Reasoned Document for Draft of MMDTS19021, Rev-5 (Uploaded first time)

Comments/suggestions received from firms and MCF's decisions on them are given below.

1. **Clause no. 2(i) (Section-A) (CP-6/2)**

Description draft of MMDTS19021, Rev-5:

1. **Documents to be submitted along with offer:**

i. First time supplier/OEM as per Rev.05 of this specification shall submit clause wise comments on the specification for compliance and deviation (if any).

Firm's comments:

(i) Autotech (CP-5/1):

Comments on clause no. 2(i)

Phrase "First time" should be removed. It should be read as Supplier/OEM as per Rev.05 of this specification shall submit clause wise comments on the specification for compliance and deviation (if any).

Reason: The term "First time" unnecessarily restricts the requirement to only new suppliers or OEMs. This creates ambiguity and might lead to the exclusion of existing suppliers who may also need to provide clause-wise comments on the specification as part of their submission. By removing "First time/' the clause ensures that all suppliers, whether new or existing, are treated uniformly in terms of compliance and deviation submission. This enhances clarity and ensures a standard approach to evaluating all suppliers.

MCF Decision: **Accepted.** Accordingly, clause has been modified as follows:-

''Supplier/OEM as per Rev.05 of this specification shall submit clause wise comments on the specification for compliance and deviation (if any)''.

(ii) Times Fibrefill: Nil
(iii) ICF: Nil

2. **Clause no. 2(ii)(b) (Section-A) (CP-6/2)**

Description draft of MMDTS19021, Rev-5:

In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any government's lab in India report will be acceptable.

(i) Autotech (CP-5/1 & 5/2):

In case, there is no NABL accredited lab is available in India for tests mentioned in clause 3.5.1 (SN-1 to 5 & 9) in their scope of accreditation from NABL and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any textile lab which is linked to or an approved body of the ministry of textiles, Govt of India lab report will be acceptable.

Reason: Fire barrier cloth testing may not be available at NTH/ NPL also the test standards mentioned in Table 1 of clause no. 3.5.1, no lab has NABL scope of accreditation for some of the tests mentioned hence testing from reputed labs such as NITRA, BTRA, ATIRA, WRA, etc labs who are linked to Ministry of textiles, Govt of India test report should be allowed and accepted.

MCF Decision: **Accepted.** Accordingly, clause has been modified as follows:-

2. (ii) (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, **report from** any Government's lab/any **Government recognized/approved lab for such test** in India will be acceptable.

2. (ii) (c) **In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in SN- 1 to 5 & 9 of Table-1 clause no. 3.5.1 in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for such specific tests.**

(ii) **Times Fibrefill:** Nil
(iii) **ICF:** Nil

3. Clause no. 2(iii) (Section-A) (CP-6/2)

Description draft of MMDTS19021, Rev-5:

The submitted test reports along with offer shall not be more than one (01) years old from the date of tender opening except for Fire property test (SN-6, 7 & 8 of Table-1 of clause no. 3.5.1). Test report for Fire property as per EN 45545-2, R21 & HL3 Shall not be more than three (03) years older from date of tender opening.

(i) Autotech (CP-5/2):

All the test reports should be acceptable for a period of three (03) years from the date of tender opening. All the tests conducted during the product development phase are aimed at freezing the design and ensuring compliance with the specified requirements.

Additionally, it is important to note that these tests will be conducted again during routine and acceptance testing as part of the standard quality assurance process. Therefore, allowing a validity of three years for test reports is reasonable unless there is a significant change in the design ; manufacturing process, or raw materials used.

MCF Decision: **Accepted.** Accordingly, clause has been modified as follows:-

The submitted test reports along with offer shall not be more than one (03) years old from the date of tender opening.

(ii) **Times Fibrefill:** Nil
(iii) **ICF:** Nil

2. **Clause no. 3.3 (CP-6/3):**

Description draft of MMDTS19021, Rev-4

Colour: Unless otherwise specified the colour of Fire barrier cloth shall be of natural or black colour.

(i) Autotech (CP-5/2 to 5/3):

Colour: Unless otherwise specified the colour of Fire barrier cloth shall be of natural, grey or black colour.

Reason: Common colour produced for Fire barrier cloth is generally grey in colour which is universally acceptable& also it's important to meet parameters mentioned in the specification rather than colour, therefore any colour should be allowed till the time it meets the specified parameters

MCF Decision: Accepted. Accordingly, clause has been modified as follows:-

''Unless otherwise specified the colour of Fire barrier cloth shall be of natural, grey or black colour''.

