



Consultant to the Building
and Construction Industries

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For attention: Mr L Makwedini

Dear Sir

**REPORT ON AN EVALUATION OF “STUCCOMAX AND PLASTERMAX”
WALL COATINGS**

Please refer to your request to evaluate the above-mentioned coatings.

1. SCOPE OF THE INVESTIGATION

The scope of the investigation was to determine the adhesion and bond strength of “StuccoMax” and “PlasterMax” coatings to cement based building materials (plaster, mortar, brick and concrete), to determine the resistance to abrasion, to evaluate the colour stability, to determine the water vapour permeability of the above-mentioned coatings and to comment on the performance of the surface protection paints on the coatings.

2. LABORATORY INVESTIGATION

Samples of the coatings and surface protection paints were supplied by GIGACRETE Inc.

2.1 Adhesion to and bond strength of the coatings to cement based materials

The adhesion of the “StuccoMax” and “PlasterMax” coatings to “Nutec” board was tested in accordance with the method described in the Method of Assessment and Testing: **MOAT No 33: 1986 The Assessment of Masonry Coatings**. No loss of adhesion or cracking occurred on any of the samples. The surface protection paints adhered well to the coatings.

The bond strength of the coatings to the “Nutec” board substrates was determined by applying pull-off tests in accordance with **SANS 4628:2008 Paint and Varnishes Pull-off test for adhesion**. The average bond strength was determined to be 1,5 MPa for the “StuccoMax” samples and 1,7 MPa for the “PlasterMax” samples (cohesive failure occurred in the “Nutec” board substrates in both cases). The average bond strength of the surface protection paints to the coatings was 0,6 MPa.

2.2 Resistance to abrasion

The resistance to abrasion was determined in triplicate on samples of “StuccoMax” and “PlasterMax” coatings. The samples were subjected to abrasion on a “Gardner Abrasion Machine” in accordance with **ASTM D 2486 – 99 Scrub resistance of Interior Latex Flat Wall Paints**. Both the coatings withstood 10 000 cycles with no visible wear through.

2.3 Colour stability

Three samples of “StuccoMax” and three samples of “PlasterMax” coatings, were exposed to UV light in a QUV accelerated weathering apparatus for 1000 hours. The UV B lamps have a peak emission at 313 nm. The exposure programme employed consisted of 4 hours UV exposure at 60 ± 2 °C black panel temperature and 4 hours condensation at 45 ± 2 °C. A description of the changes to the surfaces of samples is given in **Table 1**. No chalking or other defects were detected on the samples.

Table 1: Changes to the surfaces of samples

Samples	Description of surface
“StuccoMax”	Very slight fading, no changes occurred on surface
“PlasterMax”	Very slight fading, no changes occurred on surface

2.4 Permeability

The water vapour transmission rate (WVTR) was determined on samples of “StuccoMax” and “PlasterMax” coatings. The water vapour resistance was determined from these values. The results are given in **Table 2**.

Table 2: Water vapour resistance of “StuccoMax” and “PlasterMax” coatings and “Nutec” board

Sample	Water vapour resistance (MNs/g)
“StuccoMax”	10,2
“PlasterMax”	11,6
“Nutec” board	9,9

According to the Method of Assessment and Testing: **MOAT No 33: 1986 The Assessment of Masonry Coatings** “the system is considered to be a vapour barrier if its resistance exceeds 15 MNs/g”. If the water vapour resistance is higher than 15 MNs/g the coatings will be too impermeable and interstitial condensation will occur.

3. DISCUSSIONS

3.1 The bond strength and adhesion of the “StuccoMax” and “PlasterMax” coatings to “Nutec” substrates are better than that of other similar products. The coatings will also bond and adhere well to cementitious based substrates and clay bricks. The bond strength and adhesion of the surface protection paints to the “StuccoMax” and “PlasterMax” coatings is acceptable.

- 3.2 The resistance to abrasion of the “StuccoMax” and “PlasterMax” coatings is regarded to be acceptable for exterior and interior wall applications.
- 3.3 The “StuccoMax” and “PlasterMax” coatings were not affected (very slight fading) by UV light and should perform well when exposed to the weather.
- 3.4 The “StuccoMax” and “PlasterMax” coatings will not present the risk of condensation on the “cold” sides of walls coated with it.
- 3.5 It is suggested to select the surface protection paints for the coatings from products with an Agrément Certificate.
- 3.6 A note must be included that both the coatings should not be applied in direct sun light and should be shaded for 24 hours after application – please refer to warnings in the documentation.

4. RECOMMENDATION

Based on the results it is recommended to consider to issue an Agrément Certificate for both the coatings.

I trust that this report will be of assistance to you. Should you wish to discuss any aspect please contact me.

Yours faithfully



M S Smit