HMD Substance List

Version:	3.0
Effective Date:	1 October 2025
Audience:	All HMD Suppliers

Contents

1 Purpose and scope

HMD Global Oy ("HMD") recognizes the need to identify and control the materials and substances used in its products and sales packaging. In this document, HMD/our/we/Company refer to HMD Global Oy ("HMD") and all its affiliates. For this purpose, HMD has compiled the HMD Substance List ("HSL"). The list specifies the substances HMD has restricted, targeted to reduce, or required to be reported. All substances used in HMD products shall be safe for humans and the environment. These requirements are global. This list and timetables are subject to change in light of further scientific evidence, legislation or other facts, at the sole discretion of HMD.

The scope of the restrictions is generally defined (unless specifically restricted for processing in the restriction table) as materials and substances present in the final product. The requirements apply for applications in HMD products including components, materials, parts, assemblies, accessories and packaging materials.

Compliance with this list does not exempt manufacturer/seller/supplier from any legal requirements, and it is the responsibility of manufacturer/seller/supplier to follow the latest legislative developments related to materials and substances. Further, if the manufacturer/seller/supplier has reason to believe that any substance, listed or otherwise, may create risk of harm to persons, the environment or products, the manufacturer/seller/supplier shall alert HMD of the potential harm.

2 Definitions

'Accessory' – A non-electronic device that is not essential in itself, but adding to the convenience, or effectiveness of a product.

'Article' - An object, which during production is given a special shape, surface or design, and which determines its function to a greater degree than does its chemical composition. This definition is aligned with the EU REACH Regulation. https://echa.europa.eu/en/regulations/reach/candidate-list-substances-in-articles

'Assembly' – A (semi) finished combination of parts.

'Battery' – or 'accumulator' is any source of electrical energy generated by direct conversion of chemical energy and consisting of one or more non-rechargeable cells or one or more rechargeable cells. This definition is aligned with the EU Battery Directive.

'CAS number' - Chemical Abstract Service number, which is a unique numerical identifier assigned to the substance. The same substance may have several different names, all having the same CAS number (e.g. acetone is also named 2-propanone, but only one CAS number: 67-64-1).

Conversion between units: ppm (parts per million), ppb (parts per billion) and percent (%) – Conversion instructions:

> To convert percent (%) to ppm multiply by 10 000, e.g. 0.1% = 0.1 * 10 000 = 1000 ppm
>
> To convert ppm to percent (%), divide by 10 000, e.g. 900 ppm = 900 / 10 000 = 0.09 %
>
> To convert ppm to ppb multiply by 1000, e.g. 0.025 ppm = 0.025 * 1000 = 25 ppb
>
> To convert ppb to ppm, divide by 1000, e.g. 100 ppb = 100 / 1000 = 0.1 ppm

'Exemptions' – Applications where the use of a restricted substance is permitted, such as RoHS exemptions and HMD Substance List exemptions.

'Homogeneous material' - A material of uniform composition throughout, or a material, consisting of a combination of materials, that cannot be disjointed or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes. Examples are individual types of plastics, ceramics, glass, metals, alloys, resins, and coatings. For example, a stainless-steel screw is a "homogeneous material", but a semiconductor package contains many homogeneous materials, which include plastic molding material, tinplating on the lead-frame, the lead-frame alloy, and bonding wires. This definition is from RoHS.

'Impurity' - A substance contained in a natural material, but which is not completely removed in the refining process (i.e. natural impurities), or which is generated in a reaction process but is not completely removed.

'Intentionally introduced' or 'intentionally added' - For the purposes of this document: 'Intentionally introduced' or 'intentionally added' shall mean deliberately used in (the formulation of) a material or part/component where its continued presence is desired in the final product to provide a specific characteristic, appearance or quality (Lowell Center for Sustainable Production, Green Chemistry & Commerce Council: Meeting Customers' Needs for Chemical Data A guidance document for suppliers, February 2011). The use of recycled materials as feedstock for the manufacture of new products, where some portion of the recycled materials may contain amounts of regulated substances, is not to be considered as intentionally introduced.

'Material' - A material is made of one or more substances. Examples of materials are plastics, metals, coatings, alloys, paints and adhesives. For example, copper alloy is a material made up of several substances, e.g. copper, nickel and zinc. Also, preparations (e.g. solder pastes, fluxes, cleaners and lubricants), compounds (e.g. water and sodium chloride) and elements (e.g. hydrogen, helium, gold) are materials.

