



ADHESIVE, EPOXY, FOR METAL REINFORCEMENT, ADFOSY SPRAYABLE, HEAT CURING, ADFOSY

WSK-M2G384-A1

1. SCOPE

The material defined by this specification is an ADFOSY sprayable, one component, solvent free, heat curing adhesive based on epoxy resin.

2. APPLICATION

This specification was released originally for material used to reinforce and stiffen sheet metal body panels.

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. 3.7).

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/adhesive application is necessary to avoid critical film thickness values, which would then cause malfunction of the sealer/adhesive

3. REQUIREMENTS

3.1 APPROVED SOURCES

This specification requires the use of approved sources. Only the sources identified on the Ford Approved Source List (ASL) can be used when this specification is listed on the drawing, CAD file, or other documents. The list of approved sources is located within Ford at www.mats.ford.com or available externally through a Ford Materials Engineer.

3.2 UNCURED MATERIAL PROPERTIES

3.2.1	Color	Black
3.2.2	Solids (FLTM BV 150-10)	98% min
3.2.3	Ash (FLTM BV 150-10)	42% max
3.2.4	Density at 23 °C (ASTM D1475)	1.43 +/- 0.05 kg/L
3.2.5	Viscosity at 23 °C (Rotational rheometer, i.e. Bohlin CS, plate/plate configuration 20 mm dia., 1 mm gap, shear stress 2500 Pa)	

Date	Action	Revisions	Rev. 03
2016 10 17	Revised	See Summary of Revisions	S. Short, NA
2007 02 08	Revised	Revised 2, 3.4.1, 3.4.5.2, 3.4.8, 3.4.9, 3.5, 3.6, 3.7.1.6, 3.7.2 & 3.7.3; Inserted 3.10, 3.11, 5.2, 5.3 & 5.4; Deleted 3.4.6 & 3.8	W. Janitschke/B. Lüthardt
1995 01 10	Released	EP00E10452964000	W. Scholz



3.2.5.1	Bingham yield stress	350 - 450 Pa
3.2.5.2	Viscosity as received	200 - 300 Pas
3.2.5.3	Viscosity after aging (7 d at 40 +/- 2 °C)	400 Pas max
3.2.6	Test for Abrasive Content	No scratches
	Test Method: Rub a portion of the material 100 times between two pieces of flat, clean plate glass. The appearance of scratches on the glass plate will be considered failure.	
3.2.7	Resistance to Phosphate Wash	
	No evidence of material wash off or displacement due to precleaning or phosphating process.	
	Test Method:	
	. Test panels of 300 x 300 x 0.8 mm (prepared according to paragraph 3.7) shall be coated with material under test in the middle of an area 150 x 150 mm in such a manner (ADFOSY) that after curing a dry coating thickness of 1.0 mm is obtained.	
	. Position the panel horizontally and maintain a spray of water at a temperature of 55 +/- 2 °C using a jet spray (Spraying System Co., Nozzle No. 1/2 GG-25 Full Jet) at 200 kPa. Direct the spray at a distance of 250 mm for 1 minute.	
3.2.8	Electrocoat Compatibility (FLTM BV 119-01, oiled panels according to paragraph 3.7)	Shall not contaminate electrocoat primer bath or cause electrocoat film irregularities
3.3	FLOW RATE (FLTM BV 153-01, Method A, with following exceptions)	No flow permitted
	Test Method: Prepare panels according to paragraph 3.10. Apply a bead of 8 mm diameter and bake 30 minutes at 110 +/- 2 °C.	
3.4	WETTING (FLTM BV 153-08, Method A)	
	The paint film (paint materials shall be noted in the Initial Sample Report of the adhesive, see para 4.4) shall cover the sealer with a continuous film.	



3.5 CURED MATERIAL PROPERTIES

3.5.1 Flexural Strength

Condition for 30 minutes at 23 +/- 2 °C prior to test.

3.5.1.1 Test at 23 +/- 2 °C 50 N min

3.5.1.2 Test at 90 +/- 2 °C 30 N min

After Environmental Aging condition for 24 h at 23 +/- 2 °C after exposure, then test at 23 +/- 2 °C.

3.5.1.3 14 days heat age at 90 +/- 2 °C 50 N min

3.5.1.4 500 h humidity at 38 +/- 2 °C and 95 - 100 R.H. 50 N min

3.5.1.5 Environmental Cycling 50 N min

8 cycles of the following sequence and then stored for 1 h at 23 +/- 2 °C. After 4 cycles, specimens are to be stored at 23 +/- 2 °C for 72 h before running remaining 4 cycles.

One cycle consists of:

16 h humidity (38 +/- 2 °C and 95 - 100% R.H.)

4 h at -40 +/- 2 °C

4 h at 90 +/- 2 °C

3.5.1.6 72 h at 40 +/- 2 °C 50 N min
(Adhesive storage only prior to bonding)

Test Method:

- . Spray material (ADFOSY) under test to a 25 x 150 mm panel (prepared according to paragraph 3.7) in such a manner that after curing a dry coating thickness of 1.0 mm is obtained.
- . Cure test samples according to BV 150-05, Table 2, minimum and maximum cycle.
- . After exposure to each above mentioned test condition, place test samples in the fixture shown in Figure 1.
- . Conduct flexural strength test at a crosshead rate of 5 mm/minute.
- . Record the peak load value. A minimum of 3 samples per test condition shall be evaluated.