Aluminum Alloys – RoHS Frequently Asked Questions

(Updated April 2024)

What is RoHS?

RoHS stands for the Restriction of Hazardous Substances. The original RoHS I was implemented in the European Union in 2003 under directive 2002/95/EC. The regulation restricts the use of hazardous substances within electrical and electronic equipment (EEE) to protect the environment and public health. Under RoHS, ten substances are limited: lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), bis(2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP), and diisobutyl phthalate (DIBP).

When did RoHS take effect?

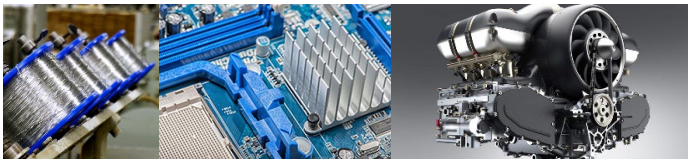
Unless specifically excluded, RoHS took effect on all electrical and electronic devices July 1, 2006.

Which companies are affected by RoHS?

All manufacturers, resellers, distributors, and assemblers that sell EEE containing restricted materials in the EU must comply with the most recent RoHS.

Are aluminum alloys that contain lead (Pb) affected by RoHS?

Yes, there is a lead maximum of 0.1%, with three exceptions. Under exemptions 6(b)i and 6(b)ii respectively, aluminum alloys containing lead may include up to 0.4% lead by weight when it stems from lead-bearing aluminum scrap recycling or when lead-bearing aluminum is used for machining purposes within RoHS product categories 1 to 7 and 10. The general 6(b) exemption for lead as an alloying agent for aluminum up to 0.4% remains applicable only to categories 8, 9 and 11.



What about RoHS II?

Directive 2011/65/EU, also known as RoHS II, went into force in January 2013, revising the former directive. As opposed to RoHS I, which required the government to conduct exemption review processes itself, RoHS 2 puts the burden of renewal on industry parties who wish to maintain the exemption through filing an application of renewal.

Exemptions must be reviewed at least every four years, with the goal of removing exemptions if technologically or scientifically possible for the industry. Applications for renewing an exemption must be made 18 months prior to its expiration. The EU Commission is to decide on an extension six months prior to its expiry date. If a decision has not been made by the expiry date, the existing exemptions will remain valid until a decision is made. In instances of rejection, the exemption will expire between 12 to 18 months from the date of the decision.

What about RoHS III?

On July 22, 2019, Directive 2015/863/EU, known as RoHS III, went into effect. Changes included extending exemptions for medical devices and monitoring and control tools for two years, creating a new catch-all category of previously uncategorized EEE, and adding four new restricted substances of phthalates used in plasticizers.

What is the status of exemptions 6(b), 6(b)i and 6(b)ii?

Pack 22

In December 2020, the EU Commission started its assessment of Pack 22, a new RoHS project covering sixteen requests for nine RoHS exemptions. Two exemption requests were submitted for 6(b)i. European Aluminum requested that the threshold for alloyed lead from recycled scrap aluminum be lowered from 0.4% to 0.3%, while the RoHS Umbrella Project requested that the current exemption be maintained. Both requests would extend the exemption timeline for casting alloys only. EU consultant Oeko Institute recommended that the EA request be approved with a phase-in period, noting that the limit of 0.35% lead content in ISO 17615:2007 and ISO 3522:2007 has been the international standard since 2007. Oeko also recommended that RoHS match the language of the EU's REACH regulation that removes exemptions from articles or parts that may be placed in the mouth of children.

Oeko Institute Recommendations, Page 15:

	Exemption formulation	Duration
6(b)-I	*Lead as an alloying element in aluminium containing up to 0,4% lead by weight provided it stems from lead-bearing aluminium scrap recycling*	Expires 12 months after the decision for all categories
6(b)-III	*Lead as an alloying element in aluminium casting alloys containing up to 0,3% lead by weight provided it stems from lead-bearing aluminium scrap recycling*	Expires on 21 July 2026 for all categories

Two exemptions were also requested for 6(b)ii. The Umbrella Project requested a continuation of existing standards, while Mondragon Components requested an exemption renewal only for machined gas valves in large household appliances. EA made no request for renewal, as they suggested that technology has closed the machinability gap between lead-free and lead-containing alloys. Oeko recommended that the commission end the general exemption while maximizing the transition time and extending a narrow exemption for gas valves.