'Mobile & Wearable' - Products that belong to mobile and wearable categories and parts used in such products – Mobile category includes devices such as mobile phones, smart phones and tablets. The wearable category includes devices that are intended to be worn by the user or maintained in close proximity to the user. Both categories also include accessories (such as USB cables, chargers or headsets) intended for use with products that belong to these categories.

Nanomaterial - Definition of nanomaterial in HMD is based on the European Commission Recommendation on the definition of nanomaterials (2011/696/EU):

'Nanomaterial' means a natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50% or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm-100 nm. In specific cases and where warranted by concerns for the environment, health, safety or competitiveness, the number size distribution threshold of 50% may be replaced by a threshold between 1 and 50%.

'Network & Others' – All network products and other products as well as parts used in such products not covered by Mobile & Wearables.

'Packaging' – Restrictions for materials/substances used in packaging refer to sales (outbound) packaging. Packaging in HMD refers to packaging including printed user guide and other printed materials and its transport packaging that is used for transportation to end customers.

'Parts' – Any item that is supplied to and/or designed on behalf of HMD excluding packaging.

'Processing' – Any operation used to produce finished products or intermediate materials from raw materials or other resources.

'Product' - A final manufactured good that is delivered to HMD customers.

'Prolonged skin contact' - Prolonged contact with the skin is defined as contact with the skin of potentially more than 10 minutes on three or more occasions within two weeks, or 30 minutes on one or more occasions within two weeks. Definition is taken from the ECHA proposal for minimum contact time for "prolonged contact with the skin" in relation to the Nickel restriction: https://echa.europa.eu/documents/10162/13641/nickel_restriction_prolonged_contact_skin_en.pdf/b6f35357-da40-4a04-8085-fe42f6f543ab https://echa.europa.eu/documents/10162/13641/nickel_restriction_prolonged_contact_skin_e n.pdf

'Radioactive substance' - Substance whose radioactivity exceeds the natural background value.

'REACH' - Acronym for the EU Regulation (EC) 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.

'Reportable' - Substances that are to be monitored regarding their use/presence in HMD products and packaging and any usage/amounts present reported to HMD.

'Restriction / threshold value' – Defines the limitation, requirement and/or regulation.

'Restricted' - Substances that are prohibited from use as specified in the restriction / threshold level column in table 1 and/or 2.

For all other uses these substances are considered **"To be Avoided"**.

'RoHS' - An acronym for the EU Directive 2011/65/EU on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment.

'Substance' - A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition. This definition is from REACH.

'To be Avoided' - Substances which HMD tracks and expects suppliers to reduce and phase out from products and packaging as technically and environmentally acceptable alternatives become available. Suppliers are strongly advised to work on a phase-out plan based on potential future regulatory or HMD implementation dates, as applicable.

3 Requirements for materials and substances

The HMD Substance List ("HSL") defines all materials and substances which are restricted, to be avoided or defined as reportable. If a substance belongs to several material/substance groups, the stricter concentration limit is always applied.

3.1 Substance List

All materials and substances for which a requirement of any type applies are listed in Table 1 or Table 2 below. Examples of legal and regulatory references are listed for each material / substance group, but this list is not exhaustive. Even though some regulatory references are country specific, HMD applies these mandatory requirements worldwide.

The letter "R" stands for a Restricted substance in the particular Scope.

The letter "A" stands for a substance to be Avoided in the particular Scope.

Table 1: Legislative requirements for groups of materials and substances (applicable worldwide)

		Mobile & Wearables	Network & Others	Batteries	Packaging	Processing		
Material / Substance Group	Listing	Scope[1]					Restriction / threshold level	References (non-exhaustive list)
REACH: Restricted substances	Annex XVII	R	R	R	R	R	As specified in Annex XVII of REACH	EU REACH Regulation (EC)1907/2006 as amended
REACH: Authorization list	Annex XIV	A	A	A	A	R	As specified in Annex XIV of REACH	EU REACH Regulation (EC)1907/2006 as amended
REACH: Candidate list for authorization	cSVHC	A	A	A	A		Reportable[2] if > 0.1% by weight of an article	EU REACH Regulation (EC)1907/2006 as amended
RoHS: Annex II	2011/65/EU	R	R				Per Annex II - allowing for relevant exemptions from Annex III and Annex IV	EU RoHS Directive 2011/65/EU as amended (including with 2015/863/EU)
Eco-design Regulation: Halogenated flame retardants	(EU) 2019/2021	R[3]	R[3]				Intentional use in the enclosure and stand of electronic displays	EU eco-design requirements for electronic displays
Persistent organic pollutants (POPs)	(EU) 2019/1021	R	R	R	R	R	Intentionally introduced, and not exceeding limits set	EU Regulation (EU) 2019/1021 on persistent organic pollutants

