

## Restriction of Hazardous Substances - RoHS-Directive

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### RoHS-Directive 2002/95/EC

The directive 2002/95/EC „Restriction of the use of certain hazardous substances in electrical and electronic equipment“ prohibits that new electrical and electronic equipment is put on the market from 1 July 2006 which contains

- lead
- mercury
- cadmium
- hexavalent chromium
- polybrominated biphenyls (PBB)
- polybrominated diphenylethers (PBDE).

Certain applications are excluded from this prohibition. However, these exceptions are not applicable to power capacitor products.

This prohibition only applies for electrical and electronic equipment designed for use with a voltage rating not exceeding 1 000 volts for alternating current and 1 500 volts for direct current falling under the categories 1, 2, 3, 4, 5, 6, 7 and 10 set out in Annex IA to Directive 2002/96/EC Waste electrical and electronic equipment (WEEE) and to electric light bulbs, and luminaires in households.

The categories listed in Annex IA of directive 2002/96/EC are:

1. Large household appliances
2. Small household appliances
3. IT- and telecommunications equipment
4. Consumer equipment
5. Lighting equipment
6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
7. Toys, leisure and sports equipment
10. Automatic dispensers

The directive does not apply to spare parts for the repair, or to the reuse, of electrical and electronic equipment put on the market before 1 July 2006.

A maximum concentration value of 0.1% by weight in homogeneous material for lead, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenylethers (PBDE) and of 0.01% by weight in homogeneous material for cadmium shall be tolerated.

### Responsible for the content

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### Effect of the RoHS-Directive on power capacitor products

The RoHS-Directive applies to:

- Motor capacitors
- Capacitors for discharge lamps

The RoHS-Directive does not apply to:

- Power capacitors and capacitor banks
- Power electronic capacitors
- Reactive power controllers.

Should their use be intended in products which fall in the scope of RoHS, the compliance with the requirements of RoHS has to be agreed upon by both parties by contract.

If motor capacitors or capacitors for discharge lamps contain the stated substances, the members companies of the ZVEI-division Power Capacitor Products are developing substitution concepts. This is difficult in particular for the tin-lead soldering joints in the capacitors.

The concerned member companies in the ZVEI-division Power Capacitor Products intend to be able to supply capacitors complying with the directive in time before 1 July 2006. Having a headstart makes sense, so that sufficient time remains for the processing of these capacitors in electrical and electronic equipment and for their logistic chain.

### Material declaration of capacitor type families

For capacitor type families affected by the RoHS-Directive material-declarations will be developed in form of an "umbrella-specification" which will be available for download on the website of the ZVEI and their producers.

### Status of national legislation

At the date of printing this information, the national implementation of the directive 2002/95/EC has not finally taken place in all EC countries. A supplement of the directive or national legislation will certainly take priority over this information.

### Member companies

Beluk GmbH, Schongau; Condensator Dominit GmbH, Brilon; Electronicon Kondensatoren GmbH, Gera; Epcos AG, München; Frako Kondensatoren- und Anlagenbau GmbH, Teningen; HSP Hochspannungsgeräte Porz GmbH, Köln; KBR GmbH, Schwabach; Maschinenfabrik Reinhausen, Erfurt; Modl GmbH, Pappenheim; System Electric GmbH, Linsengericht; Vishay Electronic GmbH, Landshut