

## Explanation of RoHS and lists of restricted substances

RoHS stands for "the restriction of the use of certain hazardous substances in electrical and electronic equipment". We ban the placing on the market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

**Table I: RoHS Limits**

Material/Substance	Threshold Level
<u>Cadmium</u> and its compounds must not be used in parts, components, materials or products.	<b>0.0100% (100 PPM)</b>
<u>Mercury/Mercury Compounds</u> must not be contained in any part, material, component or product, including switches, relays or electrical contacts.	<b>0.1% (1000 PPM)</b>
PBB or PBDE flame-retardants must not be contained in plastic parts, components, materials and products.	<b>0.1% (1000 PPM)</b>
<u>Lead/Lead Compounds</u> must not be contained in any part, material, component or product unless specifically designated by Symbol.	<b>0.1% (1000 PPM)</b>
<u>Hexavalent Chromium/Hexavalent Chromium compounds</u> may not be present on the surface of any parts, components, materials or products. This does not include hard chromium plating of sheet metal where there is no residual hexavalent chromium detectable on the surface of the material.	<b>0.1% (1000 PPM)</b>
<u>Lead Free Soldering Manufacturing process</u>	<b>Any and all plating applied to electronic components internal or external shall be lead free (0%)</b>

**Table II: Additional Environmental Limits**

Material/Substance	Threshold Level
Asbestos	Actual level in part to be identified
Azo Colorant <sup>1</sup>	Actual level in part to be identified
Ozone Depleting Substances (CFCs, HCFCs, HBFCs, carbon tetrachloride, etc.)	Class I: Actual level in part to be identified Class II: HCFCs: 1000 PPM
Polychlorinated Biphenyls (PCBs)	Actual level in part to be identified
Polychlorinated Naphthalenes (more than 3 chlorine atoms)	Actual level in part to be identified
Radioactive Substances	Actual level in part to be identified
Shortchain Chlorinated Paraffins	Actual level in part to be identified
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	Actual level in part to be identified
Tributyl Tin Oxide (TBTO)	Actual level in part to be identified

Note 1: Applicable to products and subparts that may come into direct contact with human skin.

Note 2: Please refer to the IPC JIG Material Composition Declaration Guide for Electronic Products Annex F: "Detailed Chemical lists with CAS-numbers" for expanded information on each material/substance listed in Tables I and II.