

DEPARTMENT OF COMMERCE

BUREAU OF STANDARDS

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UNITED STATES GOVERNMENT MASTER SPECIFICATION FOR
RUBBER PACKINGS AND GASKETS (MOLDED, SHEET, AND
STRIP)

FEDERAL SPECIFICATIONS BOARD SPECIFICATION No. 111a

[Revised June 15, 1925]

This specification was officially promulgated by the Federal Specifications Board on December 29, 1923, for the use of the Departments and Independent Establishments of the Government in the purchase of rubber packings and gaskets (molded, sheet, and strip).

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I. GRADES

Packing and gaskets shall be furnished as required, in grades as follows: Grade A, grade B, and grade C.

II. MATERIAL AND WORKMANSHIP

Packing and gaskets shall be free from defects in material and workmanship.

III. GENERAL REQUIREMENTS

1. Sheet rubber packing shall be of uniform thickness, shall have a smooth surface, and shall be furnished in rolls 36 inches wide and

not less than 100 pounds in weight unless a smaller quantity is specified.

2. Strip rubber shall be of the dimensions specified.

3. Gaskets shall be molded or stamped as required and of the shape and dimensions specified.

IV. DETAIL REQUIREMENTS

1. Packing and gaskets shall contain no oil substitute and shall be free from all substances which might injuriously affect the quality. The compound shall conform to the following requirements:

	Grade A	Grade B	Grade C
Rubber ¹ by volume, minimum.....per cent..	80	70	60

2. Packing and gaskets shall meet the requirements of Table 1.

TABLE 1

	Grade		
	A	B	C
Tensile strength, minimum.....lbs./in. ² ..	2,200	1,500	900
Ultimate elongation, minimum.....inches..	2-12	2-11	2-8
Set stretch for 10 minutes.....do.....	2-11	2-10	-----
Set after 10 minutes' rest, maximum.....per cent..	20	25	-----

3. The tensile strength of packing and gaskets after being subjected to an accelerated aging test of 96 hours in dry air at $158 \pm 2^\circ$ F. shall show a decrease from the tensile test obtained before aging of not over 40 per cent.

4. GRADES B AND C.—A sample of packing shall be clamped between iron plates and exposed to the action of steam at 150 lbs./in.² for four hours. After the sample has been removed it shall be allowed to cool for one hour. The packing shall not be appreciably harder or softer than before steaming, nor shall it be otherwise injuriously affected.

5. The weights of the finished sheet packing shall conform to Table 2.

¹ Only the best quality new wild or plantation rubber shall be used in grades A and B.

TABLE 2

Size of packing (inches)	Weight of packing (pounds per square yard)					
	Grade A		Grade B		Grade C	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
$\frac{1}{8}$ -----	2.5	3.0	2.5	3.0	2.5	3.0
$\frac{1}{16}$ -----	4.5	5.5	4.75	5.75	5.0	6.0
$\frac{3}{32}$ -----	7.0	8.25	7.25	8.6	7.5	9.0
$\frac{1}{8}$ -----	9.0	11.0	9.5	11.5	10.0	12.0
$\frac{3}{16}$ -----	13.5	16.5	14.25	17.25	15.0	18.0
$\frac{1}{4}$ -----	18.0	22.0	19.0	23.0	20.0	24.0
$\frac{5}{16}$ -----	27.0	33.0				
$\frac{3}{8}$ -----	31.5	38.5				
$\frac{1}{2}$ -----	36.0	44.0				
$\frac{5}{8}$ -----	40.5	49.5				
$\frac{3}{4}$ -----	45.0	55.0				
$\frac{7}{8}$ -----	54.0	66.0				
$\frac{1}{2}$ -----	63.0	77.0				
1-----	72.0	88.0				
$1\frac{1}{8}$ -----	81.0	99.0				
$1\frac{1}{4}$ -----	90.0	110.0				

V. METHOD OF INSPECTION AND TEST

With each delivery of gaskets, molded rubber, or strip rubber less than 1 inch wide, the contractor shall furnish for test eight sample pieces 6 inches long, $1\frac{1}{2}$ inches wide, and $\frac{1}{8}$ inch thick. They shall be guaranteed by the manufacturer to be identical in composition and cure with the rubber offered for delivery, and an analysis shall show the same chemical composition as the delivery.

In the case of sheet or strip rubber the inspector shall take from each delivery of 250 pounds or fraction thereof the following material:

Sheet:

- Thickness less than $\frac{1}{4}$ inch----- 1 square foot.
- $\frac{1}{4}$ to $\frac{3}{4}$ inch----- $\frac{1}{2}$ square foot.
- $\frac{3}{4}$ to $1\frac{1}{4}$ inches----- $\frac{1}{4}$ square foot.

Strip:

- For width 1 inch or greater----- 5 linear feet.

VI. MARKING AND PACKING

Material shall be marked and packed as called for in the proposal.

VII. ADDITIONAL INFORMATION

GRADE A.—For use as gaskets and packing for doors, hatches, gun ports, etc.

GRADE B.—For grommets to be used in packing gauge glasses on tanks and for gaskets to be placed under the base plugs of projectiles.

GRADE C.—For use in connection with cold water, hot water, and temporarily for steam not exceeding 150 lbs./in.²

VIII. GENERAL SPECIFICATIONS

All tests and analyses shall be made in accordance with the methods described in United States Government Master Specifications for Rubber Goods, F. S. B. Specification No. 59a, in effect on date of proposal.

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