



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

GASKET, STEEL CORE, NBR

WSK-M8G249-A

1. SCOPE

The material defined by this specification consists of a low carbon steel core covered equally on both sides with an NBR.

2. APPLICATION

This specification was released originally as cylinder head gasket of the 2 liter DOHC engine.

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 tests shall be conducted in accordance with ASTM F 104 type 7 material unless otherwise specified. The requirements of this specification are valid for gasket material of 0.35 to 0.60 mm thickness. Test specimens are to be selected from finished gaskets when practicable.

Prior to testing, the material shall be conditioned for at least 4 h at 23 +/- 2 C in a closed chamber containing anhydrous calcium chloride as a dessicant. The air in the chamber shall be circulated by gentle mechanical agitation. Specimens shall then be transferred immediately to a controlled humidity room and conditioned for at least 20 h at 23 +/- 2 C and 50 +/- 5 % relative humidity.

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1994-05-03	EP00E10348591000	Released K. Gerhards

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3.4 COMPOSITION

3.4.1 Steel Core

Low carbon steel, thickness and finish as specified on Engineering drawing.

3.5 ORIGINAL PROPERTIES

3.5.1 Ash Content of Covering Material, max 35 %
(TGA, 800 C, Ramp 20 C/min,
20 - 700 C N₂, 700 - 800 C air)

3.6 HEAT AGING

(ASTM D 573, 22 h at 150 +/- 2 C)

3.7.1 Weight Change 0.5 %

3.7 RESISTANCE TO ASTM OIL No. 1

(ASTM F 146, 5 h at 150 +/- 2 C)

3.7.1 Delamination

Test Method: Firmly hold the sample at one point on a circular mandrel of diameter 6.0 mm thickness and force slowly but firmly under finger pressure to contact the full diameter of the mandrel. Failure shall be any cracks, breaks or surface separation or delamination at the approximate time (5 +/- 1 s) required to flex the specimen.

3.8 RESISTANCE TO ASTM OIL No. 3

(ASTM F 146, 5 h at 150 +/- 2 C.)

3.8.1 Delamination
(See 3.7.1)

3.9 RESISTANCE TO ASTM Fuel C + Methanol

(ASTM F 146, 22 h at 23 +/- 2 C,
85 vol. % Fuel C + 15 vol. % methanol)

3.9.2 Delamination
(See 3.7.1)

3.10 RESISTANCE TO COOLANT & WATER (50:50)

(ASTM F 146)

Test Method: Immerse the sample in engine coolant WSE-M97B44-D and distilled water (50:50 Vol. %). Use a suitable distillation flask and a reflux condenser and reflux for 70 hours at boiling temperature.

3.10.1 Delamination
(See 3.7.1)