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The Overlooked Use Ban

On a chromate that is already subject to authorisation today, the coming ban on the use of almost all chromium(VI) compounds, and what this means for the use of high-temperature insulation

Overview of the expert analysis

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Finding

Anyone working on a thermally stressed chromium-alloyed component under insulation that contains alkali or alkaline earth metal oxides has to check whether sodium chromate is being handled. If it is present, that handling has been prohibited since 21 September 2017 without a granted authorisation. Certainty exists only where the presence of sodium chromate can be ruled out on a sound basis, and ruling it out requires knowledge of the oxide composition of the installed insulation over the entire service history, together with a method whose recovery rate for this matrix has been established. In most cases neither is available.

To date, no leading manufacturer of high-temperature insulation has announced that it will make its products free of alkali and alkaline earth metal oxides. This concerns mineral wool, calcium silicate, E-glass products and aerogel products, to the extent that they contain these oxides.

If the authorisation question is set aside entirely, the same facts lead directly into occupational and environmental protection. Both routes end at the same decision, the oxide composition of the insulation that is placed on the chromium-alloyed hot part.

1. The facts

On chromium-alloyed hot parts, Chromium(VI) compounds form in service underneath insulation containing alkali and alkaline earth metal oxides. Sodium-oxide-bearing insulation produces sodium chromate, calcium-oxide-bearing insulation produces calcium chromate. They are present as pure powder, as dust that is readily stirred up, and as contamination of the insulation fibre itself.

The preceding analysis *The Overlooked Ingredient* deals with formation and occupational protection. This analysis asks which use bans the compound that has formed is already subject to.

2. What applies today

Sodium chromate is listed as entry 22 in Annex XIV to the REACH Regulation. The sunset date was 21 September 2017. Since then its use without a granted authorisation has been prohibited under Article 56(1). The entry lists no exempted uses, and none of the five exceptions in Article 56(1) applies to the handling of sodium chromate formed in situ.

Article 3(24) defines use as including storage, keeping, and treatment. No function or purpose of the substance is required. Formation and handling therefore fall apart, and the Regulation attaches to the second of the two.

Calcium chromate is not listed in Annex XIV. The legal consequence today therefore depends on the material pairing, even though the hazard is the same and the formation route is the same.

3. What is coming

On 11 April 2025 the European Chemicals Agency submitted a restriction proposal under Annex XVII that is intended to replace the authorisation requirement. It covers all Chromium(VI) substances listed in Annex XIV except the lead chromates, together with barium chromate; eleven of the thirteen designations carry the addition that any salt with a different stoichiometry and hydration degree is also covered. Calcium chromate is a salt of chromic acid and is covered accordingly.

Paragraph 1 of the proposed entry prohibits use of the substance on its own with no threshold and in a mixture at 0.01 % by weight or more. Paragraph 3 allows a derogation only where the emission limit values are met and, at the same time, one of the twelve individually listed uses is present. Maintenance on insulated hot parts is not among them. There is no route to apply for one, as there was under the authorisation procedure.

The transition period is a uniform 18 months. The impact assessment uses 2028 as its base year; the procedural steps allow for 2027. This yields a span from the second half of 2028 to early 2030. Insulation installed today will be in the plant at both of those dates.

From that point on, a use without authorisation can no longer be ruled out in practice once the insulation is opened. Which compound has formed is then of no consequence.

4. The stages

Stage	Classification	Consequence
Service	reaction inside an article	no use; the substitution obligation applies nonetheless
Removal	dusts and fibres lie exposed	tipping point; from here the concept of use and the protective regime apply
Handling and storage	storage and keeping	use of a substance subject to authorisation, to the extent that sodium chromate is present
Treatment	treatment	a use in its own right; the cause remains
Reinstallation	use in full	additionally prohibited by the model operating instruction for mineral wool products
Disposal	waste under Article 2(2)	REACH does not apply; mixing ban under section 9a of the German Circular Economy Act

Proper removal under containment, negative pressure and controlled disposal remains possible. What cannot be achieved is routine maintenance in open operation followed by reinstallation of the material that has been removed.

