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COMMISSION DELEGATED DIRECTIVE (EU) 2025/1802

of 8 September 2025

amending Directive 2011/65/EU of the European Parliament and of the Council as regards an exemption for lead in high melting temperature solders

(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), point (a), thereof,

Whereas:

(1) Article 4(1) of Directive 2011/65/EU requires Member States to ensure that electrical and electronic equipment placed on the market does not contain the hazardous substances listed in Annex II to that Directive. That restriction does not apply to certain exempted applications listed in Annex III to that Directive.

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

(3) Lead is a restricted substance listed in Annex II to Directive 2011/65/EU. The maximum tolerated concentration value is 0,1 % by weight of lead in homogenous materials.

(4) Commission Delegated Directive (EU) 2018/742 ([2]) granted an exemption for the use of lead in high melting temperature type solders, as set out in point 7(a) of Annex III to Directive 2011/65/EU. The scope of the exemption has not changed since its introduction. For most electrical and electronic equipment categories, the exemption was to expire on 21 July 2021.

(5) In January 2020 and October 2020, three renewal requests were received for the exemption referred to in recital 4 within the timeframe for renewal laid down in Article 5(5) of Directive 2011/65/EU. In accordance with Article 5(5), second subparagraph, of Directive 2011/65/EU, the existing exemption remains valid until a decision on the renewal application is taken by the Commission. In order to evaluate the applications received, a technical and scientific assessment study was carried out and finalised in 2022 ([3]). The evaluations included stakeholder consultations in accordance with Article 5(7) of Directive 2011/65/EU.

(6) The exemption regarding electrical and electronic equipment in category 8 '*in vitro* diagnostic medical devices', referred to in Annex I to Directive 2011/65/EU was to expire on 21 July 2023 and the exemptions regarding categories 9 'industrial monitoring and control instruments' and 11 'other electrical and electronic equipment not covered by any of the categories', referred to in Annex I to Directive 2011/65/EU, were set to expire date on 1 July 2024. On 20 January 2023, two renewal applications were submitted for category 9 and category 11 within the timeframe for renewal laid down in Article 5(5) of Directive 2011/65/EU. In accordance with Article 5(5), second subparagraph, of Directive 2011/65/EU, the existing exemption remains valid until a decision on the renewal application is taken by the Commission. In order to evaluate the applications received, a technical and scientific assessment study was carried out and finalised in 2024 ([4]). The evaluations included stakeholder consultations in accordance with Article 5(7) of Directive 2011/65/EU.

([1]) OJ L 174, 1.7.2011, p. 88, ELI: http://data.europa.eu/eli/dir/2011/65/oj.

([2]) Commission Delegated Directive (EU) 2018/742 of 1 March 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 high melting temperature solders (OJ L 123, 18.5.2018, p. 112, ELI: http://data.europa.eu/eli/dir_del/2018/742/oj).

([3]) Final Report (Pack 22) of the study is available at https://op.europa.eu/en/publication-detail/-/publication/c774eb67-7cc6-11ec-8c40-01aa75ed71a1/language-en.

([4]) Final Report (Pack 27) of the study is available at https://op.europa.eu/en/publication-detail/-/publication/708d9a2a-26e1-11ef-a195-01aa75ed71a1/language-en/format-PDF/source-327348441.

(7) The evaluation of the requested exemption renewal concluded that high melting temperature type solders containing lead are used in various applications of electrical and electronic equipment. Those types of solders contain more than 85 % lead by weight and have crucial properties such as high melting point, electrical conductivity, thermal conductivity, ductility, corrosion-resistivity, appropriate oxidation nature, and wettability.

(8) Although individual substitutes and alternatives are partly available, lead-free solutions will not be available, or be only available with insufficient reliability for all relevant applications, in the next three years.

(9) However, the exemption set out in point 7(a) of Annex III to Directive 2011/65/EU is widely used and sometimes without any technical need for it. To minimize the inappropriate use of that exemption and to enable an application-tailored evaluation, it is appropriate to split the exemption in sub-entries. A technical and scientific assessment with several rounds of stakeholder consultations was carried out focusing on developing adequate sub-entries.

