



Brussels, **XXX**
[...] (2017) **XXX** draft

COMMISSION DELEGATED DIRECTIVE (EU) .../...

of **XXX**

amending, for the purposes of adapting to scientific and technical progress, Annex III to Directive 2011/65/EU of the European Parliament and of the Council as regards an exemption for lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors

(Text with EEA relevance)

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE DELEGATED ACT

This Commission Delegated Directive amends, for the purpose of adapting to technical progress, Annex III of Directive 2011/65/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)¹ (RoHS 2) as regards an exemption for specific applications containing lead.

RoHS 2 restricts the use of certain hazardous substances in electrical and electronic equipment, as provided for in its Article 4. It entered into force on 21 July 2011.

The restricted substances are listed in Annex II to RoHS 2. While the restrictions of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and polybrominated diphenyl ethers are in force to date, the restrictions of bis(2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP), diisobutyl phthalate (DIBP) shall apply from 22 July 2019 or later. Annexes III and IV to RoHS 2 list the materials and components of electrical and electronic equipment (EEE) for specific applications exempted from the substance restriction of RoHS 2 Article 4(1).

Article 5 makes provision for the adaptation to scientific and technical progress (inclusion, renewal, amendments and revoking of exemptions) of Annexes III and IV. Pursuant to Article 5(1)(a), exemptions are to be included in Annexes III and IV only if such inclusion does not weaken the environmental and health protection afforded by Regulation (EC) No 1907/2006² and where any of the following conditions is fulfilled: their elimination or substitution via design changes or materials and components which do not require any of the materials or substances listed in Annex II is scientifically or technically impracticable; the reliability of substitutes is not ensured; or the total negative environmental, health and consumer safety impacts caused by substitution are likely to outweigh the total environmental, health and consumer safety benefits thereof.

Furthermore, Article 5(1) provides that the European Commission (the Commission) shall include materials and components of EEE for specific applications in the lists in Annexes III and IV by means of individual delegated acts in accordance with Article 20. Article 5(3) and Annex V establish the procedure for submitting applications for granting, renewing, or revoking an exemption.

2. CONSULTATIONS PRIOR TO THE ADOPTION OF THE ACT

Since the publication of RoHS 2, the Commission has received numerous³ requests from economic operators, according to the provisions in Article 5(3) and Annex V, for both granting new and renewing existing exemptions.

The current Annex III exemption 24 permits the use of lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors. The Commission received one application for renewal of this exemption January 2015. While exemption 24 had 21 July 2016 as expiration date for categories 1 to 7 and 10⁴, in line with

¹ OJ L 174, 1.7.2011, p. 88.

² OJ L 396, 30.12.2006, p. 1

³ The list is given at: http://ec.europa.eu/environment/waste/rohs_eee/adaptation_en.htm

⁴ These categories are namely: 1. Large household appliances; 2. Small household appliances; 3. IT and telecommunications equipment; 4. Consumer equipment; 5. Lighting equipment; 6. Electrical and

the requirements of the RoHS Directive (Article 5(5), second subparagraph), it continues to apply until a decision on the renewal application is taken by the Commission.

With a view to evaluating the application for exemption, the Commission launched a study to carry out the required technical and scientific assessment, including an eight-week online open-ended stakeholder consultation⁵ on the application. One contribution was made to the stakeholder consultation.

The final report containing the assessment of the application was published⁶; stakeholders were notified.

Subsequently, the Commission consulted the Member States expert group for delegated acts under RoHS 2 during an expert meeting on 15 December 2016, which also involved presentations from the applicants and stakeholders most concerned. The experts agreed with the draft presented by the Commission, with a large majority of absent or silent members. All necessary steps relating to exemptions from the substance restriction pursuant to Articles 5(3) to 5(7) have been performed. Due to the large amount of simultaneous exemption requests and connected administrative requirements, the Commission decision procedure followed alternative deadlines as per Article 5(5). The Council and the European Parliament were notified of all activities.

The final report highlighted in particular the following technical information and assessment:

- Discoidal and planar array capacitors are derivations of multi-layer ceramic capacitors with the opposing terminations made to the outside periphery and the inside diameter of holes drilled through the ceramic body. They are specialist capacitors used in electromagnetic interference filters and electromagnetic interference filtered connectors for high end applications, where the elimination of electrical interference is critical. Typical applications for assemblies incorporating these components include professional audio equipment, maritime monitoring and video surveillance systems.
- In application, signal carrying feedthrough pins are passed through the ceramic element and connected to the internal bore to make a mechanical and electrical connection. This connection must have low electrical resistance and inductance for optimum performance, as high resistance / inductance will inhibit the high frequency electrical path to ground through the filtering capacitor. Traditionally this connection is made by lead solder, as lead-free solders cause cracks in the ceramic element. Lead-containing solders provide the combination of a suitable melting point and ductility. The ductility of this solder avoids cracking of the ceramic layer during and after soldering due to thermal mismatch between the ceramic capacitor and the copper pin.
- Currently, the substitution of lead in the solders is scientifically and technically impracticable.