(ii) Times Fibrefill: Nil
(iii) ICF: Nil

3. **Clause no. 3.5 (CP-6/3):**

Description draft of MMDTS19021, Rev-4:

Physical Properties:

3.5.1 Tests shall be conducted from the product as per the methods indicated for the respective tests shall conform to the following requirements:-

Table-1

SN	Properties	Value	Tolerance	Unit	Test Method
1	Weight (Max)	250 (for 2 to 4 mm thick) 600 (for 6 mm thick)	-----	gm/m2	ISO-9073-1
2	Thickness	2 to 4 6	±0.5	mm	ISO-9073-2
3	Tensile strength	CD ≥ 150 MD≥ 100	Pass Pass	N /5cm	ISO-9073-3
4	Tear resistance	CD≥100 MD≥70	Pass Pass	N	ISO-9073-4
5	Elongation at 100 N	CD ≤ 80 MD≤80	Pass Pass	%	ISO-9073-3
6	Heat Release Rate	R21-HL3 AS PER EN 45545-2			ISO-5660-1
7	Smoke Opacity				ISO-5659-2
8	Smoke Toxicity				ISO-5659-2 Annexe C

9	Abrasion resistance (9 kPa) cycle	70000	Pass	cycle	ISO-12947-2

(i) Autotech: Nil

(ii) Times Fibre Fill (CP-4):

Amendment of 4 mm felt should be released as per the same way of 6 mm felt (ammendent-1 for specification no. , MMDTS19021, Rev-04, dated 26.12.2023) as ICF & RCF releasing the tender as per RCF new drg. no. LG61234 alt-nil (item-7) & MI006651 alt-c (Item-6). We propose a maximum weight of 44gm/m² for thickness of 4 m material for maintaining other mechanical properties (like-Tensile strength, Tear Resistance, Elongation at 100N).

(iii) ICF (CP-3): It is mentioned that weight of Fire Barrier cloth is 250gm/m² for both thickness 2 to 4 mm) with the same tensile strength. Hence, same may be amendment accordingly.

MCF Decision: In Table-1 of clause no. 3.5.1 of draft specification MMDTS19021, Rev-05 , weight for 4 mm and thickness 4 mm to be added as given under:-

SN	Properties	Value	Tolerance	Unit	Test Method
1	Weight (Max)	250 (for 2 to 3 mm thick) 400 (for 4 mm thick) 600 (for 6 mm thick)	-----	gm/m2	ISO-9073-1
2	Thickness	2 mm to 3 mm 4 mm 6 mm	±0.5	mm	ISO-9073-2

4. **Clause no. 4(i)(b) (CP-6/4):**

Description draft of MMDTS19021, Rev-5:

In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any government's lab in India report will be acceptable.

(i) Autotech (CP-5/3):

In case, there is no NABL accredited lab is available in India for tests mentioned in clause 3.5.1 (SN-1 to 5 & 9) in their scope of accreditation from NABL and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any textile lab which is linked to or an approved body of the ministry of textiles, Govt of India lab report will be acceptable.

Reason: Fire barrier cloth testing may not be available at NTH/ NPL also the test standards mentioned in Table 1 of clause no. 3.5.1, no lab has NABL scope of accreditation for some of the tests mentioned hence testing from reputed labs such as NITRA, BTRA, ATIRA, WRA, etc labs who are linked to Ministry of textiles. Govt of India test report should be allowed and accepted.

MCF Decision: **Accepted.** Accordingly, clause has been modified as follows:-

4. (i) (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, **report from** any Government's lab/any **Government recognized/approved lab for such test** in India will be acceptable.

4. (i) (c) **In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in SN- 1 to 5 & 9 of Table-1 clause no. 3.5.1 in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for such specific tests.**

(ii) **Times Fibrefill:** Nil

(iii) **ICF:** Nil

5. **Clause no. 6(CP-6/4 to 6/6):**

Description draft of MMDTS19021, Rev-5:

Quality Assurance, test & documents:

Requirement description	Requirement detail	Remarks	Comments
Quality Assurance plan (CP-6/4)		The QAP shall be submitted in PDF as per MCF format (Annexure-A of MCF Specification MMDTS19021, Rev-05). Quality control requirement will be done as per clause no. 5 of MCF specification MMDTS19021, Rev-04.	**(i) Autotech (CP-5/3):** Remark mentioned for Quality Assurance plan "Quality control requirement will be done as per clause no. 5 of MCF specification MMDTS19021, Rev-04" ***should be deleted*** as in Rev 05, under same parameter Remarks is added stating" The QAP shall be submitted in PDF as per MCF format (Annexure-A of MCF Specification MMDTS19021, Rev- 05)〃. This PDF format Annexure A of MCF covers all the points mentioned in clause no. 5 of MCF specification MMDTS19021, Rev-04 and same to be deleted from clause no. 5, Section B of Rev 05 as it is a repetition. **MCF Decision:** The clauses bring out clarity. Hence, being retained. **(ii)** **Times Fibrefill:** Nil

