

# Roediger Agencies cc

REG No: 93/29837/23

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## ANALYTICAL LABORATORY

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Andre Botha

H Systems (Pty) Ltd.

Unit 2

1 Saxenwold Lane

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7581 CAPE TOWN

Dear Mr. Botha

### **REF no.: 2505HH1/1-3**

Panels were sent to the analytical laboratory of Roediger Agencies cc for analysis via the following test method. The samples were labelled:

1. Sterling silver HC002;
2. Signal white HC001, and
3. Gunmetal grey HC004.

### **QUV**

A QUV fluorescent UV/condensation tester can be used to accelerate weathering. Different types of ultraviolet light bulbs can be used in the tester to emphasize different wavelengths. UVB radiation is responsible for most polymer damage.

The bulbs used were of the type UVB-313, which gives the highest irradiation at a wavelength of 313 nm. Results obtained with these lamps correlate well with results of outdoor exposure for gloss retention on coatings and for the material integrity of plastics. With the exception of the automotive industry, the UVB-313 is the most widely used light source for the ASTM G-53 devices. However, the short wavelength output below the solar cut-off can cause anomalous results.

Two types of weathering cycles are used; 1) Wet cycle is an 8 h exposure to a UV cycle at 45 °C, followed by a 4 h condensation cycle at 65 °C, only the actual UV exposures hours are taken into consideration to determine the outdoor exposure equivalent. 2) Dry cycle a continuous exposure to a UV cycle at 45 °C. The reported number of hours of exposure is equivalent to the total time of UV exposure recorded.

In our experience with tests carried out to evaluate the weathering of plasticised poly(vinyl chloride), an exposure time of 3000 hours correlates to a ten-year period. It must be borne in mind that the degradation that takes place is not linear over the time of exposure, it is exponential.

The sample depicted below has been exposed to a dry cycle for 1033 hours which equates to  $\pm 3$  years outdoors.



**Summary**

Sample		Change after years equivalent outdoors	
		1 year	3 years
1	Sterling silver HC002	No discolouration or deterioration is noted.	
2	Signal white HC001		
3	Gunmetal grey HC004		

Yours faithfully,



Dr. AHA Roediger.