

**Date of Issue:** 09 March 2004  
**Report No:** QRH04-4024  
**Client:** Lanotec Australia Pty Ltd  
**Attention:** Geoff Boyle  
**Address** PO Box 360  
Archerfield Qld 4108  
**Order No.** 724  
**Job Description:** Testing of Lanolin based products applied to Powder Coated Aluminium in the Presence of Mortar



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## INTRODUCTION

Lanotec Australia (the client) requested ETRS to assess the effectiveness of their lanolin based product for protection of powder coated aluminium in the presence of mortar. The client was also interested in the ability of the product to behave as a release agent as it was anticipated that the product might be used in the construction industry during installation of aluminium doors and frames etc.

## PROCEDURE

A 600mm length sample of powder coated aluminium window frame was marked 'lanolin' on one half of length and 'no lanolin' on other half. Each half had an area of coating 'x' cut with knife prior to coating the 'lanolin' half of panel with the product known as 'Lanotec – lanolin liquid aerosol – GP21'

A standard mortar mix of 1:4 of portland cement:sand was made by volume and applied to the full length of the test panel and allowed to dry for 3 days. Tap water was poured over sample once every 3 days thereafter.

The test panel was examined visually and microscopically for evidence of corrosion at various stages and mortar was removed to assess adhesion of mortar to panel. Relevant photographs and micrographs were taken for future reference.

## RESULTS

Photographs and micrographs associated with visual and microscopic examination are attached and can be summarised as follows:

- After 9 days of curing the mortar could be easily removed by hand from the 'lanolin' coated section of test panel. In contrast, removal of mortar from the 'no lanolin' area of test panel required significantly more effort using hammer and chisel.

- After 9 days exposure, evidence of aluminium corrosion was observed at the exposed metal surface (ie where 'x' cut had been made) for the 'no lanolin' section of test panel. No evidence of corrosion could be detected for the corresponding area of the 'lanolin' coated area.



Roger Mendel  
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Corporate Signatory

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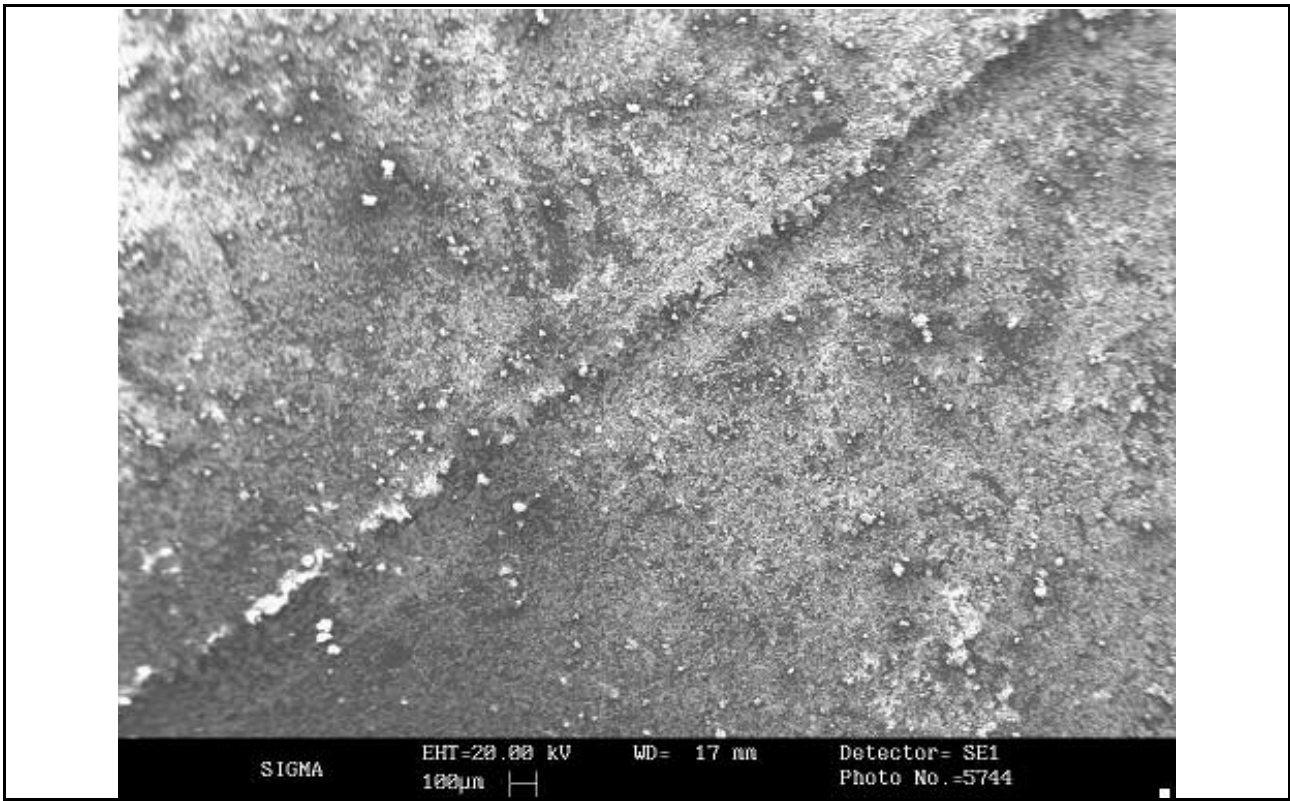


