

ANNEX I

Minimum technical requirements for treatment in accordance with Article 6(1) and (3)

1. Sites for storage (including temporary storage) of end-of-life vehicles prior to their treatment:
 - impermeable surfaces for appropriate areas with the provision of spillage collection facilities, decanters and cleanser-degreasers,
 - equipment for the treatment of water, including rainwater, in compliance with health and environmental regulations.
2. Sites for treatment:
 - impermeable surfaces for appropriate areas with the provision of spillage collection facilities, decanters and cleanser-degreasers,
 - appropriate storage for dismantled spare parts, including impermeable storage for oil-contaminated spare parts,
 - appropriate containers for storage of batteries (with electrolyte neutralisation on site or elsewhere), filters and PCB/PCT-containing condensers,
 - appropriate storage tanks for the segregated storage of end-of-life vehicle fluids: fuel, motor oil, gearbox oil, transmission oil, hydraulic oil, cooling liquids, antifreeze, brake fluids, battery acids, air-conditioning system fluids and any other fluid contained in the end-of-life vehicle,
 - equipment for the treatment of water, including rainwater, in compliance with health and environmental regulations,
 - appropriate storage for used tyres, including the prevention of fire hazards and excessive stockpiling.
3. Treatment operations for depollution of end-of-life vehicles:
 - removal of batteries and liquified gas tanks,
 - removal or neutralisation of potential explosive components, (e.g. air bags),
 - removal and separate collection and storage of fuel, motor oil, transmission oil, gearbox oil, hydraulic oil, cooling liquids, antifreeze, brake fluids, air-conditioning system fluids and any other fluid contained in the end-of-life vehicle, unless they are necessary for the re-use of the parts concerned,
 - removal, as far as feasible, of all components identified as containing mercury.
4. Treatment operations in order to promote recycling:
 - removal or catalysts,
 - removal of metal components containing copper, aluminium and magnesium if these metals are not segregated in the shredding process,
 - removal of tyres and large plastic components (bumpers, dashboard, fluid containers, etc), if these materials are not segregated in the shredding process in such a way that they can be effectively recycled as materials,
 - removal of glass.
5. Storage operations are to be carried out avoiding damage to components containing fluids or to recoverable components and spare parts.

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[^{F1}ANNEX II

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

Textual Amendments

- F1** Substituted by [Commission Directive \(EU\) 2017/2096 of 15 November 2017 amending Annex II to Directive 2000/53/EC of the European Parliament and of the Council on end-of life vehicles \(Text with EEA relevance\)](#).

A maximum concentration value 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 the provisions of Article 4(2)(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)(b)(iv)
Lead as an alloying element		
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	^a	

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2(c)(ii).	Aluminium alloys not included in entry 2(c)(i) with a lead content up to 0,4 % by weight ^b	^c	
3.	Copper alloys containing up to 4 % lead by weight	^a	
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	
Lead and lead compounds in components			
5(a).	Lead in batteries in high-voltage systems ^d 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).	Lead in batteries for battery applications not included in entry 5(a)	^a	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	As spare parts for vehicles put on the market before 1 July 2006	

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	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		
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 ^f
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 ^f
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 ^f
8(d).	Lead used in soldering on glass in mass airflow sensors	Vehicles type-approved before 1 January 2015 and spare parts of such vehicles	X ^f

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[^{F2} 8(e). Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	c	X]
8(f)(a). Lead in compliant pin connector systems	Vehicles type-approved before 1 January 2017 and spare parts for these vehicles	X ^f
[^{F2} 8(f)(b). 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]
[^{F2} 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
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: (i) a semiconductor technology node of 90 nm or larger; (ii) a single die of 300 mm ² or larger in any semiconductor technology node; (iii) stacked die packages with dies of 300 mm ² or	⁽²⁾ Valid for vehicles type-approved from 1 October 2022 and spare parts for these vehicles	X]

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	larger, or silicon interposers of 300 mm ² or larger.		
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 after that date as spare parts for these vehicles	X ^f
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 after that date as spare parts for these vehicles	X ^f
8(j).	Lead in solders for soldering of laminated glazing	Vehicles type-approved before 1 January 2020 and after that date as spare parts for these vehicles	X ^f
[^{F3} 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 ⁽⁴⁾]
9.	Valve seats	As spare parts for engine types developed before 1 July 2003	
10(a).	Electrical and electronic components which		X ^g (for components other than piezo in engines)

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	<p>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.</p> <p>This exemption does not cover the use of lead in:</p> <ul style="list-style-type: none"> — glass in bulbs and glaze of spark plugs, — dielectric ceramic materials of components listed under 10(b), 10(c) and 10(d). 		
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 after that date as 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	Vehicles type-approved before 1 January 2019 and spare parts for these vehicles	X

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	electrical applications to reduce CO ₂ emissions by recuperation of exhaust heat		
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	
[^{F4}][^{X1}]	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:		X
(i)	designed to operate fully or partly with electrical heater, having an average utilised electrical power input < 75W at constant running conditions;	Vehicles type approved before 1 January 2020 and spare parts for these vehicles	
(ii)	designed to operate fully or partly with electrical heater, having an average utilised electrical power input ≥ 75W at constant running conditions;	Vehicles type approved before 1 January 2026 and spare parts for these vehicles	
(iii)	designed to fully operate with non-electrical heater.		II
Mercury			

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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	
a	This exemption shall be reviewed in 2021.		
b	(1a) Applies to aluminium alloys where lead is not intentionally introduced but is present due to the use of recycled aluminium.		
c	This exemption shall be reviewed in 2024.		
d	(2a) Systems that have a voltage of > 75 V DC as defined in Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (OJ L 374, 27.12.2006, p. 10).		
e	This exemption shall be reviewed in 2019.		
f	Dismantling if, in correlation with entry 10(a), an average threshold of 60 grams per vehicle is exceeded. For the application of this clause electronic devices not installed by the manufacturer on the production line shall not be taken into account.		
g	Dismantling if, in correlation with entries 8(a) to 8(j), an average threshold of 60 grams per vehicle is exceeded. For the application of this clause electronic devices not installed by the manufacturer on the production line shall not be taken into account.]		

Editorial Information

- X1** Substituted by Corrigendum to Commission Delegated Directive (EU) 2020/362 of 17 December 2019 amending Annex II to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles as regards the exemption for hexavalent chromium as anti-corrosion agent of the carbon steel cooling system in absorption refrigerators in motor caravans (Official Journal of the European Union L 67, of 5 March 2020).

Textual Amendments

- F2** Substituted by Commission Delegated Directive (EU) 2020/363 of 17 December 2019 amending Annex II to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles as regards certain exemptions for lead and lead compounds in components (Text with EEA relevance).
- F3** Inserted by Commission Delegated Directive (EU) 2020/363 of 17 December 2019 amending Annex II to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles as regards certain exemptions for lead and lead compounds in components (Text with EEA relevance).
- F4** Substituted by Commission Delegated Directive (EU) 2020/362 of 17 December 2019 amending Annex II to Directive 2000/53/EC of the European Parliament and of the Council on end-of-life vehicles as regards the exemption for hexavalent chromium as anti-corrosion agent of the carbon steel cooling system in absorption refrigerators in motor caravans (Text with EEA relevance).