SEALER, HOT APPLIED, HEAT CURING, LOW EXPANDING (50% - 100%) **WSS-M4G525-A1**

SEALER, HOT APPLIED, HEAT CURING, EXPANDING (150% - 250%) **WSS-M4G525-A2**

SEALER, HOT APPLIED, HEAT CURING, HIGH EXPANDING (300% - 400%) **WSS-M4G525-A3**

1. SCOPE

The materials defined by these specifications are hot applied, touch dry at RT after application, heat curing, heat expanding sealers.

2. APPLICATION

These specifications were released originally to glue roof bows to laser brazed roof. The material has to form a tack free surface after cooling down, because the roof is initially laid on the roof bows and then lifted and adjusted to its final position for brazing. The Sealer expands in the e-coat oven. The materials are applicable on oiled surfaces with acceptable oil film weights (European applications limit the oil/pre-lubricant film weight to max 3 g/m², see para. 3.3).

Note: Care must be taken to ensure that the local oil film weight in the area of the adhesive/sealer application does not exceed the critical limit. Monitoring of the film thickness, adequate storage of the part and/or cleaning of the surface prior to sealer application is necessary to avoid critical film thickness values, which would then cause malfunction of the sealer/adhesive.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements for Production Materials (WSS-M99P1111-A).

3.2 PERFORMANCE REQUIREMENTS

3.2.1	Color	Black
3.2.2	Solids, %, min (FLTM BV 150-10)	95
3.2.3	Ash, %, max (FLTM BV 150-10)	45
3.2.4	Flash Point (ASTM D 56)	>56 °C

Date	Action	Revisions
2007 02 12	Revised	Revised 3.2.7, 3.2.9, 3.2.10, 3.2.12, 3.2.14, 3.2.17 & 3.3; Inserted 3.3.1, 3.3.1.1, 3.3.1.2 & 3.3.1.3 W.Janitschke/B. Ütrecht
2006 10 12	Activated	W. Janitschke/B. Ütrecht

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3.2.5	Density at 20 °C (ASTM D 1475, tolerance +/- 0.05 g/cm^3, based on the recorded density of supplier's original approved sample)	1.0 to 1.6 g/cm^3
3.2.6	Viscosity at 23 °C, s (FLTM BV 103-01, line pressure 0.392 MN/m^2, nozzle dia. 2 mm)	
3.2.6.1	As Received	70 – 200
3.2.6.2	After Ageing, max (14 days at 35 +/- 2 °C)	200

Note: Final approval of a specific viscosity of material for production shipments shall be made by affected Manufacturing Division. In all cases, however, the viscosity shall be within the limits specified above and shall meet all requirements of this specification (Control Sample Laboratory Report).

3.2.7	Flow Rate, max (FLTM BV 153-01, Method A, except oiled panels acc. para 3.3)	No flow permitted

3.2.8 Cold Resistance After Ageing

No loss of adhesion, no chipping.

Test Method:

(a) Apply 250 x 30 x 3 mm ribbons of material under test to 300 x 100 mm test panels (prepared according to para 3.3).

(b) Expose test assemblies according to FLTM BV 150-05, Table 2 for:

. minimum curing cycle (165 °C, 10' Materials Temp in EC oven)
. maximum curing cycle

(c) Expose test assemblies in a mechanically convected air-dry oven at 80 +/- 2 °C for two weeks.

(d) After cooling to 23 +/- 2 °C expose test assemblies and bending fixture (see FLTM BV 153-04, except 100 mm mandrel) in a cold box at -30 +/- 1 °C for 4 h.

(e) While still in the cold box, bend test assemblies within 2 s around the 100 mm mandrel through an angle of 90°.

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3.2.9 Wash-off Resistance

No wash-off of sealer, deformation of sealer surface permitted.

Test Method:

(a) Apply two ribbons of material under test 250 x 30 x 3 mm and 50 mm apart from each other to a 300 x 300 mm oiled panel, prepared acc. to para 3.3).

(b) After conditioning for 2 h at 23 +/- 2 °C expose test assembly in horizontal position to a water jet of 50 +/- 5 °C using a nozzle No. 1/2 GG-25 Full Jet and a pressure of 200 kN/m^2. The distance between the nozzle and test material shall be 300 mm. The water jet shall be applied between the beads for 1 minute.

3.2.10 Wash and Phosphating Solution Resistance

A. Non-Cured Material

No evidence of dissolution of material or lifting from panel.

Test Method:

(1) Apply 250 x 40 x 0.1 - 0.2 mm ribbons of material under test to 250 x 60 mm oiled test panels (prepared according to para 3.3).

(2) After conditioning for 2 h at 23 +/- 2 °C expose test assemblies one after another in each wash and phosphating solution of the affected plant where this material is to be used and maintain for 15 minutes at 60 +/- 1 °C.

B. Cured Material — No loss of adhesion, no chipping

Test Method:

(1) Test specimens as prepared and tested under para 3.2.9 shall be exposed for 20 minutes in a mechanically convected air-dry oven at 100 +/- 2 °C, and subsequently subjected to maximum curing cycle according to FLTM BV 150-05, Table 2, Phase 1 and 2.

(2) After cooling to 23 +/- 2 °C test according to FLTM BV 153-04, Method A, para 4 and 5, except -30 +/- 1 °C.

3.2.11 Flammability and Corrosion (FLTM BV 159-02, Method A) — Self extinguishing within 5 s, no corrosion

Immediately after welding, separate the welded parts using a test fixture according to FLTM BV 159-01, Fig. 4. Examine after 48 h at 23 +/- 2 °C.

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