							in (EU) 2019/1021	
TSCA: PBT Chemicals under Section 6(h)	Final rules	R	R	R	R	R	As specified in the final rules	Persistent, Bio-accumulative, and Toxic (PBT) Chemicals under TSCA Section 6(h)
Radioactive substances	-	R	R	R	R	R	Intentionally introduced	EU Directive 2013/59/EURATOM
ODS: Ozone depleting substances	(EC)1005/2009	R	R	R	R	R	Intentionally introduced	Montreal Protocol; (EC)1005/2009 on Ozone Depleting Substances; US Clean Air Act
F-Gas Regulation: Fluorinated greenhouse gasses Annex I and II	(EU)2024/573	R	R[4]	R	R	R	Intentionally introduced	HMD req, EU Regulation (EC)2024/573 on fluorinated greenhouse gases
Proposition 65 listed substances	PROP 65	R	A	A	A		Any application where risk of user exposure requiring a warning is to be expected	US California Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop 65)
Nickel and other skin sensitizing substances	(EC)1272/2008	R[9/10]	R				Banned for all applications that may come into prolonged contact with the skin[5]	Restriction applies to substances classified as Skin Sensitizer under CLP Regulation (CE)1272/2008
EU Battery Directive	(EU)2023/1542			R[4]			As specified in Article 4, however, for Cd this applies to any type of battery	EU Battery Regulation (EU)2023/1542 as amended

EU Packaging Directive	94/62/EC				R		As specified in Article 11	EU Directive 94/62/EC on Packaging and Packaging waste as amended
Biocidal Products Regulation	(EU)528/2012				R		As specified in Chapter XIII	EU Biocidal Products Regulation (EU)528/2012

Table 2: Requirements for individual materials and substances (applicable worldwide)

		Mobile & Wearables	Network & Others	Batteries	Packaging	Processing		
Material / SubstanceGroup	Listing	Scope[1]					Restriction / threshold level	Reference(s) (non-exhaustive list)
Antimony trioxide	-	R	A	A	A		0.09% of homogeneous material in polymeric materials	HMD req (prop65)
Beryllium Oxide (BeO)	-	R[4]	R[4]				Intentionally introduced	HMD req (prop 65, reporting of information to WEEE recyclers)
Beryllium and compound (other than BeO)	-	R	R[4]				0.1% of homogeneous material	HMD req (prop 65, reporting of information to WEEE recyclers)
Bromine and compounds	-	R[6]	A				0.09% of homogeneous material	HMD req (Halogen free)
Chlorine and compounds	-	R[7]	A				0.09% of homogeneous material	HMD req (Halogen free)
EU Critical Raw Materials and Strategic	2023/0079(COD)	Reportable					-	EU CRM Act proposal and Digital Product Passport

Raw Materials								
Dechlorane Plus		R	A	A	R		1ppm of homogeneous material	[Proposed] POP restriction
Formaldehyde	-	A	A	A	R		Intentionally introduced	HMD req (Prop 65) - EU REACH restriction from August 2026
Lead	-	R		R[8]			0.004% in non-rechargeable batteries 90mg/kg for Children's product	HMD req
Mineral oil aromatic hydrocarbons (MOAH) with 1 to 7 aromatic rings and MOSH	-				R		≤0.1% in packaging ink per Arrêté du ; ≤3 to 7 aromatic rings 1ppm; MOSA ≤0.1% in packaging ink 13/4/2022	French AGEC law Loi no 2020-105
Nanomaterials	-	Reportable						EU national reporting schemes
Per- and polyfluoroalkyl substances (PFAS)	-	A	A	A	R	A	Potential REACH restriction	Substances that contain at least one aliphatic -CF2- or -CF3- element (includes PTFE)
Polyethylene (PE) foam	-				R		Only chemically cross-linked PE foam	HMD req (End of Life concerns)
Polystyreneexpanded	-				R[4]		Intentionally introduced	HMD req (End of Life concerns)
Polyurethane	-				R[4]		Intentionally introduced	HMD req (End of Life concerns)
Polyvinyl chloride (PVC)	-	R	A		R		Intentionally introduced	HMD req (Halogen free)
Responsible Minerals	-	Reportable						HMD Conflict Mineral Policy