(10) The technical and scientific assessment referred to in recital 9 identified seven areas of application covering the scope of the current exemption set out in point 7(a) of Annex III to Directive 2011/65/EU, namely internal interconnections in electrical and electronic equipment ('EEE'), integral connections of die attach in EEE components, integral connections for components other than die to be mounted to sub-assemblies (first level solder joints), second level solder joints for the attachment of components to printed circuit board or lead frames, hermetic sealing materials, high melting temperature type solders in certain lamps, audio transducers. Those areas of application are further specified by technical conditions.

(11) As there has been sufficient time provided to contribute and to adapt to the development of sub-entries, and since all relevant areas of application covered by the currently applicable exemption set out in point 7(a) of Annex III to Directive 2011/65/EU should continue to be covered by the renewed exemption, the segmentation into sub-entries is not considered as a disproportionate administrative burden for the industry. To prevent any significant market distortion in the relevant sector, a period to identify missing areas of application should be provided. Therefore, a short-term validity period for the phasing out of the exemption set out in point 7(a) of Annex III to Directive 2011/65/EU should be granted, in accordance with Article 5(2), first subparagraph, of Directive 2011/65/EU.

(12) For the sub-entries, a sufficient validity period should be granted considering the conclusions of the technical assessment referred to in recital 9 to allow stakeholders to supplement information on the application areas. The expiry dates should take into account the minimum period of 18 months before the expiry date, in which renewal requests need to be submitted in accordance with Article 5(5), first subparagraph, of Directive 2011/65/EU.

(13) Due to the remaining short-term renewal of the exemption set out in point 7(a) of Annex III to Directive 2011/65/EU, it is appropriate to set one expiry date for all categories of EEE set out in Annex I to Directive 2011/65/EU.

(14) The renewal of the exemption set out in point 7(a) of Annex III to Directive 2011/65/EU and the introduction of its sub-entries does not weaken the environmental and health protection afforded by Regulation (EC) No 1907/2006 of the European Parliament and of the Council ([5]).

([5]) Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1, ELI: http://data.europa.eu/eli/reg/2006/1907/oj).

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

HAS ADOPTED THIS DIRECTIVE:

Article 1

Annex III to Directive 2011/65/EU is amended in accordance with the Annex to this Directive.

Article 2

1. Member States shall adopt and publish, by 30 June 2026 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 July 2026.

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, 8 September 2025.

For the Commission
The President
Ursula VON DER LEYEN

ANNEX

In Annex III to Directive 2011/65/EU, point 7(a) is replaced by the following:

‘7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 30 June 2027.
7(a)-I	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) for internal interconnections for attaching die, or other components along with a die in semiconductor assembly with steady state or transient/impulse currents of 0,1 A or greater or blocking voltages beyond 10 V, or die edge sizes larger than 0,3 mm × 0,3 mm	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-II	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) for integral (meaning internal and external) connections of die attach in electrical and electronic components, if all the following conditions are met: — the thermal conductivity of the cured/sintered die-attach material is > 35 W/(m × K), — the electrical conductivity of the cured/sintered die-attach material is > 4,7 MS/m, — solidus melting temperature is higher than 260 °C	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-III	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) in first level solder joints (internal or integral connections – meaning internal and external) for manufacturing components so that subsequent mounting of electronic components onto subassemblies (i.e. modules, sub-circuit boards, substrates, or point-to-point soldering) with a secondary solder does not reflow the first level solder. This sub-entry excludes die attach applications and hermetic sealings	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-IV	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) in second level solder joints for the attachment of components to printed circuit board or lead frames: (1) in solder balls for the attachment of ceramic ball-grid-array (BGA); (2) in high temperature plastic overmouldings (> 220 °C)	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-V	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) as a hermetic sealing material between: (1) a ceramic package or plug and a metal case; (2) component terminations and an internal sub-part	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-VI	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) for establishing electrical connections between lamp components in incandescent reflector lamps for infrared heating, high intensity discharge lamps, or oven lamps	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.
7(a)-VII	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead) for audio transducers where the peak operating temperature exceeds 200 °C	Applies to all categories (except applications covered by point 24 of this Annex) and expires on 31 December 2027.’