

# NOVELIS

## Anodising quality J57S<sup>®</sup>

### Processing guidelines

J57S was specially developed to cater for the modern requirements of high quality anodised facades. The alloy's chemical composition is set within very narrow limits and in such a way that the anodised facade exhibits a striking metallic appearance. Higher levels of manganese (Mn) and copper (Cu) in the composition compared to standard 5005 (AlMg1) alloys, together with a sophisticated manufacturing process, provide the platform for optimum uniformity in colour tone and gloss levels – even when using J57S from different production batches. To help maintain the highest possible quality, a trial anodising process is carried out and assessed on each production batch before being released for delivery.

An agreement should be reached between the architect, fabricator, installer and the anodising plant with regards to range samples, which should take into account the deviations in colour tone and gloss levels that are inevitable due to variations in the anodising process.

During production of the facade components, it must be taken into account that they have the same rolling direction during manufacture and also when fixed to the facade. Welded and soldered joints near exposed surfaces should be avoided. Welding, soldering, etc. should only be carried out on surfaces which cannot be seen as the heat generated can cause a change to the material microstructure, which will affect the anodising performance and thereby detracting from the aesthetic effect.

In order to achieve optimum colour and gloss uniformity after anodising, it is essential to provide the best possible conditions for degreasing, etching, de-smutting, anodising and colouring and to keep these conditions as constant as possible.

Proper rinsing steps during whole production are essential. We recommend the use of the two step anodising

process for J57S. It is highly recommended that only one anodising plant be used for the same project. In particular, the etching conditions influence the anodised surface, as the amount of etching influences the reflective behaviour of the facade. During etching, the removal of some 20 to 30 µm on the decorative side is necessary in order to properly prepare the surface. E0 pre-processing (degreasing and deoxidising) is not suitable.

The etching behaviour of J57S sheets may differ from that of other anodising materials. A thicker etching coating (smut) is typically generated with J57S due to the higher Cu and Mn levels.



Additives for reducing foam formation and maximising particulate bonding should be used in order to achieve optimum process performance. In addition, the additive concentration needs to be carefully monitored (refer to instructions from the chemical manufacturer), and particulate proportions of the etching solution must be continually monitored (e.g. titration) and avoided (e.g. using compliance or precipitation).

Particularly with shaped facade components, the etching bath temperature should not exceed that according to the chemical manufacturer's instructions. There is the risk of excess concentrations of the etching smut drying on the component surface, which can result in an irregular etching finish.

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Subsequent treatment in an E0 etching solution can improve the removal of the etching smut, due to the concentration of hydrogen on the component surface.

During the de-smutting of the etched sheets, it is essential that all the etching coatings be completely removed. Agitation of the rinsing and de-smutting baths will help in the removal of such residues. Suitable de-smutting solutions are nitric acid or sulphuric acid. If sulphuric acid is used, it is essential that hydrogen peroxide also be added to the solution in appropriate volume. We recommend minimum concentrations of nitric acid, 100 g/l, sulphuric acid, 100g/l and hydrogen peroxide, 12 g/l, however these are guidelines and manufacturer's instructions should be followed at all times.

All J57S sheets manufactured by Novelis are printed on the reverse (uncoated) surface with a unique reference to the individual ingot (batch) and rolling direction. This identification number remains legible after anodising and allows identification of the material in accordance with our warranty. Should processed material require this batch number to be removed then a pre-agreed system of batch traceability should be employed to ensure warranty compliance. Our pack label also makes reference to the batch number.

The visible side of the sheet faces upwards on the original packed Novelis pallet and is covered by UV-resistant protective film with the Novelis J57S logos.

This film can be successfully removed without leaving any residue provided it has been stored in a weather-proof warehouse at a temperature range of +5 to +30 degrees celsius.

In addition, the film must be removed within 12 months after the sheets have left the Novelis plant, and during these 12 months, may only be exposed to UV radiation for 6 months.

For orders without surface protection (i.e. film or paper), Novelis will take no responsibility for detrimental anodising performance due to fretting corrosion or surface abrasions.

These processing guidelines for Novelis J57S are provided as recommendations only. The different chemicals used in the various aspects of the anodising process have individual characteristics and a major influence on the process. Therefore the information supplied by the chemical supplier(s) should always prevail. Before choosing Novelis J57S, the processor needs to evaluate whether J57S is suitable for the desired application. Novelis does not accept liability for suitability for any purpose.

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