Oeko Institute Recommendations, Page 16:

	Exemption formulation	Duration
6(b)-II	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight.	Expires 18 months after the decision for all categories
6(b)-IV	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight in gas valves applied in category 1 EEE (large household appliances)	Expires on 31 December 2024

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Pack 27

In October 2023, the commission opened stakeholder consultation to begin its assessment of Pack 27. This RoHS project reopened previous exemption reviews to assess recently filed renewal requests for EEE categories 8, 9 and 11. These categories apply to medical devices and equipment, monitoring and control instruments, and miscellaneous EEE respectively.

Two exemption requests were filed for the 6(b) aluminum alloy series. The Test and Measurement Coalition (TMC) requests that category 9 receives an extension for the 6(b) exemption for the maximum period of seven years with no changes to the current 0.4% lead by weight limit.

Questionnaire 1 (Clarification) for Exemption III-6(b), TMC, Page 2

No.	*Requested exemption*	*Requested scope and dates of applicability*
III-6(b)	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	*Applies to category 9 monitoring and control instruments and expires on 21 July 2031*

EUROMOT, a combustion engine manufacturer, requested that the current 6(b) exemption for category 11 EEE be replaced with the 6(b)i and 6(b)ii exemptions and receive the maximum extension period of five years. The National Association of Manufacturers filed a supporting document in favor of EUROMOT's application.

Questionnaire 1 (Clarification) for Exemption III-6(b(i) and 6(b)ii, EUROMOT, Page 2

No.	*Requested exemption*	*Requested scope and dates of applicability*
III-6(b)(I)	*Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling*	*Applies to category 11 from 22 July 2024 on and expires on 21 July 2029 (= 2024 + 5 years)*
III-6(b)(II)	*Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight*	*Applies to cat. 11 from 22 July 2024 on and expires on 21 July 2029 (= 2024 + 5 years)[2]*

Stakeholder consultation concluded on December 11, 2023. The thirteen commentors supported the exemption renewal application requests. Copreci S Coop requested that this review and the exemption renewals be expanded to consider category 1 large household appliances and category 2 small household appliances. They recommend applying all category 1 and 2 products to the proposed 6(b)iii and 6(b)iv exemptions for five years beyond 2024. Medtech Europe recommended that category 8 exemptions be renewed under 6(b)i and 6(b)ii for a maximum validity period of five years. COCIR requested a narrower exemption for category 8 medical devices and equipment that would subject the category to the proposed 6(b)iii exemption for a 0.3% limit on lead derived from aluminum scrap recycling and would exclude in vitro diagnostic medical devices.

When will the Commission decide on the renewal application?

The Pack 22 exemption renewals are currently being reviewed by the EU Commission and a decision is expected by the 2024 third quarter. If Oeko's recommendations are accepted along that timeline, the general 0.4% limit on lead-bearing aluminum from recycled scrap would end in the summer of 2025 with a continuation of the casting alloys exemption at a reduced level of 0.3% thereafter. The 0.4% exemption for machining purposes would not expire until early 2026.

The Pack 27 stakeholder consultation has concluded, and a technical and scientific assessment study will begin. A final decision on the Pack 27 exemption requests is projected for January 2025. If the applicants' requests are fully accepted, the 0.4% limit on lead as an aluminum alloying would expire July 21, 2031 for category 9, and a 0.4% lead alloying limit from lead-bearing scrap or for use in machining purposes would expire July 21, 2029 for category 11.

Where can I find more information?

The consultant's full report on Pack 22 6(b)i and 6(b)ii exemptions is available here.

The Pack 27 exemption requests and consultation responses can be found here.

For official EU Commission updates, visit this link.

For more information, please contact Andrew Smith: asmith@aluminum.org

The Aluminum Association