

DIRECTIVES

COMMISSION DELEGATED DIRECTIVE (EU) 2023/544

of 16 December 2022

amending Directive 2000/53/EC of the European Parliament and of the Council as regards the exemptions for the use of lead in aluminium alloys for machining purposes, in copper alloys and in certain batteries

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

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

Having regard to Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles ⁽¹⁾, and in particular Article 4(2), point (b), thereof,

Whereas:

- (1) Pursuant to Article 4(2), point (a), of Directive 2000/53/EC, Member States are to ensure that materials and components of vehicles put on the market after 1 July 2003 do not contain lead, mercury, cadmium or hexavalent chromium.
- (2) Annex II to Directive 2000/53/EC lists vehicle materials and components that are exempt from the prohibition pursuant to Article 4(2), point (a), thereof.
- (3) The Commission assessed the exemption set out in entry 2(c)(i) of Annex II to Directive 2000/53/EC regarding aluminium alloys for machining purposes in view of technical and scientific progress. This assessment led to the conclusion that there are suitable alternatives available, but that a transitional period is needed to replace the use of lead in all the materials and components covered by that exemption. The use of lead in the materials and components concerned, including lead in wrought aluminium, could be phased out by the end of 2027. It is therefore appropriate to provide for an expiry date for that exemption.
- (4) The Commission assessed the exemption set out in entry 3 of Annex II to Directive 2000/53/EC regarding copper alloys in view of technical and scientific progress. This assessment led to the conclusion that there are still no suitable alternatives to the use of lead in the materials and components covered by that exemption. Taking into account the progress made in the development of substitutes to lead in the materials and components concerned, it is appropriate to provide for a new review date for that exemption.
- (5) The Commission assessed the exemption set out in entry 5(b) of Annex II to Directive 2000/53/EC regarding lead in batteries for battery applications not included in entry 5(a) of that Annex, which concerns batteries in high voltage systems, in view of technical and scientific progress. This assessment led to the conclusion that the use of lead in batteries for battery applications not included in entry 5(a) of Annex II to Directive 2000/53/EC can be avoided for some applications but not for batteries used in 12 V applications. In order to apply a consistent regulatory framework for batteries, including those that are not falling under the exemption set out in entry 5(a) of Annex II to Directive 2000/53/EC and are not used in 12 V applications, it is appropriate to provide for two separate entries 5(b)(i) and 5(b)(ii) instead of a single entry 5(b).

⁽¹⁾ OJ L 269, 21.10.2000, p. 34.

- (6) Entry 5(b)(i) should provide an exemption for the use of lead in batteries used in 12 V applications and for the use of lead in batteries used in 24 V applications in special purpose vehicles as defined in Article 3 of Regulation (EU) 2018/858 of the European Parliament and of the Council ⁽²⁾. Taking into account the progress made in the development of substitutes to the use of lead in the batteries concerned, it is appropriate to provide for a review date for those exemptions.
- (7) Entry 5(b)(ii) should provide for an exemption for the use of lead in batteries for other battery applications that are not included in entry 5(a) and entry 5(b)(i) of Annex II to Directive 2000/53/EC. The assessment led to the conclusion that lead-based batteries for those applications are avoidable given the progress made in the development of substitutes to the use of lead in batteries used in such applications. It is therefore appropriate to provide for an expiry date for that exemption that allows phasing out of the use of lead in the batteries concerned.
- (8) Directive 2000/53/EC should therefore be amended accordingly,

HAS ADOPTED THIS DIRECTIVE:

Article 1

Annex II to Directive 2000/53/EC is replaced by the text set out in the Annex to this Directive.

Article 2

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 1 June 2023. They shall forthwith communicate to the Commission the text of those provisions.

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, 16 December 2022.

For the Commission
The President
Ursula VON DER LEYEN

⁽²⁾ Regulation (EU) 2018/858 of the European Parliament and of the Council of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC (OJ L 151, 14.6.2018, p. 1).

ANNEX

ANNEX II

Materials and components exempt from Article 4(2), point (a)

A maximum concentration value of substances up to 0,1 % by weight in homogeneous material for lead, hexavalent chromium and mercury and up to 0,01 % by weight in homogeneous material for cadmium shall be tolerated.

Spare parts put on the market after 1 July 2003 which are used for vehicles put on the market before 1 July 2003, except for wheel balance weights, carbon brushes for electric motors and brake linings, shall be exempted from Article 4(2), point (a), of Directive 2000/53/EC.

