

Specification for tender:

Coating aluminium profiles and sheets

Project

Client

Planning

Architect

Engineering office

Metal fabrication

GSB – coater

Date

Aluminium profiles and / or aluminium sheets must be coated in accordance with the applicable AL 631 quality guidelines of GSB International e.V.

Pre-treatment has to be performed using preferably an alternative (chrome-free) pre-treatment system that has been approved by GSB International e.V. In regions with salty atmospheres (on the coast or on islands) and at indoor swimming pools with air containing chlorine, pre-treatment with pre-anodisation is recommended.

The company performing the work is a member of GSB International e.V.

A coating system that has been tested and approved by GSB International has to be used for coating.

The GSB - coater has to present to the client on request a copy of the quality assurance certification and the material licences granted by GSB International e.V.

Basic requirements for coating are:

- A construction suitable for coating:
Hollow chambers, gaps, cuts at the back and other constructions and surfaces unsuited to coating must be avoided.
- For selecting the aluminium alloys, it is advisable to observe the “GSB AL 01 2007: Aluminium construction products” information sheet. It can be requested from the GSB offices.
- Sheet and profile thicknesses as well as insulating bars and alloys have to be chosen to withstand the temperatures of around 180° C reached by the objects during curing without deforming and loss of strength.

Pre-treatment of the sheets and profiles involves the following steps:

- Degrease with alkaline or acid solution and optionally post-treat with acid.
- Passivation of the active aluminium surface in accordance with QR GSB AL 631.
- Final rinse with purified water

After pre-treatment, the aluminium components are coated with weather-resistant paints in RAL, NCS or haematite colours. This coat has to be uniform and nonporous. To do this there are the following significantly different - in terms of quality and life span - GSB-approved coating systems in the qualities "Standard", "Master" and "Premium" that differ in their long-term resistance. Long-term outdoor tests and short weathering tests carried out in Florida by neutral accredited test institutes as part of the GSB approval process attest to these quality differences.

The latest version of GSB QR AL 631 approved by the general meeting are the guidelines relevant to the GSB coater for the surface coating of aluminium components. These quality guidelines can be requested from GSB offices at any time or viewed on the Internet at www.gsb-international.de.

As part of GSB QR AL 631 in-house monitoring, production by the coater has to be checked constantly in accordance with the quality guidelines. Quality samples and test reports - which, as well as the project description, provide information on significant properties of the coating - have to be produced with the coating. It is advisable to specify and approve for implementation the colours requested, colour uniformity and uniform surface finish (gloss and structure) of all components using quality and / or limit value samples. The test protocols and test sheets have to be stored by the coater for the duration of the arranged guarantee.

Years of practical experience have shown that a broad range of approved pre-treatment processes and coating materials can be used. This permits the introduction of weather classes to choose a coating according to the state of the art.

Table 1: Weather classes

Weathering class	Impact of corrosion	Ambient conditions	Recommended pre-treatment	Corrosion test	GSB coating classes	GSB coating material	Recommended cleaning interval
GSB - Country Side (A1 / A2)	Low & average	Slightly dirty countryside, city and moderate industrial environment	Containing chromate/ chromate-free/ chromium-free	Condensation – constant climate	Approved	Standard	Annually
GSB - Industrial (A3/A4)	High	Industrial atmosphere with corrosive exhaust gases and coastal areas with moderate salt content	Containing chromate/ chromate-free/ chromium-free	AASS	Master	Standard / Master	Annually
GSB - Sea Proof (A4/A5)	Very high	Coast with medium salt content	Containing chromate/ chromate-free/ chromium-free with documented process	Filiform corrosion test (≤ 0.3) and AASS	Master	Master / Premium	Annually
					Premium	Master / Premium	
GSB - Sea Proof Plus (A5)	Very high	Coast with high salt content, open sea	Pre-anodising	Filiform corrosion test (≤ 0.10) and AASS	Master / Premium	Master / Premium	2 x per year