Halogen-Free statement

Halogens are the elements that make up Group 17 on the periodic table: fluorine (F), chlorine (Cl), bromine (Br), iodine (I) and astatine (At). Among these halogens, bromine and chlorine compounds are of most concern since they are widely used in electronic industry. They are often used as flame retardants in electrical and electronic products to make the insulation materials highly resistant to heat and flame retardant. Although they can be difficult to ignite, when the intensity of the fire is sufficient that the halogenated material does finally catch fire, it will release fumes that are both toxic when inhaled and corrosive to circuitry in equipment. International Electrotechnical Commission (IEC) developed standards that include criteria to limit the amount of halogens in applications where safety needs to be safeguarded in case of fire.

Halogens have come under scrutiny due to the increased attention to the recycling of materials. Uncontrolled recycle where disposal of electronic goods is not well managed can cause halogenated compounds to leak into the environment and could end up in the food chain. In Europe, the use of halogenated flame retardants (HRF) in plastic enclosures and stands of electronic displays is prohibited under EU Ecodesign Directive (2009/125/EC). Halogenated flame retardants can cause adverse effects on human health and the environment. EU RoHS included two groups of brominated compounds, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) in the list of restricted substances. PBB and PBDE are carcinogenic substances that harm the human reproductive system and toxic to aquatic environments. EU POPs regulation also bans some of halogen-containing compounds as most compounds that contain bromine and chlorine are endocrine disruptors.

As a result of different legislations and industry initiatives on the use of halogen-free products, product and material decision process are changing for several applications to prepare for the expanding regulatory impact. However, there are inconsistencies in the terminology as well as the limits for halogens depending on the manufacturer, the industry, or products for which the material is being used.

XP Power's definition of "Halogen-Free" does not denote a complete absence of halogens. It does not eliminate the potential for some unintentional halogenated compounds to be present in the form of material impurities or as by-products of the production process. It also refers to products whose materials comply with the following standards to regulate the amount of halogens in our products:

1) All printed circuit boards (PCB) and substrate laminates shall meet Br and Cl requirements as defined in IEC 61249-2-21.

Halogen	Chemical Symbol	Maximum (ppm)
Chlorine	Cl	900
Bromine	Br	900
Total Halogens	Cl + Br	1500

2) Components other than PCB and substrate laminates shall meet Br and Cl requirements as defined in JS709C.

Halogen	Chemical Symbol	Maximum (ppm)
Chlorine (if the Cl source is from CFR or PVC or PVC copolymer)	Cl	1000
Bromine (if the Br source is from BFRs)	Br	1000

Note: Fluorine, Iodine, and Astatine are not in scope in industry definition of halogen-free.

XP Power recognizes technical and supply challenges of our suppliers with regards to replacing their halogenated materials. XP Power understands that in some cases for our suppliers, there are no simple drop-in alternatives for halogenated materials. Thus, to maintain production, not all materials used in our products are halogen-free. However, for our customers that would require halogen-free products, we will work with our suppliers towards meeting the halogen content restriction in accordance with the standards stated above.

Signed:

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Chief Executive Officer

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