			(iii) ICF: Nil
Type Tests (CP-6/5)	These tests are to be repeated as detailed in prototype of approval process after every 36 months or as specified as quality control measure. • Fire and smoke characteristics as per EN 45545-2, R21 & HL3 (SN-7 & 8 of Table-1 of clause no. 3.5.1) Smoke density and Toxicity test for FST properties, as per SN 7 & 8 of Table-1 of clause no. 3.5.1, will be Type test till a time sufficient laboratories in India as well as with firm's premises are developed. Fire property test shall be conducted at any laboratory which is assessed by "CERTIFER" Railway Certification Agency (list enclosed) or lab empanelled by RDSO, to perform test as per EN-45545-2, R21 & HL3. In this regard report to be submitted to Consignee. The cost of testing will be borne by the manufacturer. All other tests (SN-1 to 6 & 9) of Table-1 of clause no. 3.5.1) which are part of Routine test & Acceptance test shall be conducted during Type test. MCF reserves the rights to get FST property tested for any lot, for which charges will be borne by the firm. This type test has been provisional till a time sufficient laboratories are not available in the country. However, if the consignee or inspecting agency desires to do the type tests, before 36 months, the supplier should not	The records of the type tests shall be maintained by the manufacturer and shall be made available upon demand. These records shall be traceable and verifiable.	**(i) Autotech(CP-5/4):** Fire and smoke characteristics as per EN 45545-2, R21 & HL3 (SN-7 & 8 of Table-1 of clause no. 3.5.1 should be conducted at any 'CERTIFER' lab or lab empanelled by RDSO, to perform test as per EN-45545-2. These tests are to be repeated as detailed in prototype approval process after every 36 months or as specified as quality control measure. **Reason:** All three FST tests, including the heat release rate test, shall be part of the Type Test since the heat release value is almost zero or close to it. Therefore, this test should be included as part of the Type Test, which is conducted once every three years; otherwise, conducting this test separately would be a time taking process. In this regard report to be submitted to Consignee. The cost of testing will be borne by the manufacturer. MCF reserves the rights to get FST property tested for any lot, for which charges will be borne by the firm. All other tests which are part of Routine test &Acceptance test shall be conducted during Type test. • Weight (Max) • Thickness • Tensile Strength • Tear resistance • Elongation at 100 N • Abrasion resistance

	deny the same. There are various circumstances when type tests may be needed on next supply before three (03) years of last supply /last type tests. eg: • In case of doubt in type test certificate. (Previous) • Complaint regarding type test certificates. • Failure of material attributable to any of the parameters covered in type tests, etc.		Below 3 tests are covered above in Type test hence should be deleted from the list • Heat Release Rate • Smoke Opacity • Smoke Toxicity However, if the consignee or inspecting agency desires to do the type tests, before 36 months, the supplier should not deny the same. There are various circumstances when type tests may be needed on next supply before three (03) years of last supply /last type tests. eg: • In case of doubt in type test certificate.(Previous) • Complaint regarding type test certificates. • Failure of material attributable to any of the parameters covered in type tests, etc. **MCF Decision:** Same procedure are being followed in past as well. No change needed. **(ii) Times Fibrefill:** Nil **(iii) ICF:** Nil
Routine Tests (CP-6/6)	These tests are required to verify the functional working of the system. These may require simulated in-puts for testing the operation under full range of inputs. These tests shall be done by the manufacturer during manufacturing and record maintained for inspection. These tests (SN- 1 to 6 & 9 of Table-1 of clause no. 3.5.1) are to be repeated after every 12 months or as specified. All other test which is part of Acceptance test shall be conducted during Routine test. • Weight • Thickness • Tensile strength • Tear resistance	The records of the routine tests shall be maintained by the manufacturer shall be made available upon demand. These records shall be traceable and verifiable.	**(i) Autotech**(CP-5/5) Heat Release Rate- to be deleted from Routine test as it will be part of Type test along with Smoke & Toxicity & to be repeated after every 36 months or case of change of design and change of manufacturing process or raw material. **MCF Decision:** Same procedure are being followed in past as well. No change needed. **(ii) Times Fibrefill:** Nil **(iii) ICF:** Nil

	• Elongation at 100 N • Abrasion resistance • Heat Release Rate		

6. **Note 2 (a) of Clause no. 6 (CP-6/6):**

Description draft of MMDTS19021, Rev-5:

Note:

2. Supplier shall submit test certificate of parameters (SN-1 to 9 of Table-1 of clause no. 3.5.1) of specification for Type Tests, Routine Tests & Acceptance tests from :
   (a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned in SN-1 to 5 & 9 of Table-1 of clause no. 3.5.1of specification in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.

