

Aluminum Alloys – RoHS Frequently Asked Questions

(Updated March 2023)

What is RoHS?

RoHS stands for the Restriction of Hazardous Substances. The original RoHS 1 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 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 affect?

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 electrical or electronic equipment 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 two 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. 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, and the commission is to decide on that extension six months prior to its expiry date. In instances of rejection, the exemption will expire between 12 to 18 months from the date of the decision.



What about RoHS II?

Directive 2011/65/EU, also known as RoHS II, went into force on in January 2013, revising the former directive. As opposed to RoHS 1, which required the government to conduct exemption review processes themselves, RoHS 2 puts the burden of renewal on industry parties who wish to maintain the exemption through filing an application of renewal.

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, monitoring, and control tools for two years, creating a new catch-all category of previously uncategorized electrical/electronic equipment, and adding four new restricted substances of phthalates used in plasticizers.

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

Two exemption requests have been submitted for 6(b)i. European Aluminum requested that the threshold for alloyed lead in 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. 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 have also been requested for 6(b)ii. The Umbrella Project requested a continuation of existing standards, while Mondragon Components requested an exemption renewal for only machined valves in gas appliances. The EA made no request for renewal, as they propose that technology has closed the machinability gap between lead-free and lead-containing alloys. Oeko recommended that the EU end the general exemption while maximizing the transitional 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

When will the Commission decide on the renewal application?

These exemption renewals are currently being reviewed by the EU Commission and a decision is expected by June 2023. 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 2024 with a continuation of the casting alloys exemption at a reduced level of 0.3% thereafter, and the 0.4% exemption for machining purposes would not expire until the end of 2024.

Where can I find more information?

The consultant's full report on 6(b)i and 6(b)ii is available [here](#).

For official EU Commission updates, visit this [link](#).

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