AS 1774.27—1992 Modulus of rupture at elevated temperatures
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Sets out a method for determining the modulus of rupture of refractories at elevated temperatures.
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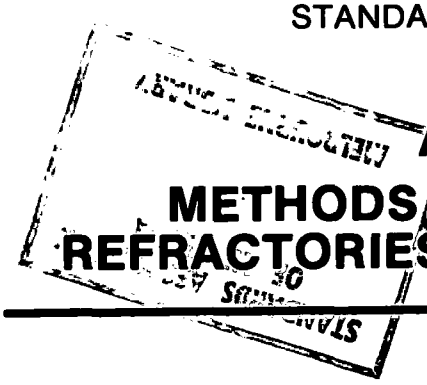

Australian Standard

METHODS FOR PHYSICAL TESTING OF REFRACTORIES AND REFRACTORY MATERIALS

AS 1774.27 MODULUS OF RUPTURE AT ELEVATED TEMPERATURES

1 SCOPE. This standard sets out the method for determining the modulus of rupture at elevated temperatures of dense refractory shapes.

2 PRINCIPLE. A test specimen is heated to the test temperature at a specified rate and is maintained at that temperature. A load is then applied through a three-point system at a constant rate of increase of transverse stress until failure occurs.

3 DEFINITION. For the purpose of this standard, the following definition applies:

Modulus of rupture—the maximum transverse stress, applied under specified conditions, that a refractory will withstand without rupturing.

4 APPARATUS.

4.1 Furnace. The furnace shall be either a batch type or a continuous type and shall be capable of—

(a) complying with the requirements for temperature control specified in Clause 6(c), when the test temperatures are measured at a point not greater than 10 mm above the top surface of the test specimen and as close as practicable to the mid-span position;

(b) maintaining an oxidizing atmosphere within the heating chamber throughout the test;

NOTE: For carbon-containing refractories, a neutral or reducing atmosphere is required.

(c) maintaining the test zone, comprising that volume within 20 mm of the edges and surfaces of the specimen, at the required temperature to within 10°C as measured by the thermocouple/recorder system specified in Clauses 4.6 and 4.7.

4.2 Bearing edges. The bearing edges shall be manufactured from refractory materials which do not deform or react under the conditions of test, for example, fused or recrystallized alumina. They shall be straight and of a length at least 5 mm greater than the width of the test specimen. The span between the two lower bearing edges, L_s, shall be 125 ± 5 mm, the actual distance being measured at room temperature to an accuracy of ±0.5 mm. The upper bearing edge shall be located at the mid-span position and all the three bearing edges shall be parallel to each other and shall have a maximum radius of curvature (r) of 5 mm. (See Fig. 1.)

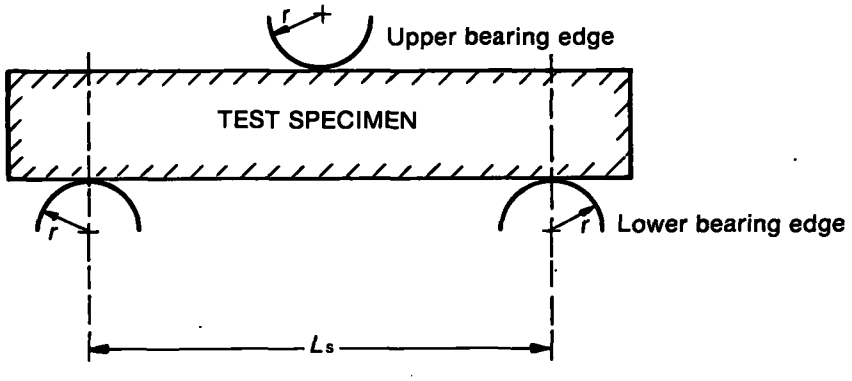

Fig. 1. ARRANGEMENT OF BEARING EDGES

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