

Annex 3. Determination of hazard profiles for substitute flame retardants and plasticisers

Substance	CAS No	EU CLP and REACH systems		Supplementary evidence	Determination of hazard profile
		C&L Inventory	REACH Register		
Flame retardants used in Printed Wiring Boards					
Tetrabromobisphenol (TBBPA)	79-94-7	CLP harmonised classification H400, H410	Registered, conclusive with no data gaps	n/a	Group 2: H400, H410
Dihydrooxaphosphaphenanthrene (DOPO) CAS No	35948-25-5	REACH Joint Entry: Not classified	Registered, conclusive with data gaps. <i>Data gaps:</i> Acute toxicity (dermal, inhalation), Reproductive, Carcinogenicity.	US EPA PCB study: Aquatic toxicity, medium (H411, H412)	Group 3: H411, H412
Aluminium hydroxide (ATH)	21645-51-2	REACH Joint Entry: Not classified	Registered, conclusive with no data gaps.	n/a	Not classified
Fyrol PMP (Aryl Alkylphosphinate)	63747-58-0	No entries	Not registered	US EPA PCB study: Persistent, high (P)	Group 3: H413
Aluminium salts of diethylphosphinic acid (AlPi)	225789-38-8	No entries	Not registered	US EPA DecaBDE study: Developmental, medium (H361d), Aquatic toxicity, medium (H411, H412); Repeated dose, medium (H371/H373); Persistent, high (P)	Group 2: P, H411, H412, H361d, H371, H373

Melamine Polyphosphinate synergist	15541-60-3	Grouped notifications, not classified	Not registered	US EPA DecaBDE study: Persistent, high (P); Carcinogenicity, medium (H351), Mutagenicity (H341); Repeated dose, medium (H371/H373)	Group 2: P, H351, H341, H371, H373
Flame retardants used in connectors and sockets					
Ethane bis (pentabromophenyl) (EBP)	84852-53-9	REACH Joint Entry: Not classified	Registered, conclusive no classifications. <i>Data gaps:</i> Carcinogenicity	US EPA DecaBDE study: Carcinogenicity, medium hazard (H351)	Group 2: H351
Antimony Trioxide synergist	1309-64-4	CLP harmonised classification H351	Registered, conclusive with no data gaps	n/a	Group 2: H351
Ethylene 1,2 bis(tetrabromophthalimide) (EBTBP)	32588-76-4	REACH Joint Entry: Not classified	Registered, conclusive no classifications. <i>Data gaps:</i> Carcinogenicity, Reproductive (lactation)	No Peer Agency studies identified	<i>Not possible to determine</i>

Melamine cyanurate <i>with phosphorus synergist</i>	15541-60-3	Grouped notification, not classified	Not registered	US EPA DecaBDE study: Persistence, very high (vP); Carcinogenicity, medium (H351); Genotoxicity, medium (H341); reproductive, medium (H361f); Developmental, medium (H361d), Repeated dose, high (H370, H372)	Group 1: vP with H370, H372
Aluminium salts of diethylphosphinic acid (AlPi) <i>with Melamine Polyphosphinate synergist</i>	225789-38-8	No entries	Not registered	US EPA DecaBDE study: Developmental, medium (H361d), Aquatic toxicity, medium (H411, H412); Repeated dose, medium (H371/H373); Persistent, high (P)	Group 2: P, H411, H412, H361d, H371, H373
Magnesium hydroxide (MDH)	1309-42-8	REACH Joint Entry: Not classified	Registered, conclusive no classifications.	US EPA DecaBDE study: Persistence, high (P)	Group 3: H413
Flame retardants used in external power cables and power packs					
Ethane bis (pentabromophenyl) (EBP) <i>with antimony or zinc synergist</i>	84852-53-9	REACH Joint Entry: Not classified	Registered, conclusive no classifications. <i>Data gaps:</i> Carcinogenicity	US EPA DecaBDE study: Carcinogenicity, medium hazard (H351)	Group 2: H351

Ethylene 1,2 bis(tetrabromophthalimide) (EBTBP) with antimony or zinc synergist	32588-76-4	REACH Joint Entry: Not classified	Registered, conclusive no classifications. <i>Data gaps:</i> Carcinogenicity, Reproductive (lactation)	No Peer Agency studies identified	<i>Not possible to determine</i>
Triaryl phosphate (TXP) plasticiser	25155-23-1	Harmonised classification H360f REACH Joint entry: H373, H400, H410	Registered, conclusive with no data gaps	n/a	Group 1: H360f
Triaryl phosphate (TCP) plasticiser	1330-78-5	REACH Joint Entry, H361, H400, H410	Registered, conclusive with no data gaps	n/a	Group 2: H361, H400, H410
Aluminium hydroxide (ATH) with zinc synergist	21645-51-2	REACH Joint Entry: Not classified	Registered, conclusive with no data gaps.	n/a	Not classified
Magnesium hydroxide (MDH) with zinc synergist	1309-42-8	REACH Joint Entry: Not classified	Registered, conclusive no classifications.	US EPA DecaBDE study: Persistence, high (P)	Group 3: H413
Zinc borate synergist	1332-07-6	Grouped notifications	Not registered	US EPA DecaBDE study: genotoxicity, high (H340); reproductive, medium (H361f); developmental, medium (H361d); Aquatic toxicity, high (H400, H410); Persistence, high (P)	Group 1: H340, H400, H410

