

Pre-treatment of aluminium before powder coating

Aluminium Federation Finishing Group Guidance to Customers and Specifiers

1. Aluminium is an established architectural metal, especially popular for windows, doors and facades. Two main finishing technologies are used with aluminium: anodising and powder coating.
2. Since first being developed in the 1960s, companies powder coating onto aluminium have commonly used hexavalent chromate-based pre-treatment systems to ensure the coating adheres chemically to the substrate. This has enabled powder coating companies today to offer durability guarantees typically in excess of 30 years to the architectural market.
3. The European Commission (EC) proposed to ban the use of hexavalent chromates in pre-treatments, with effect from September 2017.
4. However, this ban has been opposed by several of the affected industry sectors. Applications have been submitted to the EC to extend authorisation for the use of hexavalent chromate-based pre-treatment systems in the architectural aluminium sector for up to four years. **It is now thought likely that the implementation date for architectural use will be put back to 2021.**
5. Powder coating pre-treatment is covered by BS EN ISO 12206, which superseded BS6496 in 2004. BS6496 has now been deleted (March 2017) by the British Standards Institute. Specifiers of powder coating should refer to BS EN ISO 12206.
6. Hexavalent chromate-free technology and pre-anodising, the two main alternatives to the use of hexavalent chromate, both require close control in application – as does the use of hexavalent chromate. Where applicators recognise the need for, and implement a more controlled process, non-hexavalent chromate technologies can perform as well as hexavalent chromate systems. Corrosion laboratory tests exceed 3,000 hours, which is three times longer than the BS EN ISO 12206 minimum requirement.
7. Powder coaters, both in the UK and in Europe, have been successfully operating non-hexavalent chromate and anodising pre-treatment lines for more than 15 years, and today it is estimated that most of the major applicators in Europe operate either non-hexavalent chromate or pre-anodising systems.
8. Long-term experience and independent testing indicates that, when correctly applied, non-hexavalent chromate and anodising pre-treatments offer credible, responsible and sustainable alternatives to hexavalent chromate.
9. Specifiers should be aware of the proposed removal of the option of hexavalent chromate-based aluminium pre-treatment for powder coating. This was

originally proposed for September 2017, but it is now thought likely that the implementation date for architectural products will be put back to 2021.

10. The Aluminium Federation is the trade association that represents the interests of the UK aluminium industry. Working closely with European Aluminium and the International Aluminium Institute, the Aluminium Federation acts as the point of contact between the UK aluminium industry and its many stakeholders.

Architectural specifiers with questions regarding the use of aluminium should contact the Aluminium Federation on 0121 601 6363.

Aluminium Federation

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Alfed.org.uk