Figure 1 Scanning Electron Microscope (SEM) image of powder coated aluminium surface that has been scratched with knife, coated with Lanotec – GP21, and exposed to mortar and moist environment. No evidence of corrosion was observed after 9 days exposure.

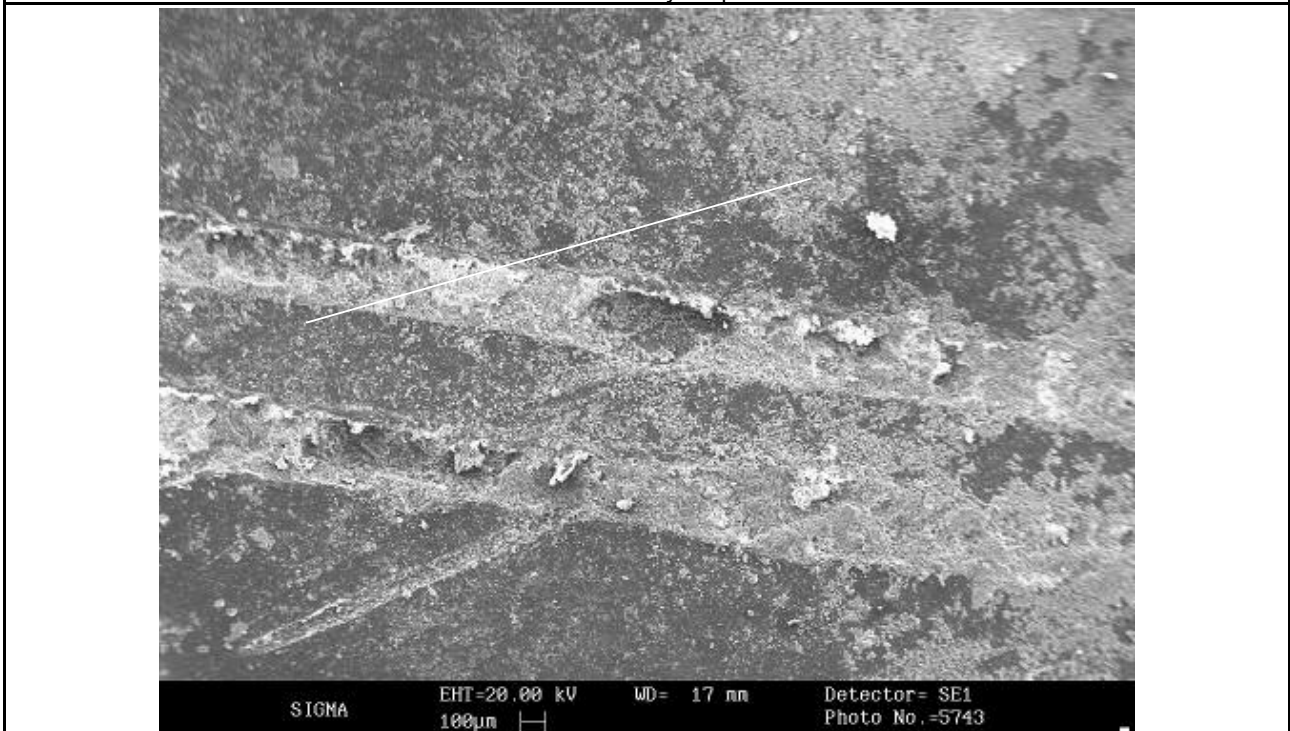


Figure 2 Scanning Electron Microscope (SEM) image of powder coated aluminium surface that has been scratched with knife and exposed to mortar and moist environment. Evidence of corrosion was observed after 9 days exposure.