(i) Autotech (CP-5/6):

Point (a) to be read as:

(a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned in clause no. 3.5.1 (sr. no. 1 to 5 & 9) of specification in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.

MCF Decision: Clause already clear. Suggested change does not add any value.

(ii) Times Fibrefill: Nil
(iii) ICF: Nil

7. **Note 2 (b) of Clause no. 6(CP-6/7):**

Description draft of MMDTS19021, Rev-5 :

2 (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any government's lab in India report will be acceptable.

(i) Autotech (CP-5/6 to 5/7):

Point (b) to be read as:

(b) In case, there is no NABL accredited lab is available in India for tests mentioned in clause 3.5.1 (SN-1 to 5 & 9) in their scope of accreditation from NABL and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any textile lab which is linked to or an approved body of the ministry of textiles, Govt. of India lab report will be acceptable.

MCF Decision: Accepted. Accordingly, clause has been modified as given below:-

2. (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in

the specification) are also not available with NTH/NPL, then for those tests, **report from** any Government's lab/any **Government recognized/approved lab for such test** in India will be acceptable.

2. (c) **In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in SN- 1 to 5 & 9 of Table-1 clause no. 3.5.1 in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for such specific tests.**

(ii) **Times Fibrefill:** Nil

(iii) **ICF:** Nil

2. Clause no. 10 (CP-6/7 to 6/8):

Description draft of MMDTS19021, Rev-5:

Process audit requirement (in every 3 years):

Audit of OEMs for manufacturing & testing activities of material will be done by M/s RITES or any agency authorized by concerned PU in every 3 years.

It shall be responsibility of OEM to get audit done by M/s RITES or any agency authorized by concerned PU at its own cost. During audit, all tests except type test (Fire and smoke characteristics as per EN 45545-2, R21 & HL 3 for SN-7 & 8 of Table-1 of Clause no. 3.5.1) shall be conducted as per specification & shall be made part of the report. OEMs shall keep valid audit report & submit the valid audit report on demand. For type test, report not older than three (03) shall be submitted during audit.

At any stage of procurement i.e. tender opening date, Purchase order placement date & during supplies, valid process audit report shall be available with supplier/tenderer. However, in case, audit report validity of three (03) years has expired but the supplier/tenderer has applied for audit/re-audit to RITES/or agency authorized by concern PUs well in advance i.e. at least three (03) months before expiry date of last audit report, case of such supplier/tenderer shall be proceeded & shall not be rejected on this account. However, for such cases, it shall be responsibility of supplier/tenderer to submit valid audit report within three (03) months after expiry at validity of last audit report. In case of new suppliers, CCA report shall be considered first audit report.

(i) Autotech (CP-5/7):

S.no 6 (Heat release rate) should also be excluded and has been added along with smoke & toxicity S.no 7 & 8.

Audit of OEMs for manufacturing & testing activities of material will be done by M/s RITES or any agency authorized by concerned PU in every 3 years.

It shall be responsibility of OEM to get audit done by M/s RITES or any agency authorized by concerned PU at its own cost. During audit, all tests except type test (Fire and smoke characteristics as per EN 45545-2, RI, HL 3 for SN-7 &8of Table-1 of Clause no. 3.5.1) shall be conducted as per specification & shall be made part of the report. OEMs shall keep valid audit report &submit the valid audit report on demand. For type test, report not older than three (03) shall be submitted during audit.

At any stage of procurement i.e. tender opening date. Purchase order placement date & during supplies, valid process audit report shall be available with supplier/tenderer. However, in case, audit report validity of three (03) years has expired but the supplier/ tenderer has applied for audit/re-audit

to RITES/or agency authorized by concern PUs well in advance i.e. at least three (03) months before expiry date of last audit report, case of such supplier/tenderer shall be proceeded & shall not be rejected on this account. However, for such cases, it shall be responsibility of supplier/tenderer to submit valid audit report within three (03) months after expiry at validity of last audit report. In case of new suppliers, CCA report shall be considered first audit report.

MCF Decision: Clause has been modified as given below:-

Audit of OEMs for manufacturing & testing activities of material will be done by M/s RITES or any agency authorized by concerned PU in every 3 years.

It shall be responsibility of OEM to get audit done by M/s RITES or any agency authorized by concerned PU at its own cost.

