

AERONAUTICAL MATERIAL SPECIFICATION

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G A S K E T, O I L R E S I S T I N G (High Temperature)

Page 1 of 3 pages

1. ACKNOWLEDGMENT: A vendor must mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. CONSTRUCTION: This gasket material shall be made from selected long fibre asbestos and special heat resisting compounds, bonded and felted together under pressure into a pliable and resilient sheet.
3. CONDITION: The material as supplied shall have a minimum tensile strength of 2000 lb per sq in. across the direction of rolling when the rate of jaw separation is 12 inches per minute. If the strength cannot be determined in this direction because of the shape of the parts, the minimum tensile strength parallel to the direction of rolling shall be 4000 lb per sq in.
4. QUALITY:
 - (a) Gaskets shall be free from injurious defects in material and workmanship, and shall not show unreasonable deterioration with age.
 - (b) Gaskets shall not cause corrosion of aluminum, magnesium, steel and copper alloys.
 - (c) Gaskets shall be removable from an assembly without delamination due to excessive sticking.
5. TESTS:
 - (a) Tensile tests shall be conducted in accordance with ASTM D412-41 except that the testing machine shall have a jaw separation speed of 12 inches per minute. Die "A" shall be used for the specimen or subsize test specimens cut from gaskets as received. All thickness measurements shall be made with a micrometer having a wide presser foot. The test specimens shall be conditioned in an oven at 212°F for one (1) hour and allowed to cool to room temperature in a dessicator before proceeding with the tests.
 - (b) Immersion tests shall be conducted in accordance with ASTM D471-40T except that the thickness of the specimen shall be that of the material and the specimens intended for determination of tensile strength shall be cut with Die "A" of ASTM D412-41. The calculation of tensile strength after immersion shall be based on the original cross-section of the test specimen.
 - (c) Fuel Aging.-Test conditions shall be as follows:

Medium	100 Octane Aviation Gasoline containing no added aromatic hydrocarbons
Time	5 hours
Temperature	75°-85°F

After aging the temporary increase in thickness, measured within 30 seconds after removal from the fuel, shall not exceed 15%. There shall be no disintegration or increase in thickness at the end of 16 hours after test, on samples exposed to air at room temperature.

(d) Oil Aging.--Test conditions shall be as follows:

Medium Aircraft Engine Lubricating Oil
 Viscosity 98 ± 5 or 120 ± 5 secs. at 210°F
 Viscosity Index 95 min
 Aniline Point $250^{\circ} \pm 10^{\circ}\text{F}$

Temperature $300^{\circ} \pm 2^{\circ}\text{F}$

Time 5 hours

All tests shall be conducted within 10 to 15 minutes after removal from the oil. After aging, the surface shall neither be tacky nor show signs of decomposition. Test specimens shall withstand bending 180° around a radius equal to six times the thickness when stock is $1/16$ inch or less thick, and a radius equal to eight times the thickness when stock is over $1/16$ inch thick, without cracking. The test shall be applied to strips cut in both longitudinal and transverse directions. The tensile strength shall be 85-110% of the values determined for the material as received. The increase in thickness shall be within the limits 0-10%.

(e) Oven Aging.--Test specimens shall be oven aged for 16 hours at $212 \pm 2^{\circ}\text{F}$. After aging, test pieces shall withstand bending 180° over a radius equal to six times the thickness when stock is $1/16$ inch or less thick, and a radius equal to eight times the thickness when stock is over $1/16$ inch thick, without cracking. The test shall be applied to strips cut in both longitudinal and transverse directions.

(f) Compressibility.--After being subjected to a 1000 kilogram load for 30 seconds, using a $1/2$ inch diameter flat steel surface for compression in a standard compression testing machine, material over $1/64$ inch in thickness shall show a compressibility under load within the following limits.

<u>Condition</u>	<u>Compressibility</u>	
	<u>Min</u>	<u>Max</u>
As received	5%	15%
After Fuel Aging		25%
After Oil Aging		25%
After Oven Aging	5%	15%

Test specimens shall be cut in the form of discs $1/2$ inch in diameter. Material $1/64$ inch thick and less shall not rupture under load, but measurements will not be required. The tests on all thicknesses shall be made immediately after removal from fuel, and between 10 and 15 minutes after removal from oil or after oven aging.

6. SAMPLES: The vendor shall furnish the purchaser a sample one foot square of material representative of each 2000 square feet used in fabricating the parts.