SAE International™

SURFACE VEHICLE STANDARD

SAE J119

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Fiberboard Crease Bending Test

1. Scope

This test method is designed to determine the suitability of a painted or unpainted fiberboard for application involving creasing and bending. The specific purpose of the test is to determine whether a given material, properly creased, can be bent along the impressed crease without objectionable failure on the surface of the bend.

1.1 Rationale

Remove permissive language, delete reference to BRDA.

2. References

2.1 Applicable Publication

The following publication forms a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

2.1.1 SAE PUBLICATION

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J315—Fiberboard Test Procedure

3. Equipment Required

3.1 Press with adequate tonnage to crease the test specimen to the desired configuration.

3.2 Matched male and female die sections, selected for the caliper of sample to be tested and for the desired end result (see Section 5).

4. Test Specimen

4.1 Size

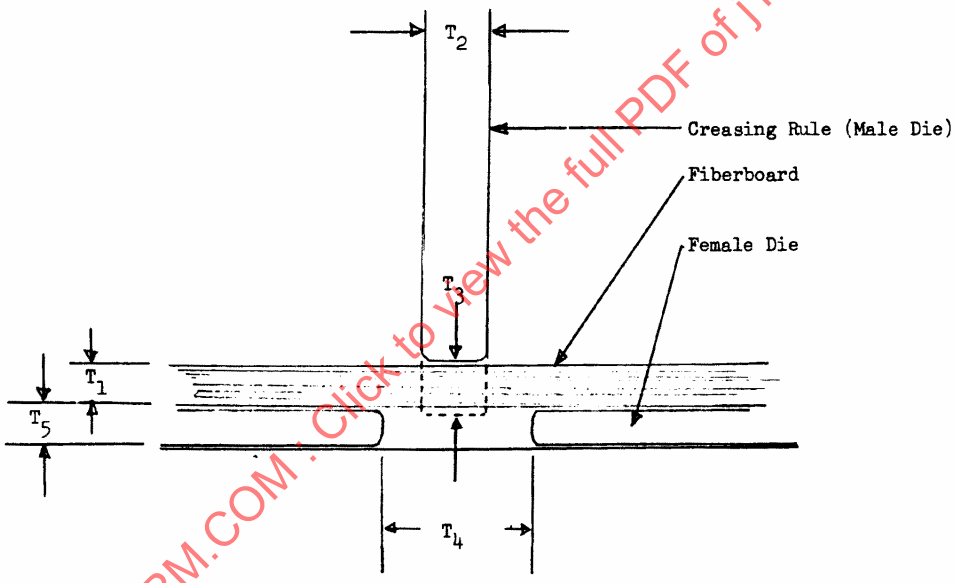
Minimum of 100 x 300 mm or as determined by the size of the test die.

4.2 Condition Prior to Testing

See SAE J315 (see Section 4) unless otherwise specified.

5. Creasing Rule (Male Die Section)

5.1 The thickness of the creasing rule (T_2) is designated commercially by the printer's point system (1 point equals approximately 0.36 mm), Figure 1.



T_1 = Fiberboard Thickness

T_2 = Creasing Rule Thickness (Male Die)
T_2 may be obtained from chart in paragraph 5.3

T_3 = Penetration of Creasing Rule
$T_3 = T_1$

T_4 = Female Die Opening
$T_4 = T_2 + (2 \times T_1)$

T_5 = Female Die Thickness
$T_5 = T_1$

FIGURE 1—CREASING RULE (MALE DIE SECTION)

5.2 Commercially available in either flat or round face and in the following thicknesses (round face rule shall be used unless otherwise specified):

TABLE 1—CREASING RULE THICKNESS

Standard Creasing Rule Thickness	Standard Creasing Rule Thickness
2 points	10 points
3 points	12 points
4 points	5 mm
6 points	6 mm
8 points	

5.3 For the normal range of bending fiberboards, the Table 2 serves as a guide in the selection of creasing rule:

TABLE 2—RULE SELECTION GUIDE

Fiberboard Thickness mm	Creasing Rule	
0.76	3–6 points	
1.02	3–6 points	
1.26	4–8 points	
1.52	6–10 points	
1.78	8–12 points	
2.03	10 points	5 mm
2.28	12 points	6 mm

5.4 Penetration of the creasing rule (T_3) shall be such that it equals the thickness of the fiberboard, Figure 1.

6. Female Die Section

6.1 The female die opening (T_4) may be determined by adding the creasing rule thickness to twice the thickness of the test specimen, Figure 1.

6.2 Depth (T_5) shall be equivalent to the thickness of the test specimen unless otherwise specified, Figure 1.

6.3 Both female die section and creasing rule shall extend beyond the edges of the test specimen.

7. Procedure

7.1 Matched male and female die sections are determined by the thickness of the test specimen (see 5.3) and mounted in press (see 3.1). Stops are provided so that penetration of male creasing rule is as specified in 5.4.

7.2 Insert test specimen in die and crease with one stroke of press. Using separate specimens, crease both with the grain and across the grain and on one or both sides as specified.

7.3 The test die or dies should encompass the range of rule thicknesses recommended for the thickness of board being tested (see 5.3). Three or four rules of different thicknesses can be incorporated into the same die to aid in determining the proper rule thickness for creasing that board.

When using a die with multiple scores, the creases cannot be closer than 76 mm on centers or less than 25 mm from the edges of the test specimen parallel to the creasing rule.

8. Evaluation

8.1 The recommended practice is to bend sides of specimen away from male side of die. In actual practice, the design of the part may require bending both ways.

8.2 The specimen shall be bent through an angle of 180 deg. The specimen shall be bent not to exceed 180 deg with the parallel face kept the minimum distance of board thickness apart, unless otherwise specified. See Figure 2.

8.3 The specimen shall be usually evaluated after bending. The appearance of fractures on the fiberboard and/or the paint coating shall be reported.

9. Notes

9.1 Marginal Indicia

The change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.