Commission Delegated Directive (EU) 2019/172 of 16 November 2018 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 to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages (Text with EEA relevance)

COMMISSION DELEGATED DIRECTIVE (EU) 2019/172

of 16 November 2018

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 to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages

(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 equipment[(1)] 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 certain hazardous substances listed in Annex II to that Directive. That requirement does not apply to the applications listed in Annex III to Directive 2011/65/EU.

(2) The different categories of electrical and electronic equipment for which Directive 2011/65/EU applies (categories 1 to 11) are listed in Annex I to that Directive.

(3) Lead is a restricted substance listed in Annex II to Directive 2011/65/EU. The use of lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages was, however, exempted from the restriction and is currently listed in entry 15 of Annex III to that Directive. The expiry date of that exemption was, for categories 1 to 7 and 10, 21 July 2016.

(4) The Commission received an application for renewal of that exemption before 21 January 2015, in accordance with Article 5(5) of Directive 2011/65/EU. The exemption remains valid until a decision on that application has been adopted.

(5) Leaded solders are used in flip chip connections as bumps and solders for attaching the die to the chip carrier. The solders must be resistant to electromigration failure at the extremely high current densities required and able to create a solder hierarchy that allows staged assembly and rework of components in the manufacturing process. They

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must also have high ductility to reduce thermo-mechanical stress in under bump metallurgy structures, in particular in larger dies.

(6) For certain applications covered by the current exemption, a substitution or elimination of lead is still scientifically and technically impracticable due to the lack of reliable substitutes. The exemption does not weaken the environmental and health protection afforded by Regulation (EC) No 1907/2006 of the European Parliament and of the Council[(2)]. It should therefore be renewed for those particular applications.

(7) For all other applications currently covered by the exemption, the conditions for renewal are not fulfilled. The exemption for those applications should continue to apply for 12 months after the date of entry into force of this Delegated Directive in accordance with Article 5(6) of Directive 2011/65/EU.

(8) Since, for the applications concerned by that renewal, no reliable alternatives are available on the market, the exemption for those applications should be renewed for categories 1 to 7 and 10 for the maximum duration of five years until 21 July 2021. In view of the results of the ongoing efforts to find a reliable substitution, the duration of the exemption is unlikely to have adverse impacts on innovation.

(9) For categories other than 1 to 7 and 10, the existing exemption remains valid as per the validity periods set out in the second subparagraph of Article 5(2) of Directive 2011/65/EU. For reasons of clarity, the dates of expiry should be added in Annex III to that Directive.

(10) Directive 2011/65/EU should therefore be amended accordingly,

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 29 February 2020 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 1 March 2020.

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.