Auditor will audit manufacturing & testing process at premises of the supplier. During audit, all tests except Type test (Fire and smoke characteristics as per EN 45545-2, R21 & HL 3 for SN-7 & 8 of Table-1 of Clause no. 3.5.1) shall be conducted as per specification & shall be made part of the report. **However, auditor shall pick & send sealed sample to labs as detailed in Note of Para 9 of this specification for testing of all parameters in Table-1 of clause no. 3.51 of this specification.**

Reports of tests from labs shall also be made part of audit report. However, provisional audit report may be issued meanwhile, till receiving reports from labs.

OEMs shall keep valid audit report & submit the valid audit report on demand. For Type test, report not older than three (03) shall be submitted during audit.

At any stage of procurement i.e. tender opening date, Purchase order placement date & during supplies, valid process audit report shall be available with supplier/tenderer. However, in case, audit report validity of three (03) years has expired but the supplier/tenderer has applied for audit/re-audit to RITES/or agency authorized by concern PUs well in advance i.e. at least three (03) months before expiry date of last audit report, case of such supplier/tenderer shall be proceeded & shall not be rejected on this account. However, for such cases, it shall be responsibility of supplier/tenderer to submit valid audit report within three (03) months after expiry at validity of last audit report. In case of new suppliers, CCA report shall be considered first audit report.

(ii) **Times Fibrefill:** Nil

(iii) **ICF:** Nil

3. Clause no. 3.2 (Section-B)(CP-6/8):

Description draft of MMDTS19021, Rev-5 :

The firm should have complete manufacturing facilities for Fire barrier cloth for Seats and Berths as per this schedule at their works. List of manufacturing facilities shall be as given below.

- Lazer cutting machine
- Fibre Opener
- Hoper
- Card Machine-10''
- **Card feeding machine**
- **Card machine & cross lapper**
- **Needle looms**
- **Cutters**
- Pre Needle Punch
- Finish Needle Punch
- Calendering machine

- Single Needle Lock Stitch machine
- Flat Lock Stitch machine
- Over Lock Stitch machine
- Single Needle Quilting machine
- Multiple Needle Quilting machine
- Templlate Quilting machine
- Ball Fibre Making machine
- Vacuum Packing machine
- Edge Trim Opener
- Rib Cutting machine
- Embroidery machine 6 head
- Multiple Duty Stitching machine
- Winder

(i) <u>Autotech (CP-5/7 to 5/9):</u>

The firm should have complete manufacturing facilities for Fire barrier cloth for Seats and Berths as per this schedule at their works. List of manufacturing facilities shall be as given below.

- Laser cutting machine - Not required as Fire barrier cloth is supplied in roll form
- Needle Punching Machine- To be added in the list which will cover below mentioned manufacturing facilities:

  - Fiber Opener
  - Hopper
  - Drafter
  - Scan gauge
  - Winder
  - Mixing tank
  - Card Machine-10''- Part of Needle punching machine also there is nothing specific to 10 inch. This should be read as Card Machine only.
  - Card feeding machine
  - Card machine
  - Cross lapper
  - Drafter
  - Pre Needle Punch
  - Intermediate Needle Punch
  - Finish Needle Punch
  - Scanning Gauge
  - Metal Detector
  - Edge Trim Opener
  - Cutters
  - Winder

  - Calendaring machine
  - Singeing Machine
  - Extrusion machine

- Compression Winding machine
- Single Needle Lock 5Ech machine- Not related to the product, not required to manufacture Fire Barrie cloth
- Flat Lock Stitch machine- Not related to the product, not required to manufacture Fire Barrie cloth
- Over Lock Stitch machine- Not related to the product, not required to manufacture Fire Barrier Cloth.
- Single Needle Quilting machine- Not related to the product, not required to manufacture Fire Barrie cloth
- Multiple Needle Quilting machine- Not related to the product, not required to manufacture Fire Barrie cloth.
- Template Quilting machine- Not related to the product, not required to manufacture Fire Barrie cloth
- Ball Fiber Making machine- Not related to the product not required to manufacture Fire Barrie cloth
- Vacuum Packing machine- Not related to the product, not required to manufacture Fire Barrie cloth
- Rib Cutting machine- Not related to the product, not required to manufacture Fire Barrie cloth
- Embroidery machine 6 head- Not related to the product, not required to manufacture Fire Barrie cloth
- Multiple Duty Stitching machine- Not related to the product, not required to manufacture Fire Barrie cloth
- Winder
- Slitting machine
- Blank cutting machine
- Packing machine

MCF Decision: Clause has been modified as follows:-

The firm should have complete manufacturing facilities for Fire barrier cloth for Seats and Berths as per this schedule at their works. List of manufacturing facilities shall be as given below.

