

What is RoHS

The **Restriction of Hazardous Substances Directive (RoHS)** 2002/95/EC was adopted in February 2003 by the [European Union](#). The RoHS [directive](#) took effect on July 1, 2006, but is not a law; it is simply a [directive](#). This directive restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment. It is closely linked with the [Waste Electrical and Electronic Equipment Directive](#) (WEEE) 2002/96/EC which sets collection, recycling and recovery targets for electrical goods and is part of a legislative initiative to solve the problem of huge amounts of toxic [e-waste](#). In casual conversation, it is often pronounced "ROHS", "Rosh", or "Row Haws", except in Europe, where it is pronounced "Rose".

Each European Union member state will adopt its own enforcement and implementation policies using the directive as a guide. Therefore, there could be as many different versions of the law as there are states in the EU.

RoHS is often referred to as the "lead-free" directive, but it restricts the use of the following 6 substances:

1. [Lead](#)
2. [Mercury](#)
3. [Cadmium](#)
4. [Chromium VI](#) (Also known as hexavalent chromium or Cr6+)
5. [PBB](#)
6. [PBDE](#)

PBB and PBDE are flame retardants used in some plastics.

The maximum concentrations are 0.1% (except for Cadmium which is limited to 0.01%) by weight of homogeneous material. This means that the limits do not apply to the weight of the finished product, or even to a component, but to any single substance that could (theoretically) be separated mechanically — for example, the sheath on a cable or the tinning on a component lead.

As an example, a radio comprises a case, screws, washers, a circuit board, speakers etc. A circuit board comprises a bare [PCB](#), [ICs](#), resistors, switches etc. A switch comprises a case, a lever, a spring, contacts, pins etc. The contact might comprise a copper strip with a surface coating.

Everything that can be identified as a homogeneous material must meet the limit. So if it turns out that the case was made of plastic with 2300 ppm (0.23%) PBB used as a flame retardant, then the entire radio would fail the requirements of the directive.