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January 2020

REACH and Samsung Electronics' Products

Regulation No 1907/2006 on the *Registration, Evaluation, Authorisation and Restriction of Chemicals* (REACH)[1] entered into force on 1st June 2007. Under REACH, companies operating in the EU face certain obligations as manufacturers, importers and/or downstream users. One of the key requirements is the *Duty to Communicate Information on Substances in Articles* (Article 33).

Article 33: Information for Recipients & Customers

Article 33 of REACH requires suppliers to inform recipients and respond to consumer enquiries if an article contains more than 0.1% (by weight per article) of any substance on the SVHC candidate list[2] published by the European Chemicals Agency (ECHA).

Samsung Electronics Co. Ltd (SEC) provides Article 33 information as follows. In addition, all consumers can use the contacts below to submit queries relating to the REACH obligations in Samsung Electronics' products.

With kind regards,

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[1] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:396:0001:0849:EN:PDF
[2] SVHC = Substances of Very High Concern. Considered as candidates for inclusion in Annex XIV of REACH. The latest revision to the candidate list was published by the European Chemicals Agency on 16th January 2020 at: https://echa.europa.eu/candidate-list-table

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The majority of products and packaging as manufactured and/or supplied by Samsung Electronics Co. Ltd (SEC) do not contain substances on the REACH SVHC candidate list in concentrations greater than 0.1% by weight per article[3]. The limited numbers of articles affected are listed below. This is the status as of January 2020.

Substance	EC No.	CAS No	Individual articles affected	Application
1,3-propanesultone	214-317-9	1120-71-4	Batteries from Samsung Electronics products may potentially contain 1,3-propanesultone above 0.1% by weight.	Battery electrolyte
Lead monoxide (lead oxide)	215-267-0	1317-36-8	Samsung Electronics products may potentially contain Lead monoxide above 0.1% by weight.	Hardener, glass, resistor, glaze paste
Lead titanium trioxide	235-038-9	12060-00-3	Ceramics in Samsung Electronics products may potentially contain Lead titanium trioxide above 0.1% by weight.	Component of capacitors, filler
Lead titanium zirconium oxide	235-727-4	12626-81-2	Ceramics in Samsung Electronics products may potentially contain Lead titanium zirconium oxide above 0.1% by weight.	Main material of ceramic, ceramic resonator
Diboron trioxide	215-125-8	1303-86-2	Resistors in Samsung Electronics products may potentially contain Diboron trioxide above 0.1% by weight.	Resistive element
1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	219-514-3	2451-62-9	Resins in Samsung Electronics products may potentially contain 1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC) above 0.1% by weight.	Curing agent, PCB ink, resin
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	247-384-8	25973-55-1	Displays in Samsung Electronics products may potentially contain 2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328) above 0.1% by weight.	Preventing UV, polarizer, crosslinking agent

[3] Reference: ECHA Guidance on requirements for substances in Articles.

Substance	EC No.	CAS No	Individual articles affected	Application
4,4'-isopropylidenediphenol (Bisphenol A; BPA)	201-245-8	80-05-07	Dielectric layer and resins in Samsung Electronics products may potentially contain 4,4'-isopropylidenediphenol (Bisphenol A; BPA) above 0.1% by weight.	Impurity and by product
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide)) (ADCA)	204-650-8	123-77-3	Packaging in Samsung Medical Devices may potentially contain ADCA above 0.1% by weight.	Blowing agent(Cushion)
Hexahydromethylphthalic anhydride	247-094-1	25550-51-0	Samsung Electronics products may potentially contain Hexahydromethylphthalic anhydride above 0.1% by weight.	Semiconductor chip(HBM package), protect a wafer, hardener
Lead	231-100-4	7439-92-1	Samsung Electronics products may potentially contain Lead above 0.1% by weight.	Solder, ceramic, glass. copper alloy, diode
Boric acid	233-139-2	10043-35-3	Displays in Samsung Electronics products may potentially contain Boric acid above 0.1% by weight.	PVA crosslinking agent, PH buffer
4,4'-Diaminodiphenylmethane (MDA)	202-974-4	101-77-9	Thermistors in Samsung Electronics products may potentially contain 4,4'-Diaminodiphenylmethane (MDA) above 0.1% by weight.	Thermistor
Ethylenediamine (EDA)	203-468-6	107-15-3	Samsung Electronics products may potentially contain Ethylenediamine (EDA) above 0.1% by weight.	Plating, stabilizer
N,N-dimethylacetamide	204-826-4	127-19-5	Samsung Electronics products may potentially contain N,N-dimethylacetamide above 0.1% by weight.	Impurity
Cadmium oxide	215-146-2	1306-19-0	Thermistors in Samsung Electronics products may potentially contain Cadmium oxide above 0.1% by weight.	Thermistor
1-Methyl-2-pyrrolidone (NMP)	212-828-1	872-50-4	TFTs in Samsung Electronics products may potentially contain 1-Methyl-2-pyrrolidone (NMP) above 0.1% by weight.	TFT stripping process, impurity, solvent

Substance	EC No.	CAS No	Individual articles affected	Application
Cadmium	231-152-8	7440-43-9	Brass in Samsung Electronics products may potentially contain Cadmium above 0.1% by weight.	Brass
1, 2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	203-794-9	110-71-4	Samsung Electronics products may potentially contain 1, 2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME) above 0.1% by weight.	Solvent
Cobalt(II) sulphate	233-334-2	10124-43-3	Samsung Electronics products may potentially contain Cobalt(II) sulphate above 0.1% by weight.	Bracket, plating, surface treatment
cis-cyclohexane-1,2-dicarboxylic anhydride	236-086-3	13149-00-3	LEDs in Samsung Electronics products may potentially contain cis-cyclohexane-1,2-dicarboxylic anhydride above 0.1% by weight.	Part of LED
trans-cyclohexane-1,2-dicarboxylic anhydride	238-009-9	14166-21-3	LEDs in Samsung Electronics products may potentially contain trans-cyclohexane-1,2-dicarboxylic anhydride above 0.1% by weight.	Part of LED
Pyrene	204-927-3	129-00-0	Rubbers in Samsung Electronics products may potentially contain Pyrene above 0.1% by weight.	Rubber in encapsulation, capacitor, resistor
Phenanthrene	201-581-5	85-01-8	Rubbers in Samsung Electronics products may potentially contain Phenanthrene above 0.1% by weight.	Rubber in capacitor
Fluoranthene	205-912-4	206-44-0	Rubbers in Samsung Electronics products may potentially contain Fluoranthene above 0.1% by weight.	Rubber in encapsulation
Benzo[ghi]perylene	205-883-8	191-24-2	Rubbers in Samsung Electronics products may potentially contain Benzo[ghi]perylene above 0.1% by weight.	Rubber in encapsulation
2-ethoxyethyl acetate	203-839-2	111-15-9	Samsung Electronics products may potentially contain 2-ethoxyethyl acetate above 0.1% by weight.	Solvent
Cyclohexane-1,2-dicarboxylic anhydride	201-604-9	85-42-7	LEDs in Samsung Electronics products may potentially contain Cyclohexane-1,2-dicarboxylic anhydride above 0.1% by weight.	LED frame

Substance	EC No.	CAS No	Individual articles affected	Application
2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	404-360-3	119313-12-1	PCBs in Samsung Electronics products may potentially contain 2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone above 0.1% by weight.	Photo initiator
2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	400-600-6	71868-10-5	PCBs in Samsung Electronics products may potentially contain 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one above 0.1% by weight.	Photo initiator, hardener, crosslinking agent