


Max Exterior Durability Testing:

In 1999 Max Exterior Cladding underwent an extreme exposure testing programme to identify its performance based on Australian conditions.

Max Exterior cladding completed the test where the panel was exposed to 1,000,000 Langleys of radiation and was then evaluated in a range of performance criteria's. Along with the test results, an extract from Allunga's web site that provides a brief description of the Laboratory and their credentials is also tagged to the base of this document.



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EXPOSURE REPORT

Date 11-06-01 Page 1

Series Report MAX EXTERIOR
 1,000,000lang.
 Date Exposed 6-12-99
 Exposure *ALTRA Ref

MAX EXTERIOR CLADDING
 ISOMAX
 AUSTRIA

270 42

S 1580 PRE #1 1887 1888	General Appearance	Discoloration	Dirt Collection	Unwashed Change of Gloss Washed	Color Change	Other Etc.	Gloss Washed	
							20°	80°
.645FH	8	6	-	4	6	1	10	
02.612FH	8	5	-	4	5	1	10	
03.741FH	9	8	-	7	9	1	10	
09.45NT	9	9	-	9	9	d	10	
10.12NT	9	9	-	9	9	d	10	
11.741NT	9	9	-	9	9	t1	10	

Evaluation is based on AS 1580.487

General Appearance 1.9 Discoloration 1.11 Dirt Collection 1.18 Change of Gloss (E) Erosion (F) Chalking (G) Cracking (H) Flaking & Peeling	(J) Blistering (K) Visible Raising (L) Chalking (M) Mold, Algae, Fungus (N) Ford Image Clarity (O) Film Defects (P) Duller (Q) Lighter (R) Redder	b blue y yellow g greyer wh whiter f fade i increase c continued w wider variation t trace m includes mould loe localized no no noticeable change sd surface distortion ws water spotting af adhesion failure sl slight md moderate sv severe
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All Samples Tested As Received length measurements in mm

For a rating of 7 on the scale of colour change, the difference between 7 and 10 is not discernable to the naked eye and can only be measured on a machine. This would equate to a Delta E difference of less than 2.

The results of samples 9, 10, and 11 have provided excellent results with virtually no change after the completion of the test. This material is the 'NT' range of panel where the FH is from the 'Universal' range

Note that the term 'Langley' is simply a unit to measure Ultra Violet radiation and is an internationally accepted term within the coatings industry.

The obvious question is of course what does this mean in terms of the life expectancy of the material on a building. This is very difficult to answer as many things will affect the 'in place life' of any cladding material.

Some of these are:

- ✓ Location of the building i.e. coastal, inland
- ✓ Environmental conditions i.e. humid, dry, polluted, etc.

Therefore as a general guide only, 1,000,000 Langleys would equate to approximately 10-15 years life in Townsville, a harsh tropical environment. For a rating of 7 or above for the general appearance of the material would still be considered to be in acceptable condition requiring NO reworking or maintenance of the panel surface.

The test we used (Altrac) is an EXTERIOR exposure test procedure. This was chosen deliberately as the material is to be used in an EXTERIOR application. Other materials use laboratory-based tests such as Weathometer. These have a place in developing new coating systems as they produce a quicker result, however we have always believed that exterior testing provides a more realistic and accurate assessment of façade and cladding systems.

Test Procedure:

Altrac units use a Fresnel-like array of ten mirrors focussed onto the target zone, and the units rotate during the day tracking the movement of the sun. The samples under test are placed on a rack within this target zone.

Altrac units allow a concentrated exposure to the natural solar spectrum. A specially designed pyranometer sensor measures radiation in the target area. On clear sunny days the acceleration factor, in radiation terms, may reach 900% with cloudy days reaching approximately 450 – 500%.

In addition to the normal climatic exposure, a fine jet of water is sprayed over the samples for eight minutes of every hour during the daytime. The presence of moisture significantly accelerates and degradation to a surface



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Allunga Exposure Laboratory

The changes in appearance and performance of materials with exposure to weather and the passage of time are, alas, familiar to us all. Indeed, Pliny the Elder in the first century AD reportedly listed corrosion and weathering of materials among man's chief enemies.



Altrac Accelerated Exposure

Our work in this branch of materials engineering since July 1969 has made the Townsville region in north-eastern Australia a global reference location for natural and accelerated exposure testing.

Allunga's range of exposure and reporting services, the harsh tropical weather conditions of northern Australia, and the experience and expertise of our staff in all aspects of weathering tests, allow product durability and weathering characteristics to be assessed as rapidly as possible.

Allunga is an Aboriginal word for 'Sun' appropriate for a city with long-term averages of more than 310 days of sunshine every year, and more than 8.7 hours of sunshine per day.

Townsville's dubious title of "skin cancer capital" makes it the ideal location for weathering tests. Townsville with its clear sunny days, moist dewy nights, and low latitude of 19° S. has high average daily solar radiation levels with only slight seasonal variation. Indeed, Townsville averages global radiation levels of approximately 7500MJ/m² per year, and UV-R levels of approximately 340 MJ/m² (below 385 nm.) per year.

As Australia's largest tropical city, indeed the largest city north of Brisbane, Townsville offers the flexibility of an established transport infrastructure (including an international airport) and major research facilities (university, institute of marine science, CSIRO etc.) as well as its complex harsh coastal environment.

All testing and research programmes undertaken by Allunga Exposure Laboratory are strictly confidential.

Australian and international clients currently use Allunga's exposure and reporting services to evaluate the performance of a wide range of materials including: coatings, paints, plastics, rubbers, textiles and fibres, pigments, dyestuffs, resins, additives, UV-absorbers, decals, adhesives, building and packaging materials, composite materials, photo-active materials, etc. Australian clients can use our charges as part of their application for I.R.& D. incentives.

Allunga Exposure Laboratory is an accredited laboratory with the National Association of Testing Authorities (NATA), and maintains operational quality systems that exceed the requirements of ISO/IEC