

# SPECIFICATION OF COMPOSITE CURVE MOULDING

FEB 93~  
MPTS 004

## 1.0 SCOPE:

This schedule covers the technical requirement, method of samplings and testing of composite curve moulding fabricated from fibre reinforced plastics to be used in various types of coaches in RCF.

## 2.0 REQUIREMENTS:

### 2.1 Materials:

Sheet moulded compound shall consist of resin, fibre reinforcement and addition processed in a continuous sheet form.

2.1.1 The resin shall be isophthalic fire retardant to IS:6746-1972 Type-V with following values:

2.1.1.1 Viscosity: Viscosity of resin when tested with Brookfield Viscometer shall be 400 to 500 cps and easy to be applied by brush for handling process.

2.1.1.2 Acid Value: The acid value of resin when expressed as mg KOH/g shall be from 25 to 30.

2.1.1.3 Volatile Content: The volatile content shall be 33±3 %

#### 2.1.1.4 Properties of Cured Cast Resin:

The cast specimen of resin system followed by 24 hr. curing at 80 degree Centigrade shall possess Barcol Hardness 45 to 50.

2.1.2 The accelerator and catalyst should be compatible with above resin

2.1.3 The pigment should suit the above resin. White pigment to be used.

2.1.4 The fibre glass Chopped Strand mat of density 450gm/m<sup>2</sup> to IS:11551-86-Five layer

2.1.5 Fibre glass surface mat of density 30 gm/m<sup>2</sup> One layer

2.1.6 No filler should be used.

2.1.7 All M.S. section shall be as per approved drawing and completely free from rust and coated with fibre glass and resin to prevent corrosion.

### 2.2 Dimensions & Tolerances:

Dimensions and tolerances shall be as per relevant

contract drawing for manufacturing of CSM.

2.3 The CSM are required to withstand the prevailing environmental temperature variations of 0 to 65 degree centigrade.

2.4 Workmanship And Finish

The CSM shall be free from gel cracks, blisters, porosity air bubbles and other surface defects.

2.5 The wt. of CSM shall be as per relevant contract drgs.

3.0 In Process Inspection:

The supplier shall permit in process inspection of FRP components during manufacturing to enable checks to be carried out so that the components are being manufactured according to this specifications.

4.0 THICKNESS:

Measure the thickness of CSM in condition as received with suitable micrometer at 10 points equally spaced around the edges of the sheet and take average value.

5.0 TEST:

Test shall be carried out on test specimen and from finished component as per method given for respective properties at temp. 15 to 35 degree centigrade and relative humidity 45-75% For every supply the supplier must supply 5 test pieces of size 300x300 mm laminated as follows unless specified otherwise.

- 5.1 Samples shall be selected at random from each lot of SMC from which the product will be manufactured.
- 5.2 5 test specimens laminated of size 300x300 mm and 4-5mm thick shall be compressed moulded from sample drawn from each lot with the facilities available. These test laminate shall be post cured in oven at 80±5 oC for at least 6 hours/ at 100±5 oC for 4 hours before the test laminates are prepared.
- 5.3 These test specimens when tested as per the method of test indicated against each test shall confirm to the requirement as laid down in Table-I.

TABLE-I

<u>S.No.</u>	<u>PROPERTY</u>	<u>METHOD OF TEST</u>	<u>SPECIFIC VALUE</u>
1.	Fire Retardency	IS:6746-72 Appendix-k	Very low flammability

2. Fibre Glass Content	IS:12866-89 Annex-A	Not less than 30%
3. Water Absorption	IS:12866-89 Annex-B	0.3% (Max)
4. Flexural Strength	IS:1998-62	800 Kg/cm <sup>2</sup>
5. Tensile Strength	IS:1998-62	400 Kg/cm <sup>2</sup> (Min. Individual) & 500 Kg/cm <sup>2</sup> (Average)

### 6.0 SAMPLING AND CRITERIA FOR CONFORMITY

- 6.1 10% of the lot offered for inspection (minimum 2) shall be visually examined for conformity as per clause 2.4.
- 6.2 Dimensional checks as per clause 2.2 shall be carried out on 5% of the lot offered for inspection (minimum 2 no's of samples to be taken).
- 6.3 No. of samples to be selected for test as per clause 5.3, shall be minimum 1 or 0.5% of the lot offered, whichever is higher.
- 6.4 Should anyone of the moulding tested as per clause 6.1 & 6.2 fails to meet the requirements, the manufacturer will be allowed to segregate and reoffer. Should any of the moulding selected as per clause 6.3 fails to meet anyone of the requirement as given in the clause 5.3, double the quantity of sample stipulated in clause 6.3 shall be selected. Should any of the CSM fails to meet the requirements of any one of the test, the entire lot shall be rejected.

7.0 Packing:- The CSM board shall be securely packed in strong wooden mats lined with suitable packing material to avoid scratching/damage during transit and storage.