1	In the columns under Scope "R" means Restricted, "A" means to be Avoided. For further explanation see chapter 2 Definitions.
2	For further explanation see chapter 2 Definitions.
3	'halogenated flame retardant' means a flame retardant that contains any halogen.
4	Restricted from use unless explicitly amended or waived in writing by HMD.
5	For reacted materials that are not in themselves sensitizing, this covers possible remains of sensitizing reactant(s). Nickel in amorphous metals, ceramics or stainless steels (excluding stainless steel with sulphur content over 0.03%) is exempt.
6	Bromine used as an activator in solder (excluding solders used in product assembly) and use as pigments in optical applications is exempted.
7	Chlorine used as adhesion promotor, colorant as well as process residuals are exempted.
8	Restricted from use unless explicitly waived in writing by HMD.
9	Nickel used in amorphous metals and ceramics and the use of nickel in stainless steels (excluding stainless steel with sulphur content over 0.03% due to its potential for nickel release) are exempt.
10	Nickel and its compounds (Ni) which application on resurfacing & external metal for direct & prolonged skin contact (e.g. external antenna/case, belt, strap, earphone etc), test method should follow EN 1811(Metal), EN 12472(Surface coating, Plating)

4 Reporting of substances

All substances classified as to be Avoided are reportable. Substances classified as Restricted shall not be used for any applications covered by the scope of the restriction, all other uses are "To be Avoided" and are reportable.

It is vital that our suppliers declare compliance with the HSL requirements. In case a full material declaration is not required by HMD and HMD has requested the completion of a Confirmation of Compliance template instead, HMD does not require test reports or certifications.

Reporting of EU REACH Substances of Very High Concern (SVHC):

2015 EU Court of Justice (EUCJ) Judgment in Case C-106/14:
https://curia.europa.eu/jcms/upload/docs/application/pdf/2015-09/cp150100en.pdf

The ruling of the EU court of Justice in Case C-106/14 details that the REACH regulation defines the concept of 'article' as 'an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition'.

There is no need to draw a distinction between the situation of articles incorporated as a component of a complex product and that of articles present in an isolated manner. Each of the articles incorporated as a component of a complex product is

covered by the relevant duties to notify and provide information when they contain a substance of very high concern in a concentration above 0.1% of their mass.

HMD requires SVHCs to be reported if present in the lowest level article >0.1% even if this low level article is subsequently integrated in a complex article.

5 RoHS exemptions

Exemptions set by the RoHS directive apply to RoHS substances. The actual list of exemptions can be found in the consolidated version of the EU RoHS Directive (see EUR-Lex website under consolidated legislation: https://environment.ec.europa.eu/topics/waste-and-recycling/rohs-directive_en). It is the supplier's responsibility to check the validity of the exemption in question.

5.1 REACH and nanomaterials

Suppliers are advised to follow the development of nanomaterials policy, such as the review of the EU definition and inclusion in REACH: https://echa.europa.eu/regulations/nanomaterials as well as various mandatory national registers.

6 Examples of substances and their CAS numbers

The HMD Substance List ("HSL") restricts substances that are prohibited by a variety of legislative requirements that are applicable to our industry. Table 1 lists several references beyond RoHS and REACH that do have relevance to the electronics industry. We are aware that many of the substances prohibited, for instance, by the EU Persistent organic pollutants Regulation, are not generally used in electronics. However, some substances covered have a relevance for our products. See Table 3 for some examples.

Legal instrument	Example of impacted substance(s)
REACH (Restrictions)	Polycyclic Aromatic Hydrocarbons, Organic Tin compounds
RoHS	Pb, Hg, Cd, Cr6+, PBBs, PBDEs, DEHP, BBP, DBP, DIBP
POP	PFOA, PFOS
TSCA (US EPA)	Phenol, Isopropylated Phosphate (PIP) 3:1
Fluorinated greenhouse gases	SF6, 1,1,1,2-tetrafluoroethane
Proposition 65 listed substances	Bisphenol-A, Lead, Diisodecyl Phthalate (DIDP)
Raw Materials	Indium, Niobium, Palladium

Examples of substances and their CAS numbers in each material/substance group can be found in the IEC 62474 - Material Declaration for Products of and for the Electrotechnical Industry: http://std.iec.ch/iec62474.

Please note that this list is not exhaustive, and suppliers need to identify if substances they are using in their products belong to additional restricted material/substance groups.

7 Contact and Updates

7.1 Contact information

Email: sustainability@hmdglobal.com

7.2 Communication of Updates

Once a new version of the HMD Substance List is made available on the www.hmd.com website, all suppliers will be notified.

8 Exceptions

Any exception or deviation from these Requirements, requires the written approval of the HMD Quality Project Manager and VP QCC and Secure Eng. All exceptions must be recorded in writing and be stored in a folder of Quality SharePoint and/or Jira.