)

2004	2005	2006	2007
25 094	21 487	23 125	9 610
662	5 474	4 901	5 292
10 109	4 854	3 684	8 363
3 989	2 069	1 881	2 932
1 371	1 873	4 467	4 067
0	204	102	0
81	145	969	1 007
41 306	36 106	39 129	31 288

† HS Code 2908102000, 2908192000(2007)

) KITA

DBDPO

(: M/T)

2004	2005	2006	2007
12 791	9 809	3 744	938
2 290	2 286	2 033	3 112
2 179	1 346	1 187	250
72	46	0	0
5	0	0	0
17	0	0	0
17 354	13 487	7 006	4 300

) KITA

가

가 가
PC(Polycarbonate)-ABS(Acrylonitrile
Butadiene Styrene)

TBBPA
2004 3 9129 2007 3
1288 25% 가
2006 7 RoHS()
< >

DBDPO
(Decabromodiphenyl Oxide)
2004 1
7354 , 2005 1 3478 , 2006
7006 , 2007 4300

TBBPA
가

Triadine
가 가

가 , 가 ,
“
가

가
가 “

“ ”
8
2008 3 EU(
) TBBPA
RA(Risk Assessment)

(: M/T)			
Daihachi Chemical	20 000	2009	10 000
Chemtura	6 000	2009	10 000
ICL-IP	6 000	-	-
Adeka	20 000	2009	10 000
Albemarle*	4 000	-	-
Chineses	5 000	2009	10 000
*			

(ATH)				
(: M/T)				
	2004	2005	2006	2007
	71 493	59 680	71 348	59 483
	36 722	54 620	54 477	60 111
	4 020	3 379	4 567	14 174
AUS	2 377	5 853	5 241	4 684
	2 590	2 088	2 977	3 860
	0	5 400	1 200	0
	0	349	462	7 519
	460	400	240	300
가	41	21	99	196
	117 703	131 790	140 611	150 428
) KITA				

(: M/T)				
	2004	2005	2006	2007
	2 523	2 934	1 376	1 962
	587	369	330	281
	234	452	320	803
	195	375	447	361
	92	94	206	532
	223	114	114	299
	1 598	351	1 341	4 734
	11	0	95	548
	5 464	4 689	4 229	9 519
) KITA				

(: M/T)				
	2004	2005	2006	2007
	8 280	9 497	7 282	4 526
	221	76	4	504
	221	219	192	184
	17	30	20	6
	87	5	8	1
	0	6	0	17
	0	0	0	0
	8 826	9 833	7 506	5 237
) KITA				

PCB() 가

가

, Polybromodiphenyl

Pentabromophenylether, Octabromodiphenylether

RA

DBDP 3

RA

RoHS

, EU

DBDP

RoHS 5 <DBDP

가

가

가

(2007)

(: M/T)

가

TBBPA

TBBPA	25 000	Chemtura(Chemtura Japan), ICL-IP(ICL-IP) Albemarle(Albemarle Japan), Tosoh, Teijin Kasei
DBDPO	1 700	Chemtura, ICL-IP, Albemarle, Tosoh, Manac, Nippon Chemicals, Mitsui Chemical Fine
HBCD	3 000	Daiichi Kogyo Seiyaku, Chemtura, ICL-IP, Albemarle,
TBP	3 500	ICL-IP, Chemtura, Manac
Ethylene Bistetra Bromo Phthalimide	1 500	Albemarle
TBBPA PC Oligomer	3 000	Teijin Kasei, Chemtura
PS	7 500	Chemtura, Albemarle, Manac
TBBPA Epoxy Oligomer	10 000	DIC, Sakamoto Yakuin, Tohto Kasei, Dainich, Kogyo Seiyaku Manac, ICL-IP, Asahi Kasei Chemicals, Hitachi Kasei
TBBPA Bisdibromo Propyl Ether	800	Tosoh, Chemtura, ICL-IP, Daiichi Kogyo Seiyaku, Albemarle
Ethylene Bispentabromo Diphenyl	6 000	Albemarle, Chemtura
Penta Bromo Benzyl Acrylate	1 400	ICL-IP
Hexa Bromo Benzene	350	Nippon Chemicals, Manac
Triadine	2 000	Daiichi Kogyo Seiyaku
Phosphoric Acid Ester	25 000	Daihachi Chemical, Adeka, AKEO, Daiichi Kogyo Seiyaku Albemarle, Showa Ether, ICL-IP, Clariant, Sanko, Ajinomoto Fine Techno
Halogen Phosphoric Acid Ester	4 000	Albemarle, Daihachi Chemical, ICL-IP, Adeka, Daiichi Kogyo Seiyaku, Mitsui Chemicals
Ammonium Polyphosphate	1 000	Clariant
Red Phosphorus	500	Rinkagaku, Clariant, Nippon Chemical
Phosphaphenanthrene	1 500	Sanko
Phosphazene	1 500	Fushimi Pharmaceutical
Chlorinated Paraffin	4 300	Tosoh, Ajinomoto Fine Techno, Adeka
Pachlorocyclopentadecan	600	Oxy Dental Chemical
Ahtimony Trioxide	14 700	Nippon Seiko Yamanack, Toko, Suzuhiro Chemical, Mitsui Chemical Fine, Chemtura, Nagase, Daiichi Kagyo Seiyaku
Aluminium Hydroxide	42 000	Showa Denko, Sumitomo Chemical, Nippon Light Metal, Ishizuka Glass
Nitrification Guanidine	5 000	Sanwa Chemical
Antimony Pentoxide	1 000	Nissan Chemical, Nippon Seiko
Magnesium Hydroxide	14 000	Kyowa Chemical, Sakai Chemical, Konoshima Chemical, Albemarle, ICL-IP