5. The goods concerned

Four-stroke medium-speed engines, stationary and marine; engines in offroad, power and marine applications; gensets; gas turbines; industrial steam turbines; power stations, heating plants and biogas plants; steam pressure lines; exhaust aftertreatment systems; and road vehicles. The material pairings are the same across all classes and differ in temperature, service time and accessibility, not in chemistry.

A heat shield is high-temperature insulation. The same sequence of stages applies in the workshop as in plant maintenance, and turbochargers, particulate filters and SCR components are the same parts that the manufacturers' service information lists.

6. The manufacturers' notices

Wärtsilä Finland, Service Bulletin WS00Q563 of 20 June 2024, issue 1 of 9 November 2020. Mercedes-Benz, Service Information S100.10-P-0054A of 7 August 2025. MAN Truck & Bus, Service Information 8339SM of 13 December 2023. Rolls-Royce, Notice to Suppliers NTS 559 of 3 September 2022. Caterpillar, Technical Bulletin 2175/00 of 23 August 2021 and Service Information 0019com of 4 November 2020. Siemens on industrial steam turbines. HUG Engineering, Precautionary Notice. Proventia, Information Bulletin 2/2025. In addition, the warning notice of a German distribution partner of 10 November 2021, the technical instruction of an Austrian engine manufacturer, the risk analysis of a French service partner, Energy Safety Canada Safety Alert 05-2022, and the bulletin of a British sports car manufacturer of 27 August 2025.

All of them govern occupational protection at the moment of the activity. Two name substitution of the calcium-bearing material. Two name the limits of treatment: the citric acid procedure does not guarantee freedom from Cr(VI), and a component that is subjected to thermal stress again no longer counts as neutralised.

None of these documents mentions Annex XIV, the authorisation requirement or Article 56. The earliest notice examined here dates from 9 November 2020; the sunset date for sodium chromate was 21 September 2017. The question whether this connection ought to have been seen arises.

7. What is overlooked

- Anyone pointing to the unintended formation passes over Article 3(24), which attaches to the act.
- Anyone converting the concentration to the insulation element has changed the object. Pure chromate powder is the substance on its own, and no threshold applies to it.
- Anyone invoking the unresolved formation mechanism passes over the fact that Annex XIV attaches to substance identity and that Article 3(1) expressly includes impurities resulting from the process used.
- Anyone restricting the salt clause to the same cation relies on an example and passes over the wording.
- Anyone invoking the exclusion of process-generated formation equates two situations that the report keeps apart, and relies on a provision that is not yet in force.
- Anyone presenting the absence of an analytical method as an all-clear turns an open question into an answered one.
- Anyone pointing to the absence of a practice describes a state of affairs. The list of uses in the draft was compiled from uses that had been reported.

8. What has to be decided

Anyone working on a component that meets the conditions of formation has to check whether sodium chromate is being handled. Certainty exists only where its presence can be ruled out on a sound basis. That requires knowledge of the oxide composition over the entire service history and a method whose recovery rate has been established.

To date, no leading manufacturer of high-temperature insulation has announced that it will make its products free of alkali and alkaline earth metal oxides. This concerns mineral wool, calcium silicate, E-glass products and aerogel products, to the extent that they contain these oxides. An insulation element that may not be reinstalled after the first maintenance does not reach the service life for which it was purchased.

If the authorisation question is set aside entirely, the same facts lead directly into occupational and environmental protection, where the substitution obligation under Article 4 of Directive 2004/37/EC applies. Both routes end at the same decision, the oxide composition of the insulation that is placed on the chromium-alloyed hot part.

The full references are set out in the expert analysis *The Overlooked Use Ban*, version 0.18, parts A to F. A summary of the same version is available alongside it. A chapter on the national regulatory framework of the United Kingdom is still to be added.