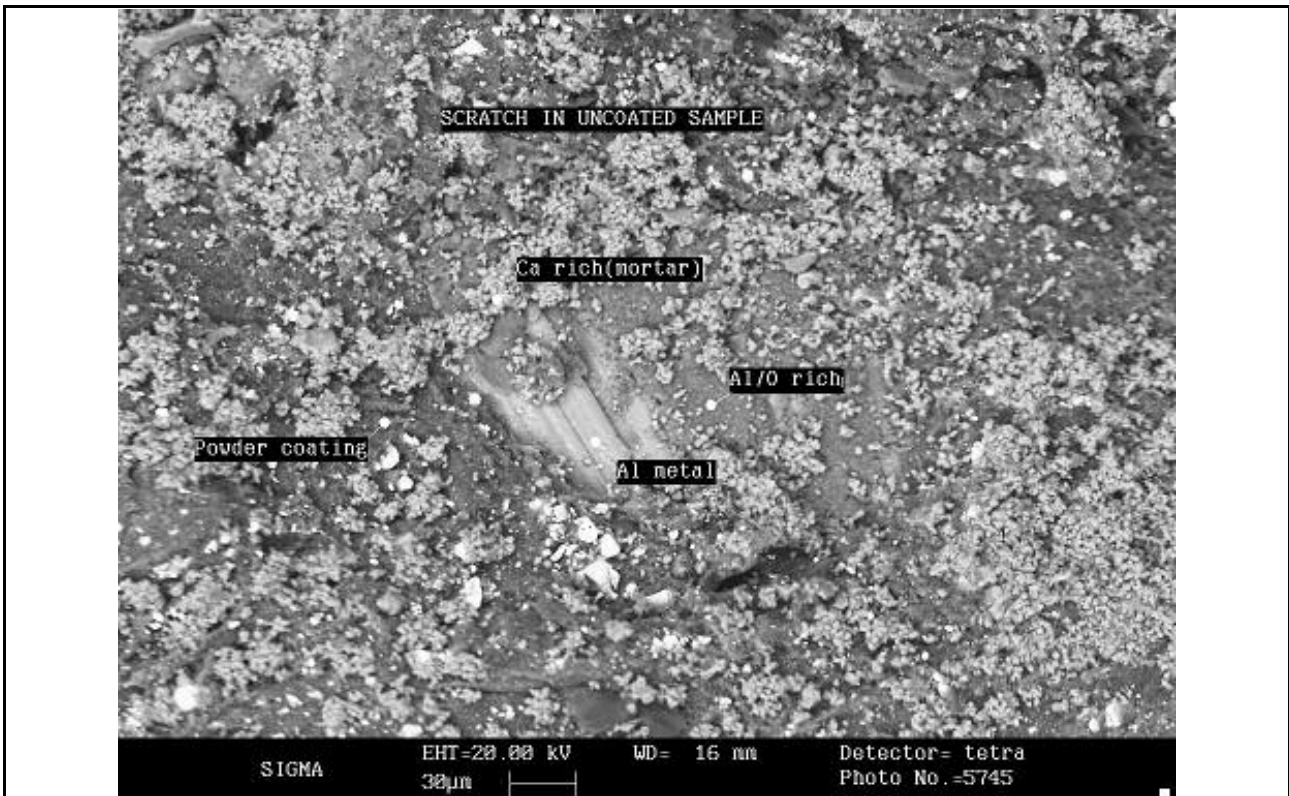


Figure 3 As per Figure 2 – higher magnification shows evidence of aluminium oxide produced by corrosion process.

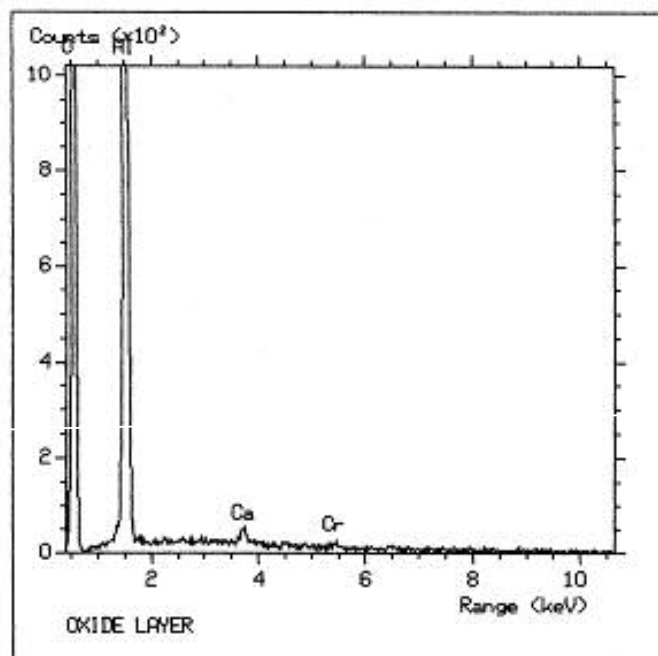


Figure 4 As per Figure 3 – chemical analysis of particle by Energy Dispersive Analysis of X Rays (EDAX) indicates Aluminium oxide rich corrosion product.