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가

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가

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ABS

LG

Chemtura
P·B·T() < >
REACH
Albemarle DBDP <SAYTEX8010> (Polyamide) 가
PS (Polystyrene) , Kyowa Kagaku
가
ICL-IP , Manac
PS(Polystyrene) , Triadine <SR-245> 2
(Phosphoric Acid Ester)
Tosoh . UL V0, V2
<GREP>
Daiichi Kogyo Seiyaku Triadine, TBBPA Epoxy Oligomer
, Triadine <SR-245> , HIPS ABS PBT(Polybutylene
Terephthalate), PC-ABS EP(Engineering Plastic) 가 ICL-IP
9000 1 6500
Adeka PBT
Daihachi
PP(Polypropylene), PVA(Polyvinyl Acetate), EVA(Ethylene Vinyl Acetate)
가 가 가
가 가
2008 1 “ ”
가
2007 100 가 TBBPA
8 70-80% 2007 20-
30% 가 6 2
2000 2000 2007 8000
2008 1
LCD·PDP TV PC-ABS
2007 SDI TV 가 PC-ABS 가 가
SDI가
가 PC-ABS 100%
, TV 가 가 가 가
가 가
가 800% “ ”
가
P4 가 2006-07 1000 2008
2008 가 400%, 가 800%

가 , (Sichuan)
2008-09
가
(Phosphine) (Phosgene) 가
0.3pmn ,
가 가
Daihachi Chemical Adeka가 RDP · BDP
Chemtura, Albemarle, ICL-IP
PC PPE(Polyphenylene Ether),
가
Daihachi Chemical Aichi Banda 2005 (Shanghai)
<CR-741> 2 <CR-
900> ICL-IP
Adeka <PFR> <FP>
Kagoshima Changchun Chemical, Changshu
3 2 3000 2009 4 Changshu 3 3000
Adeka Intumescent <Adekastab FP-2000>
<Adekastab FP-2000> 가
가 가 , Intumescent (Polyolefin)
가
“ ”
(Antimony Trioxide)
(Magnesium Hydroxide),
가
2004 11 7000 , 2005 13 1000 , 2006 14 가 가
2007 15
가
KC 2006 12 2007
2009 50%
KC 2007 가
가
2006 7 2007 6 1 가

Kyowa Kagaku 가 2007-08 가 가 ,
 2007 55.6% 가 9519
 2006 1376 1 , 1341 2 2007 4734
 가 가
 1 4000 PVC
 (Olefin)
 Kyowa Kagaku 가 , Konoshima Chemical
 가 가 가
 Albemarle 가 <MAGNIFIN>
 , Oxy Dental Chemical Pachlorocyclopentadecan EP 가
 EP, 가
 2005 가 2006 7000 , 2007 500 가
 2-3% 1 4700 가 6200
 가
 Nippon Seiko <PATOX> 1 ,
 EP 가가
 Suzuhiro Chemical <AT3>
 <FCP>
 가 가
 2008 가
 Chemtura가 가 15% 가
 BPADP 가 1999 3 2005-06 가 가
 1.8-1.7 2007 3/4 LCD TV 가 2.6-2.7
 TBBPA 2007 2400-2500 2008 2800-2900
 가 3000
 가 2007 760-850 2008 870-970
 , 380 410-430 가 2600-2700
 CJ
 < 2008/9/29>