- Fibre Opening and blending machine
- Hopper feeder
- Carding Machine (min Width 100", for fine fibres)
- Cross lapper (min. 2500mm output with servo control)
- Needle Punching machine (double board min. 5000 needle/m)
- Finish Needle Punching machine (double board min. 5000 needle/m)
- Calendaring machine (with heating up to 250C and pressure min 100kg/cm^2)
- Thermo-bonding oven min width 1600mm for heat setting fabric(Temperature range 100°C to 260°C)

- Vacuum Packing machine for rolls
- Edge Trim Opener (up to 100kg/hr)
- Winder with tensioning system
- Flatbed CNC oscillating knife machine (bed size 1600mm x 3000mm) for roll to sheet cutting with vacuum suction bed and tolerance of 100 microns
- Single needle lock stitch machines

(ii) **Times Fibrefill:** Nil
(iii) **ICF:** Nil

4. Clause no. 4 (Section-B)(CP-6/9):

Description draft of MMDTS19021, Rev-5 :

TESTING FACILITIES:

4.1 The firm should have suitable facility / Machine to test as per SN- 1 to 5 & 9 of Table-1 of clause no. 3.5.1.

- Steel scale-0 to 300 mm
- Measuring tape (3m & 5m)
- Thickness gauge (0-12.4mm)
- Micrometer
- Weighing machine (0 to 100kg)
- GSM Cutter
- GSM Tester(0-200 gm)
- LAB WT Box (0-1000 gm)
- Universal TENSILE Testing machine (up to 2KN)
- Bursting Strength machine(up to 2KN)
- Cone drop tester (cone size 20mm)
- AOS Value testing machine
- Constant Rate of Extension (CRE) testing machine

4.2 The firm should have arrangement for periodical calibration of all the gauges & instruments.

(i) Autotech (CP-5/9 to 5/10):

The firm should have suitable facility / Machine to test as per SN-1 to 5& 9 of Table-1 of clause no. 3.5.1.

- Steel scale-0 to 300 mm & O to 1000mm
- Measuring tape (3m & 5m)
- Thickness gauge (0-13.5mm) & (010mm)
- Micrometer- Micrometer not required, required for metal/ plastic item. Thickness gauge, vernier caliper can be used for thickness measurement.
- Weighing machine (0 to 500kg)GSM Cutter -10 X10 cm
- GSM Tester (0-200 gm)- GSM Tester should be (0-600 gm)
- LAB WT Box (2-100 gm) & 20kg
- Universal TENSILE Testing machine (up to 0.5KN)- Universal TENSILE Testing machine (shall be up to 10KN)
- Bursting Strength machine (up to 2KN)- up to 70 kg/Cm2
- Martindale abrasion tester-
- Taber Abrasion tester-0-2500rpm

- Crock meter
- Viscometer
- Lux meter
- PH meter
- Oven-0-300degree
- Cone drop tester (cone size 20mm)
- AOS Value testing machine- not required for this product
- Constant Rate of Extension (CRE) testing machine- not required for this product.

In Addition, a "Note" should be mentioned for test facilities : that any testing facility/ equipment which is not available in house of OEM, those tests can be done from Any NABL accredited lab (outside) having tests & test method mentioned in Table-1 of clause no. 3.5.1 in its NABL scope of accreditation or can be done from NTH/NPL Test report if taken from any NABL accredited lab must contain NABL logo/seal. In case, there is no NABL accredited lab is available in India for tests mentioned in clause 3.5.1 (SN-1 to 5 & 9) in their scope of accreditation from NABL and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any textile lab which is linked to or an approved body of the ministry of textiles, Govt of India lab report will be acceptable.

Fire property test (SN-6, 7 & 8 of Table-1 of clause no. 3.5.1) shall be conducted at any 'CERTIFER' lab or lab empanelled by RDSO to perform test as per EN45545-2.

(ii) Times Fibrefill (CP-4):

In the list of facility/machine to test as per SN-1 to 5 & 9 of Table-1 of clause no. 3.5.1 (clause no. 4.1) the 'CONE CALORIMETER (ISO: 5660-1)' machine should be required for the testing of Heat Release Rate as per EN45545-2 from RDSO approved manufacturer (SN-6 of Table-1 of clause no. 3.5.1). As Heat Release Rate test is part of the Acceptance test, the ''CONE CALORIMETER'' machine must be considered as machinery.

MCF Decision: Clause has been modified as follows:-

The firm should have suitable facility / Machine to test as per SN- 1 to 5 & 9 of Table-1 of clause no. 3.5.1.

