

## Directive 2011/65/EU (RoHS)

The European RoHS Directive 2011/65/EU serves to restrict the use of certain hazardous substances in electrical and electronic equipment (EE). On January 3, 2013, it replaced Directive 2002/95/EC (RoHS 1), which had been in effect since 2002.

EE is defined in the directive as *“equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields and designed for use with a voltage rating not exceeding 1 000 volts for alternating current and 1 500 volts for direct current.”*

The affected categories of equipment were described in Annex I. However, as of July 22, 2019, the provisions apply to all EE (open scope), unless an exception (Art. 2 No. 4) is applicable.

The restricted hazardous substances are listed in Annex II:

- Lead (0.1%)
- Mercury (0.1%)
- Cadmium (0.01%)
- Hexavalent chromium (0.1%)
- Polybrominated biphenyls (PBB) (0.1 %)
- Polybrominated diphenyl ethers (PBDE) (0.1 %)

On March 31, 2015, four additional substances were added to Annex II of RoHS Directive 2011/65/EU by Delegated Directive (EU) 2015/863:

- Di(2-ethylhexyl) phthalate (DEHP) (0.1%)
- Butyl benzyl phthalate (BBP) (0.1 %)
- Dibutyl phthalate (DBP) (0.1 %)
- Diisobutyl phthalate (DIBP) (0.1 %)

The limits refer to homogeneous material, which is defined as *“one material of uniform composition throughout or a material, consisting of a combination of materials, that cannot be disjoined or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.”*

The restricted substances may only be used within the use of exemptions to specific applications, which are listed in Annex III of the Directive. The exemptions are limited in time, it is necessary to apply for renewal 18 months before expiration. When deciding whether to grant an extension, the European Commission takes into account whether there are applicable alternatives for the respective application at the time of discussion.

The scope of application includes finished EE for which an EU declaration of conformity must be issued and a CE marking affixed. The substance prohibitions refer to the homogeneous material of each component used in an EE. Therefore, each component and mixture that remains in the EE or is placed on the market in a sales package must also comply with the limits.

<https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32011L0065>