



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

GASKET, ARAMIDE FIBER SHEETS, REINFORCED

ESK-M8G177-A4

1. SCOPE

The materials defined by this specification are synthetic rubber bonded aramide fiber sheets reinforced with a steel sheet core.

2. APPLICATION

This specification was released originally for material used for cylinder head gaskets.

3. REQUIREMENTS

3.1 STATISTICAL PROCESS

Suppliers must conform to the requirements of Ford Quality System Standard Q-101. A mutually acceptable Control Plan as described therein is required for material/source approval. Appropriate statistical tools must be used to analyze process/product data so that variation in the final product is continuously reduced.

3.2 INFRARED SPECTROPHOTOMETRY AND/OR THERMAL ANALYSIS

Ford Motor Company, at its option, may conduct infrared and/or thermal analysis of material/parts supplied to this specification. The IR spectra and thermograms established for initial approval shall constitute the reference standard and shall be kept on file at the designated material laboratory. All samples shall produce IR spectra and thermograms that correspond to the reference standard when tested under the same conditions.

3.3 CONDITIONING AND TEST CONDITIONS

All test values indicated herein are based on material conditioned according to ASTM F 104, material type 1, prior to testing and tested under the same conditions unless otherwise specified.

3.4 TEST SPECIMENS (Test Sheets)

The requirements of this specification are valid for gasket material of 1.0 - 1.2 mm thickness.

3.4.1 Material of Core

Bd 0.2 DIN 1544 St 4 LG DIN 1624

Date	Release No.	Released
1994 12 07		Revised and Retyped
1986 04 25	SM/EQ5604TP	Released

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3.4.2	Compressibility (ASTM F 36, Procedure A)	3 - 11 %
3.4.3	Recovery, min (ASTM F 36, Procedure A)	50 %
3.4.4	Immersion in ASTM Fuel C (ASTM F 146, tests according to type 1 material, 22 h at 23 +/- 2 C)	
3.4.4.1	Compressibility	7 - 13 %
3.4.4.2	Recovery, min	70 %
3.4.4.3	Thickness Change	+ 2 to + 12 %
3.4.4.4	After immersion the fiber sheets shall be firm and must not separate from the core.	
3.4.5	Immersion in ASTM Oil No.3 (ASTM F 146, tests according to type 1 material, 22 h at 150 +/- 2 C)	
3.4.5.1	Compressibility	4 - 10 %
3.4.5.2	Recovery, min	50 %
3.4.5.3	Thickness Change	0 to + 6 %
3.4.5.4	After immersion the fiber sheets shall be firm and must not separate from the core.	
3.4.6	Immersion in long life coolant concentrate according to specification SS-M97B9103-A and distilled water (50:50) by using a suitable distillation flask and a reflux condenser for 70 h at boiling temperature. After immersion store specimens for 30 minutes at 23 +/- 2 C and 50 +/- 5 % relative humidity before testing. Tests according to type 1 material.	
3.4.6.1	Compressibility	8 - 15 %
3.4.6.2	Recovery, min	45 %
3.4.6.3	Thickness Change	0 to + 7 %
3.4.6.4	After immersion the fiber sheets shall be firm and must not separate from the core.	
3.4.7	Ignition Loss of Fiber Sheet (ASTM F 495)	20 - 30 %