

TECHNICAL REPORT

Report Date: **11/01/2011**
 Bostik Reference: **TS 10-015/EE**
 Requested By: **ROB WILKINSON**

1. DETAILS

Product used: **LANDSCAPE ADHESIVE**
 Application: **Tiling, paving**
 Tile used: **Pacific sandstone, Himalayan sandstone (cut into 50 x 50 mm)**
 Substrate: **Concrete Block (specified by AS 4992)**
 Sealer: **Dry Treat 40-SK Surface Consolidator**
 Evaluation:

- To evaluate "Landscape Adhesive" as an adhesive to different sandstones
- To evaluate the effect of Dry Treat 40-SK when applied to sandstone

2. TEST PROCEDURE

- 4 different types of sandstones were tested (1 Pacific & 3 Himalayan).
- Sandstones were immersed in a "Dry Treat 40SK Surface Consolidator bath" for 10 mins. Then air dried for 24 hours. Repeated cycle 2 times.
- Landscape Adhesive is used to bond the sandstone over the concrete block. Samples were conditioned for 7 & 28 days at 22°C / 50% relative humidity.
- After conditioning, samples were pulled off using a Dyna Z6 Pull-off Tester (at a rate of 250±50 N/s)

3. TEST RESULTS

After 28 days of conditioning, results as follows:

<u>DRY BOND SAMPLE</u>	TREATED	Mode of Failure	UNTREATED	Mode of Failure
Sample 1	1.53 N/mm ²	Cohesive failure within the adhesive	1.39 N/mm ²	Cohesive failure within the tile
Sample 2	1.87 N/mm ²	Cohesive failure within the adhesive	1.82 N/mm ²	Cohesive failure within the adhesive
Sample 3	1.99 N/mm ²	Cohesive failure within the adhesive	1.55 N/mm ²	Cohesive failure within the adhesive
Sample 4	1.86 N/mm ²	Adhesive failure between tile and substrate	1.86 N/mm ²	Adhesive failure between tile and substrate

<u>WET BOND SAMPLE</u>	TREATED	Mode of Failure
Sample 1	1.30 N/mm ²	Cohesive failure within the tile
Sample 2	1.51 N/mm ²	Adhesive failure between tile and substrate



Picture 1: Sample 1 overview



Picture 2: Sample 1 close-up



Picture 3: Sample 2 overview



Picture 4: Sample 2 close-up



Picture 5: Sample 3 overview



Picture 6: Sample 3 close-up



Picture 7: Sample 4 overview



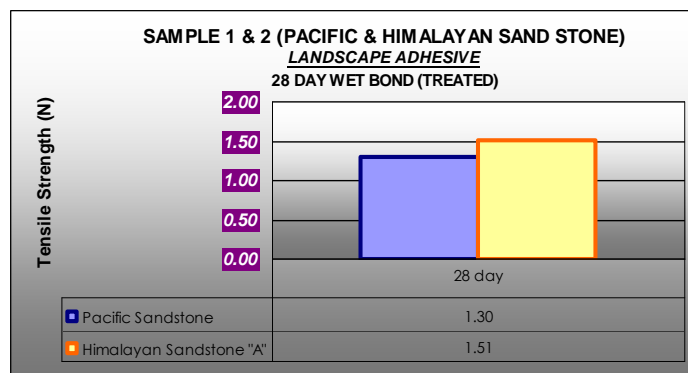
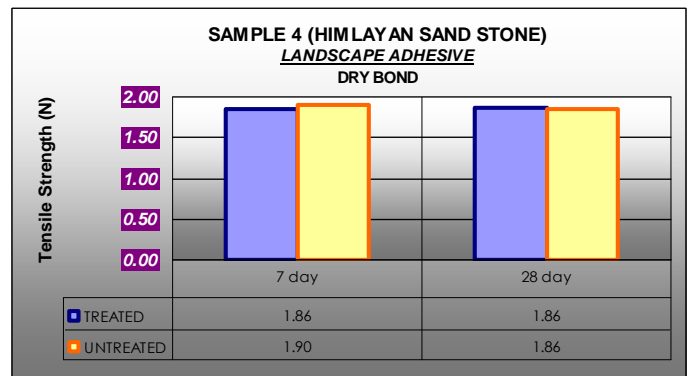
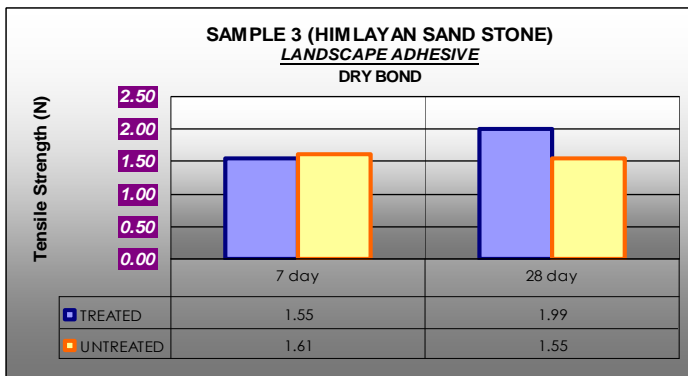
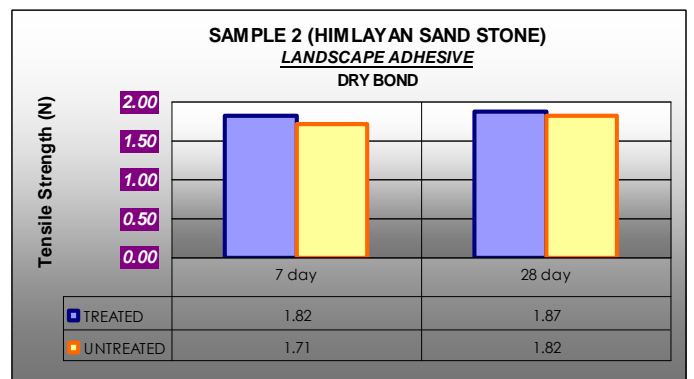
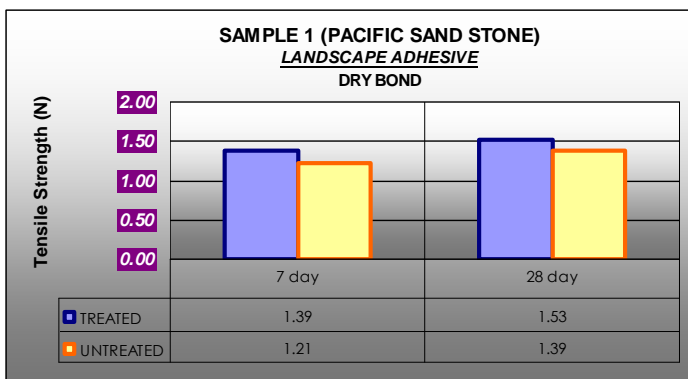
Picture 8: Sample 4 close-up



Picture 9: Wet bond overview



Picture 10: Wet bond close-up (Pacific & Himalayan sand stones)



Himalayan Sand Stone # 3 & 4 were not tested due to limited number of samples

4. CONCLUSION

Based on the testing conducted, **Bostik Landscape Adhesive** provided a good bond to the sandstone over concrete block. It was further improved when **Dry Treat 40-SK Surface Consolidator** was applied to the sandstones. A change in failure mode was also observed on the Pacific sand stone. Without the Dry Treat 40-SK, the sandstones were split into halves upon pull-off, whereas treating it consolidates the friable materials.

For and on behalf of

Bostik Australia Pty Ltd

Emmark Eroles

Research & Development Chemist