Materials and components	Scope and expiry date of the exemption	To be labelled or made identifiable in accordance with Article 4(2), point (b)(iv)
<i>Lead as an alloying element</i>		
1(a). Steel for machining purposes and batch hot dip galvanised steel components containing up to 0,35 % lead by weight		
1(b). Continuously galvanised steel sheet containing up to 0,35 % lead by weight	Vehicles type approved before 1 January 2016 and spare parts for these vehicles	
2(a). Aluminium for machining purposes with a lead content up to 2 % by weight	As spare parts for vehicles put on the market before 1 July 2005	
2(b). Aluminium with a lead content up to 1,5 % by weight	As spare parts for vehicles put on the market before 1 July 2008	
2(c)(i). Aluminium alloys for machining purposes with a lead content up to 0,4 % by weight	Vehicles type-approved before 1 January 2028 and spare parts for these vehicles	
2(c)(ii). Aluminium alloys not included in entry 2(c)(i) with a lead content up to 0,4 % by weight ^(*)	⁽¹⁾	
3. Copper alloys containing up to 4 % lead by weight	⁽²⁾	
4(a). Bearing shells and bushes	As spare parts for vehicles put on the market before 1 July 2008	
4(b). Bearing shells and bushes in engines, transmissions and air conditioning compressors	As spare parts for vehicles put on the market before 1 July 2011	
<i>Lead and lead compounds in components</i>		
5(a). Lead in batteries used in high-voltage systems ^(*) that are used only for propulsion in M1 and N1 vehicles	Vehicles type approved before 1 January 2019 and spare parts for these vehicles	X

5(b)(i). Lead in batteries: (1) used in 12 V applications (2) used in 24 V applications in special purpose vehicles as defined in Article 3 of Regulation (EU) 2018/858 ⁽¹⁾ of the European Parliament and of the Council	⁽²⁾	X
5(b)(ii). Lead in batteries used in applications not included in entry 5(a) or entry 5(b)(i)	Vehicles type approved before 1 January 2024 and spare parts for these vehicles	X
6. Vibration dampers	Vehicles type approved before 1 January 2016 and spare parts for these vehicles	X
7(a). Vulcanising agents and stabilisers for elastomers in brake hoses, fuel hoses, air ventilation hoses, elastomer/metal parts in the chassis applications, and engine mountings	As spare parts for vehicles put on the market before 1 July 2005	
7(b). Vulcanising agents and stabilisers for elastomers in brake hoses, fuel hoses, air ventilation hoses, elastomer/metal parts in the chassis applications, and engine mountings containing up to 0,5 % lead by weight	As spare parts for vehicles put on the market before 1 July 2006	
7(c). Bonding agents for elastomers in powertrain applications containing up to 0,5 % lead by weight	As spare parts for vehicles put on the market before 1 July 2009	
8(a). Lead in solders to attach electrical and electronic components to electronic circuit boards and lead in finishes on terminations of components other than electrolyte aluminium capacitors, on component pins and on electronic circuit boards	Vehicles type approved before 1 January 2016 and spare parts for these vehicles	X ⁽³⁾
8(b). Lead in solders in electrical applications other than soldering on electronic circuit boards or on glass	Vehicles type approved before 1 January 2011 and spare parts for these vehicles	X ⁽³⁾
8(c). Lead in finishes on terminals of electrolyte aluminium capacitors	Vehicles type approved before 1 January 2013 and spare parts for these vehicles	X ⁽³⁾
8(d). Lead used in soldering on glass in mass airflow sensors	Vehicles type approved before 1 January 2015 and spare parts of these vehicles	X ⁽³⁾
8(e). Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	⁽¹⁾	X ⁽³⁾

⁽¹⁾ Regulation (EU) 2018/858 of the European Parliament and of the Council of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC (OJ L 151, 14.6.2018, p. 1).