- Cone calorimeter as per ISO 5660-1 from RDSO approved source for HRR testing as per EN 45545-2 R21 HL3
- Steel scale-0 to 300 mm
- Measuring tape (3m & 5m)
- Thickness gauge (0-12.4mm)
- Weighing machine (0 to 100kg)
- GSM Cutters
- GSM Tester (0-1000 gm)
- LAB WT Box (0-200 gm)
- Universal Tensile Testing machine (up to 2KN)
- Martindale abrasion testing machine as per ISO 12947-2
- Constant Rate of Extension (CRE) testing machine

- Humidity chamber for conditioning of samples
- Smoke density chamber as per ISO 5659-2 from RDSO approved source for Smoke toxicity and opacity test as per EN 45545-2 R21 HL3 (requirement for regular source)

(iii) **ICF:** Nil

5. Clause no. 5 (Section-B)(CP-6/9 to 6/10):

Description draft of MMDTS19021, Rev-5:

QUALITY CONTROL REQUIREMENTS:

4.1 The firm should have acquired ISO: 9001 certification and the product for which the approval is sought should be broadly covered in the scope of the certification for manufacture and supply.

4.2 The Quality manual of the firm for ISO: 9001 should clearly indicate at any stage the control over manufacturing and testing of the said railway product.

4.3 There should be a system to ensure the traceability of the product from raw material stage to finished product stage. The system should also facilitate to identify the raw material composition from the finish product stage.

4.4 It should be ensured that there is a Quality Assurance Plan for the product detailing the following various aspects:

- Organization chart
- Process flow chart
- Stage inspection details from raw materials stage to finish product stage
- Various parameters to be checked and level of acceptance of such parameters indicated and method to ensure control over them.
- Disposal system of rejected raw material and components.

4.5 There should be at least one full time technologist having a minimum bachelor's degree in relevant field with experience of at least 5 years or a person with diploma in relevant field with 12 Years experience. He should be free from day-to-day production, testing and quality control responsibilities. He should be mainly responsible for development of a product, analysis of products, control over raw material, and corrective action in case of difficulties in achieving the parameters.

4.6 Ensure that the in charge of the Quality Control Section is having a Qualification of minimum bachelor's degree in the relevant field and has a minimum of 5 years experience Alternatively he should be a diploma holder with minimum of 12 years experience. He should be actively involved in day-to-day activities of quality control/ stage inspection/ compliance of QAP etc.

4.7 The firm must ensure that proper analysis is being done on monthly basis to study the rejections at various internal stages and it is documented.

4.8 The firm should ensure that latest version of all the relevant specifications, IS standards are available with them.

(i) Autotech (CP-5/11):

This clause should be deleted as QAP is already covered in Clause 6 of Section A of Rev 05, Quality Assurance plan-The QAP shall be submitted in PDF as per MCF format (Annexure-A of MCF Specification MMDTS19021, Rev- 05).

MCF Decision: The clauses bring out clarity. Hence, being retained.

(ii) **Times Fibrefill:** Nil

(iii) ICF: Nil

6. **Clause no. 6 (Section-B)(CP-6/10):**

Description draft of MMDTS19021, Rev-5 :

DOCUMENTATION:
Firm shall maintain following documents/records:

6.1 A well documented Quality Plan.
6.2 Stage inspection results including finished products results.
6.3 Records of final products inspection by external agencies, Non-conformity reports and case analysis as well as action taken thereof.
6.4 Records for maintenance of M&Ps.
6.5 Ensure that proper systems are available for dealing with customer complaint.

(i) Autotech (CP-5/12):

This clause should be deleted as its already covered in Clause 6 of Section A of Rev 05, Quality Assurance plan- The QAP shall be submitted in PDF as per MCF format (Annexure-A of MCF Specification MMDTS19021, Rev- 05).

MCF Decision: The clauses bring out clarity. Hence, being retained.

(ii) Times Fibrefill: Nil
(iii) ICF: Nil

SPECIFICATION	Draft of Schedule of Technical Requirements for Fire barrier cloth for Seats and Berths meeting FST (Fire smoke and Toxicity) properties to EN 45545 HL3 for Passenger coaches	MMDTS 19021, REV-05 Date: 09.04.2025

Name	Designation	Signature	Date	Level
Pranitesh S. Ranjan	SSE / Design		09.04.2025	Prepared
Sh. A.K.Agnihotri	SME / Design		09.04.2025	Agreed
Sh. Shobhit Pratap Singh	Dy. CME / Design		09.04.2025	Reviewed
Sh. D.K.Singh	CDE		09.04.2025	Approved