The evaluation results for category 1 to 7 and 10 show that at least one of the relevant criteria specified in Article 5(1)(a) is met by the exemption request relating to entry 24 in Annex III. Since for the applications concerned, no sufficiently reliable alternatives are available today

electronic tools; 7. Toys, leisure and sports equipment; 10. Automatic dispensers. EEE categories are listed in Annex I to the RoHS Directive.

⁵ [Consultation period](#): from 21.08.2015 to 16.10.2015

⁶ <https://bookshop.europa.eu/en/assistance-to-the-commission-on-technological-socio-economic-and-cost-benefit-assessment-related-to-exemptions-from-the-substance-restrictions-in-electrical-and-electronic-equipment-pbKH0416554/>

or are likely to come on the market soon, validity period until 21 July 2021 is justified; as reliable substitutes are not yet available, no negative socioeconomic impacts of substitution are to be anticipated for this period. The granted validity period is also not expected to have adverse impacts on innovation. For categories other than categories 1 to 7 and 10, the existing exemption remains as per the validity periods set out in Article 5(2). The specific exemption does not weaken the environmental and health protection afforded by Regulation (EC) No 1907/2006 (REACH), in accordance with Article 5 of Directive 2011/65/EU.

3. LEGAL ELEMENTS OF THE DELEGATED ACT

The Delegated Directive grants an exemption from the restrictions in Article 4(1), to be listed in Annex III of Directive 2011/65/EU, for the use of lead in specific applications.

The instrument is a Delegated Directive, as provided for by Directive 2011/65/EU, and in particular meeting the relevant requirements of Article 5(1)(a) thereof.

The objective of the Delegated Directive is to contribute to the protection of human health and the environment and approximate the provisions for the functioning of the internal market in the field of electrical and electronic equipment, by allowing the use of otherwise banned substances for specific applications, in line with the provisions and under the conditions of RoHS 2 and the therein established procedure for the adaptation of the Annexes III and IV to scientific and technical progress.

In accordance with the principle of proportionality, the measure does not go beyond what is necessary to achieve its objective.

The proposal has no implications for the EU budget.

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(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment⁷ and in particular Article 5(1)(a) thereof,

Whereas:

- (1) Directive 2011/65/EU requires Member States to ensure that electrical and electronic equipment placed on the market does not contain lead.
- (2) Point 24 of Annex III to Directive 2011/65/EU exempted the use of lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors until 21 July 2016. The Commission received an application for renewal of this exemption in relation to categories 1 to 7 and 10 before 21 January 2015, in accordance with Article 5(5) of Directive 2011/65/EU.
- (3) Discoidal and planar array capacitors are derivations of multi-layer ceramic capacitors. They are specialist capacitors used in electromagnetic interference filters and electromagnetic interference filtered connectors for high end applications, where the elimination of electrical interference is critical. Typical applications for assemblies incorporating those components include professional audio equipment, maritime monitoring and video surveillance systems.
- (4) Lead-containing solders used in discoidal and planar array capacitors provide the combination of a suitable melting point and ductility. The ductility of that solder avoids cracking of the ceramic layer during and after soldering due to thermal mismatch between the ceramic capacitor and the copper pin.
- (5) Currently, the substitution of lead is scientifically and technically impracticable.
- (6) Since for the applications concerned in categories 1 to 7 and 10, no sufficiently reliable alternatives are available on the market or are likely to be available on the market in the near future, validity period until 21 July 2021 is justified. For categories other than categories 1 to 7 and 10, the existing exemption is valid as per the validity periods set out in the second subparagraph of Article 5(2) of Directive 2011/65/EU.
- (7) Directive 2011/65/EU should therefore be amended accordingly,

⁷ OJ L 174, 1.7.2011, p. 88.

HAS ADOPTED THIS DIRECTIVE:

Article 1

Annex III to Directive 2011/65/EU is amended as set out in the Annex to this Directive.

Article 2

1. Member States shall adopt and publish, by [the last day of the 12th month after the date of entry into force of this directive] at the latest, the laws, regulations and administrative provisions necessary to comply with this Directive. They shall forthwith communicate to the Commission the text of those provisions.

They shall apply those provisions from [the last day of the 12th month after the date of entry into force of this directive + 1 day].

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 3

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Article 4

This Directive is addressed to the Member States.

Done at Brussels,

For the Commission
The President
[...]