

Industry

Technical Service Report

Report-No.:

00293-CTS-00023-bem

Date:

12.03.2009

Kebony Teak

Customer:

Sika Services AG

Test-costs:

1'600 CHF

Requestor:

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Distributor Customer:

Distributor Sika:

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Technical Service

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Tests

Kebony Maple is produced from sustainably managed Maple, which is treated with bio-based, renewable chemicals. The process gives a unique wood material with outstanding durability and an exclusive appearance. Kebony Maple can be machined in the same way as traditional hardwood. Adhesion tests were done acc. QCP-033-1

Conclusion

Good adhesion over all exposures could be reached after following pretreatment:

- Sikaflex-298 FC and Sikaflex-290 DC in conjunction with SikaPrimer-210
- Sikaflex-298 FC and Sikaflex-290 DC in conjunction with Sika-90 WB Primer
- SikaPrimer-290 DC showed adhesion loss from the substrate after cataplasma. Primer shows partly adhesion loss from the wood.

In addition to that, the wood has been broken in itself after cataplasma.

The results only apply to the tested quality. Constant/reproducible surface quality is required. Any changes can result in adhesion loss.

Technical properties Kebony Maple* Unit

Density (12% mc) 780 610 Kg / m³

Hardness, Brinell 6 3.7

Bending strength (MOR) 130 MPa

Stiffness (MOE) 15 11.5 GPa

Max swelling (dry to wet, tang. direction) 6.7 11 %

Max swelling indoor (35-85% RH, tang. Direction) 3 6.2 %

Decay resistance (Durability class 1-5) 1 5

* Values of untreated Maple

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Tests conducted

CQP 033-1 - Bead adhesion
Shrinkage determination in growth direction

| Cleaner | Charge |
|----------------|---------------|
| none | - |

| Primer | Charge |
|---------------------|---------------|
| Sika WB 90 | - |
| SikaPrimer-210 | - |
| Sika® Primer-290 DC | - |
| without | - |

| Adhesive | Charge |
|-------------------------|---------------|
| Sikaflex® -290 DC black | - |
| Sikaflex® -298 FC | - |

| Substrate [Attribute] | |
|------------------------------|---------------|
| Kebony wood | [Wood / Wood] |

Remarks

Kebony Teak 00293-CTS-00023-bern

Standard Table

Tests: CQP 033-1 - Bead adhesion

Substrates: Wood / Wood
Kebony wood

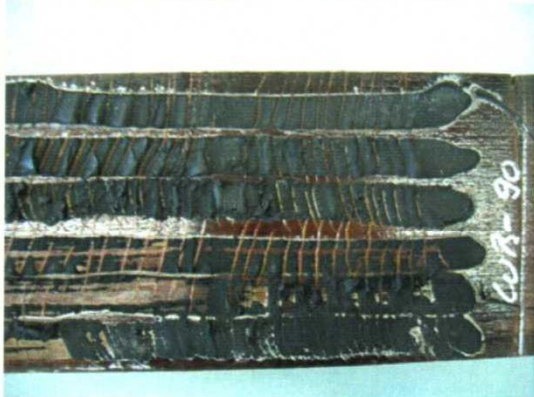
| PreTreatment | Cleaner | t [min] | Primer | t [min] | Adhesive | Results | | | | | | |
|--------------|---------|------------|---------------------|------------|-------------------------|---------|-----|-----|---|---|-----|--|
| | | | | | | B | C | F | G | L | | |
| none | none | | without | | Sikaflex® -290 DC black | 1 | 4 | 4 | | | 4 | |
| none | none | | without | | Sikaflex® -298 FC | 1 | 4 | 1 | | | 1 | |
| none | none | | Sika® Primer-290 DC | 30 | Sikaflex® -290 DC black | 1 | PVU | PVU | | | PVU | |
| none | none | | Sika® Primer-290 DC | 30 | Sikaflex® -298 FC | 1 | PVU | 1 | | | 1 | |
| none | none | | SikaPrimer-210 | 30 | Sikaflex® -290 DC black | 1 | 1 | 1 | | | 1 | |
| none | none | | SikaPrimer-210 | 30 | Sikaflex® -298 FC | 1 | 1 | 1 | | | 1 | |
| none | none | | Sika WB 90 | 30 | Sikaflex® -290 DC black | 1 | 1 | 1 | | | 2 | |
| none | none | | Sika WB 90 | 30 | Sikaflex® -298 FC | 1 | 1 | 1 | | | 1 | |



SikaPrimer 290 DC in conjunction with Sikaflex-290 DC + Sikaflex-298



SikaPrimer 210 DC in conjunction with Sikaflex-290 DC + Sikaflex-298



Sika 90 WB Primer DC in conjunction with Sikaflex-290 DC + Sikaflex-298



Without Primer in conjunction with Sikaflex-290 DC + Sikaflex-298



Additionally test with 50% tension



Additionally test with 50% tension

Notation for the Results

| Notation | Exposure |
|----------|---------------------------|
| A | 1d KLR |
| B | 7d KLR |
| C | 7d WL + 2h KLR |
| D | 7d 40°C/95%rh. + 2h KLR |
| E | 7d 70°C + 1d KLR |
| F | 1d 80°C |
| G | 1d 80°C + 2h KLR |
| H | 3d -30°C + 2h KLR |
| I | 7d 80°C + 2h KLR |
| J | 3d 80°C |
| K | 2h KLR |
| L | 7d CP + 2h KLR |
| M | 7d CP + 1d -30°C + 1d KLR |
| N | 10 cycles VDA |
| O | 20 cycles VDA |

KLR = Exposure at 23°C/50%rh acc. to DIN 50'014
 WL = Exposure in deionised water at 23°C
 CP = Cataplasma at 70°C/100%rh.
 VDA = Cycletest acc. to VDA 621-415
 xh = x hour(s)
 xd = x day(s)

The test results are analyzed as shown in the Table below:

| Note | Assessment | Bond |
|------|---|------------------------|
| 1 | Bond satisfactory | > 95% cohesion failure |
| 2 | Bond basically satisfactory | > 75% cohesion failure |
| 3 | Bond not satisfactory | > 25% cohesion failure |
| 4 | Bond not satisfactory | < 25% cohesion failure |
| L | Failure of paint structure (define failure point) | |
| P | Primer separates from substrate | |
| BK | Bubbles in adhesive | |
| B | Bubbles/voids on the bond surface | |
| T | Tunnel effect/edge bonding | |
| K | Adhesive is not cured on the bond surface | |
| FH | Film bonding | |
| S | Foam structure on the bond surface (fine bubbles) | |
| RA | Edge separation | |
| n | Not tested | |

Note:
 If no additional designation is given, the failure area (if adhesive) is between the adhesive and the layer applied last. Different failure modes should be described.