Bisphenol A Bis (diphenyl Phosphate)	5945-33-5	REACH Joint Entry: Not classified	Registered, conclusive no classifications.	Green Screen assessment: Unclassified, data gaps for carcinogenicity, reproductive toxicity.	Not classified
Cresyl diphenyl phosphate	26444-49-5	Grouped notifications, self-classifications	Not registered	No Peer Agency studies identified	<i>Not possible to determine</i>
Ammonium polyphosphonate	68333-79-9	Grouped notifications, self-classifications	Not registered	US EPA DecaBDE study: persistence, very high (vP)	Group 3: H413
Aluminium salts of diethylphosphinic acid (AlPi) with Melamine Polyphosphinate synergist	225789-38-8	No entries	Not registered	US EPA DecaBDE study: Developmental, medium (H361d), Aquatic toxicity, medium (H411, H412); Repeated dose, medium (H371/H373); Persistent, high (P)	Group 2: P, H411, H412, H361d, H371, H373
Melamine Polyphosphinate synergist	15541-60-3	Grouped notifications, not classified	Not registered	US EPA DecaBDE study: Persistent, high (P); Carcinogenicity, medium (H351), Mutagenicity (H341); Repeated dose, medium (H371/H373)	Group 2: P, H351, H341, H371, H373
Flame retardants used in plastic casings and bezels					
Ethane bis (pentabromophenyl) (EBP)	84852-53-9	REACH Joint Entry: Not classified	Registered, conclusive no classifications. <i>Data gaps:</i> Carcinogenicity	US EPA DecaBDE study: Carcinogenicity, medium hazard (H351)	Group 2: H351

Antimony Trioxide synergist	1309-64-4	CLP harmonised classification H351	Registered, conclusive with no data gaps	n/a	Group 2: H351
Triphenyl phosphate	115-86-6	REACH Joint Entry: H400, H411	Registered, conclusive with no data gaps	n/a	Group 2: H400, H411
Resorcinol Bis (Diphenyl Phosphate)	125997-21-9	Self-classifications, H400, H412	Not registered	US EPA DecaBDE study: Aquatic toxicity, very high hazard (H400, H410), high bioaccumulation (B)	Group 2: B, H400, H410
Bisphenol A Bis (diphenyl Phosphate)	5945-33-5	REACH Joint Entry: Not classified	Registered, conclusive no classifications.	Green Screen assessment: Unclassified, data gaps for carcinogenicity, reproductive toxicity.	Not classified
RDX: Resorcinol bis(2,6-dixylenyl phosphate)	139189-30-3	CLP harmonised classification H413	Registered, conclusive with data gaps. <i>Data gaps:</i> Acute toxicity (inhalation), Aspiration, Reproductive (lactation), Carcinogenicity.	n/a	<i>Not possible to determine</i>
Plasticisers used in external power cables and power packs					
DEHP	117-81-7	REACH Joint Entry, H360fd	Candidate List, H360fd	n/a	Group 1: H360fd

DIDP	26761-40-0	Divergent self-classifications (100 non-classifications, H400, H400/410, H411)	Not registered	No Peer Agency studies identified	<i>Not possible to determine, but noting that EU risk assessments have been carried out.</i>
DINP	28553-12-0	REACH joint entry: Not classified	Registered: conclusive not classified.	Green Screen assessment: Benchmark 1 based on reproductive and developmental toxicity.	Not classified, EU risk assessments have been carried out.
Trioctyl trimetallate (TOM/TOTM)	3319-31-1	REACH joint entry: Not classified	Registered: conclusive not classified.	Green Screen assessment: Unclassified based on gaps for carcinogenicity. It may be Benchmark 1 or 2.	Not classified
Dioctyl terephthalate (DOTP)	6422-86-2	REACH joint entry: Not classified	Registered: conclusive not classified.	Green Screen assessment: Benchmark 3	Not classified
Hexamoll DINCH	166412-78-8	REACH Joint Entry: Not classified	Registered, conclusive with data gaps. Data lacking: Acute toxicity (inhalation)	Green Screen assessment: Benchmark 2 based on endocrine activity and persistence (P)	Group 3: H413

Priplast DOZ	103-24-2	REACH Joint Entry: Not classified	Registered, conclusive with data gaps. Data lacking: Carcinogenicity, reproductive (lactation)	Green Screen assessment: Unclassified based on gaps for carcinogenicity. It may be Benchmarks 1 or 3	<i>Not possible to determine</i>
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