8(f)(i). Lead in compliant pin connector systems	Vehicles type approved before 1 January 2017 and spare parts for these vehicles	X ⁽⁵⁾
8(f)(ii). Lead in compliant pin connector systems other than the mating area of vehicle harness connectors	Vehicles type approved before 1 January 2024 and spare parts for these vehicles	X ⁽⁵⁾
8(g)(i). Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	Vehicles type approved before 1 October 2022 and spare parts for these vehicles	X ⁽⁵⁾
8(g)(ii). Lead in solders to complete a viable electrical connection between the semiconductor die and the carrier within integrated circuit flip chip packages where that electrical connection consists of any of the following: (1) a semiconductor technology node of 90 nm or larger; (2) a single die of 300 mm, or larger in any semiconductor technology node; (3) stacked die packages with dies of 300 mm, or larger, or silicon interposers of 300mm, or larger.	⁽¹⁾ Vehicles type-approved from 1 October 2022 and spare parts for these vehicles	X ⁽⁵⁾
8(h). Lead in solder to attach heat spreaders to the heat sink in power semiconductor assemblies with a chip size of at least 1 cm ² of projection area and a nominal current density of at least 1 A/mm ² of silicon chip area	Vehicles type approved before 1 January 2016 and spare parts for these vehicles	X ⁽⁵⁾
8(i). Lead in solders in electrical glazing applications on glass except for soldering in laminated glazing	Vehicles type approved before 1 January 2016 and spare parts for these vehicles	X ⁽⁵⁾
8(j). Lead in solders for soldering of laminated glazing	Vehicles type approved before 1 January 2020 and spare parts for these vehicles	X ⁽⁵⁾
8(k). Soldering of heating applications with 0,5 A or more of heat current per related solder joint to single panes of laminated glazings not exceeding wall thickness of 2,1 mm. This exemption does not cover soldering to contacts embedded in the intermediate polymer.	Vehicles type approved before 1 January 2024 and spare parts for these vehicles	X ⁽⁵⁾
9. Valve seats	As spare parts for engine types developed before 1 July 2003	

10(a). Electrical and electronic components, which contain lead in a glass or ceramic, in a glass or ceramic matrix compound, in a glass-ceramic material, or in a glass-ceramic matrix compound. This exemption does not cover the use of lead in: (i) glass in bulbs and glaze of spark plugs, (ii) dielectric ceramic materials of components listed under 10(b), 10(c) and 10(d).		X ⁽⁶⁾ (for components other than piezo in engines)
10(b). Lead in PZT based dielectric ceramic materials of capacitors being part of integrated circuits or discrete semiconductors		
10(c). Lead in dielectric ceramic materials of capacitors with a rated voltage of less than 125 V AC or 250 V DC	Vehicles type approved before 1 January 2016 and spare parts for these vehicles	
10(d). Lead in the dielectric ceramic materials of capacitors compensating the temperature-related deviations of sensors in ultrasonic sonar systems	Vehicles type approved before 1 January 2017 and spare parts for these vehicles	
11. Pyrotechnic initiators	Vehicles type approved before 1 July 2006 and spare parts for these vehicles	
12. Lead-containing thermoelectric materials in automotive electrical applications to reduce CO ₂ emissions by recuperation of exhaust heat	Vehicles type approved before 1 January 2019 and spare parts for these vehicles	X

Hexavalent chromium

13(a). Corrosion preventive coatings	As spare parts for vehicles put on the market before 1 July 2007	
13(b). Corrosion preventive coatings related to bolt and nut assemblies for chassis applications	As spare parts for vehicles put on the market before 1 July 2008	
14. Hexavalent chromium as an anti-corrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution: (a) designed to operate fully or partly with electrical heater, having an average utilised electrical power input < 75W at constant running conditions; (b) designed to operate fully or partly with electrical heater, having an average utilised electrical power input ≥ 75W at constant running conditions; (c) designed to fully operate with non-electrical heater.	For (a): Vehicles type approved before 1 January 2020 and spare parts for these vehicles For (b): Vehicles type approved before 1 January 2026 and spare parts for these vehicles	X

Mercury

15(a). Discharge lamps for headlight application	Vehicles type approved before 1 July 2012 and spare parts for these vehicles	X
15(b). Fluorescent tubes used in instrument panel displays	Vehicles type approved before 1 July 2012 and spare parts for these vehicles	X

Cadmium

16. Batteries for electrical vehicles	As spare parts for vehicles put on the market before 31 December 2008	
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Notes to the table:

- (¹) This exemption shall be reviewed in 2024.
- (²) Applies to aluminium alloys where lead is not intentionally introduced, but is present due to the use of recycled aluminium.
- (³) This exemption shall be reviewed in 2025.
- (⁴) Systems that have a voltage of > 75 V DC as provided for in Article 1 of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (OJ L 96, 29.3.2014, p. 357).
- (⁵) Dismantling if, in correlation with entry 10(a), an average threshold of 60 grams per vehicle is exceeded. For the purposes of this note electronic devices not installed by the manufacturer on the production line shall not be taken into account.
- (⁶) Dismantling if, in correlation with entries 8(a) to 8(k), an average threshold of 60 grams per vehicle is exceeded. For the purposes of this note electronic devices not installed by the manufacturer on the production line shall not be taken into account.'
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