



ENGINEERING MATERIAL SPECIFICATION

ADDITIVE, ANTI FREEZE, WINDSHIELD WASHER, INITIAL FILL

WSK-M8B18-A

1. SCOPE

The material defined by this specification is a mixture from ethanol, organic solvents, surfactants, dyestuff and water. The formulation is designed to meet German tax requirements for denatured ethanol.

2. APPLICATION

This specification was released originally for material used as winter additive for windshield washer system.

3. REQUIREMENTS

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 COMPOSITION

Ethanol 75%

Remaining additives and water 25%

3.3 MIXING RATIO

1:2

The antifreeze additive will provide -20 °C freezing resistance when used in a mixing ratio of 1:2 with water.

3.4 MATERIAL PROPERTIES

3.4.1 Density at 20 °C (Any agreed method) 0.855 - 0.870 g/mL

3.4.2 Color (Visual)

Standard color Clear, light blue

Optional color As required by plant

Date	Action	Revisions
2006 12 08	Revised	Paragraph 3.4.1, 3.4.2, 3.5 & 3.6; Deleted 3.5.4; Inserted 3.6.3, 3.6.4, 3.8, 4.2, 4.3, 4.3.1 & 4.3.2 T. Swain
2002 08 19	Revised	Updated and renumbered
1992 10 01	Released	EP000E10176308000



Documents
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- 3.4.3 Freezing Point, max -20 °C
(Initial Approval only)
(ASTM D 1177, mixing ratio 1:2)

Test with de-mineralized water.

- 3.4.4 Shelf Stability 1 year

No change of properties and no color change after a storage time of one year in the closed original container.

3.5 EFFECT ON PAINTED SURFACES (Initial Approval only)

Painted surfaces shall be tested as required in the relevant paint performance specification.

Use the fluid under test instead of the specified test liquid. Use at the concentration stated in paragraph 3.3.

- 3.5.1 Plastic Bumpers: High flexible paint system for plastic bumpers shall meet the requirements of the appropriate paragraph of WSS-M2P181-A/B and as required on the Engineering Drawing.
- 3.5.2 Radiator grills: Paint systems for radiator grills, mirrors etc. shall meet the requirements of the appropriate paragraph of WSS-M2P181-A/B and as required on the Engineering Drawing.
- 3.5.3 Vehicle body and paint repair systems: Vehicle body and paint repair systems shall meet the requirements of the appropriate paragraph of WSK-M2P180-A/B and as required on the Engineering Drawing.

3.6 EFFECT ON PLASTIC SUBSTRATES (Initial Approval only)

Plastic surfaces shall be tested as required in the relevant plastic part performance specification.

Use the fluid under test instead of the specified test liquid. Use at the concentration stated in paragraph 3.3.

- 3.6.1 Bumpers: Plastic bumpers shall meet the requirements of the appropriate paragraph of performance specification WSK-M98P7-A and as required on the Engineering Drawing.
- 3.6.2 Exterior Parts: Exterior plastic parts shall meet the requirements of the appropriate paragraph of performance specification WSK-M98P6-A and as required on the Engineering Drawing.
- 3.6.3 Non-Decorative Parts: Non-Decorative plastic parts shall meet the requirements of the appropriate paragraph of performance specification WSK-M98P9-A and as required on the Engineering Drawing.
- 3.6.4 Exterior Lamp Assemblies: Exterior Lamp Assemblies shall meet the requirements of the appropriate paragraph of performance specification WSK-M98P10-A and as required on the Engineering Drawing.