Issue/Rev	Date	Details of Changes
Rev-01	10.10.2019	Complete specification revised.
Rev-02	20.11.2019	1. Section A, Clause 2.5.1 Table 1, S.No.3,4 & 5 Test values changed 2. Section A, Clause 2.5.1 Table 1, Additional S.No. 9 added for Abrasion resistant 3. Section A, Clause 7, The performance for tear & loss in FST properties should not deteriorate from specified value during service of product.
Rev-03	20.05.2020	1. Section A, S. No.-9 of Table 1: Test method for Abrasion Resistance updated.
Rev-04	05.08.2022	Eligibility criteria in clause 8 of Section A deleted.
Amendment slip No. 1	04.01.2024	1. Sr. No. 1 and 2 of Table-1 has been amended by RCF/KXH for Weight &Thickness.
Rev-05	17.01.2025	**Changes in section-A of the specification:** 1. Clause no. 2 added for documents to be submitted along with offer. 2. Clause no. 2 of specification MMDTS19021, Rev-04 changed to clause no. 3 in this specification. 3. Clause no. 3.2 changed to ''Unless otherwise specified the colour of Fire barrier cloth shall be of natural, grey or black colour''. 4. In clause no. 3.5.1, weight for 4mm thickness-400 gm/m2 and thickness-4 mm added. 5. Clause no. 4 added for Prototype approval. 6. Clause no. 3 of specification MMDTS19021, Rev-04 changed to clause no. 5 in this specification. 7. Clause no. 4 of specification MMDTS19021, Rev-04 deleted. 8. Clause no. 6 added for Quality Assurance, test & documents. 9. Clause no. 5 of specification MMDTS19021, Rev-04 changed to Clause no. 7 in this specification. 10. Clause no. 6 of specification MMDTS19021, Rev-04 changed to Clause no. 8 in this specification. 11. Clause no. 7of specification MMDTS19021, Rev-04 changed to Clause no. 9 in this specification. 12. Clause no. 10 added for Process audit requirements. **Changes in section-B of the specification:** 13. Clause no. 3.2 (Section-B) edited and details of Manufacturing facilities added. 14. Clause no. 4 (Section-B) edited and details of Testing facilities added.

Foreword:

0.1 This schedule is intended to cover the technical requirements/provision relating to **Fire barrier cloth** for Seats & Berths. It also covers the tentative process and test protocol but does not include all the necessary provisions of the contract.

0.2 This schedule draws reference to some of the relevant ISO/EN/IS specifications. Unless otherwise specified, the latest version of the relevant specification shall be taken as reference.

0.3 For the purpose of deciding whether a particular requirement of this schedule is complied with the final value observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with the IS:2-1960.

0.4 This schedule consist of two Sections i.e. Section-A and Section-B. Section-A covers the technical requirements, method of sampling and test of **Fire barrier cloth** for coaching stocks and Section-B covers infrastructure requirements for manufacture, testing and quality control at the works of the manufactures.

Section-A

1. SCOPE:

This specification covers the technical requirements of **Fire barrier cloth** for Seats and Berths meeting FST (Fire Smoke and Toxicity) properties to EN 45545 HL3, to be necessarily used along with Flexible load bearing Polyurethane Foam cushions to **MMDTS 19020** (latest version)also separately meeting FST properties to EN 45545 HL3.

2. Documents to be submitted along with offer:

i. **Supplier/OEM as per Rev.-05 or latest of this specification shall submit clause wise comments on the specification for compliance and deviation (if any).**

ii. Supplier/OEM shall submit test certificate of parameters (SN-1 to 9 of Table-1 of clause no. 3.5.1) of specification from:

(a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned at SN- 1 to 5 & 9 of Table-1 clause no. 3.5.1 in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.

(b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, **report from** any Government's lab/any **Government recognized/approved lab for such test** in India will be acceptable.

(c) **In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in SN- 1 to 5 & 9 of Table-1 clause no. 3.5.1 in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for such specific tests.**

(d) Fire property test (SN-6, 7 & 8 of Table-1 clause no. 3.5.1) shall be conducted at any 'CERTIFER' lab or lab empanelled by RDSO, to perform test as per EN-45545-2, R21 & HL3.

In absence of any of above details for offered product, the offer would not be considered.

iii. The submitted test reports along with offer shall not be more than one (03) years old from the date of tender opening ~~except for type test (Fires and smoke test) (item no. 22 of table-1 of Para 4). Test report for Fire and smoke characteristics as per EN 45545/2 R1/HL3 Shall not be more than three (03) years older from date of tender opening.~~

~~iv. Valid audit report/CCA report except by bidder seeking developmental order based on availability of M&P & shall be subjected to CCA before placement of purchase order if its bid is acceptable.~~

3. Technical Requirement & Physical Properties:

3.1 Material: The material of the Fire barrier cloth for Seats and Berths shall be light weight **Needle Felt of** Aramid fibres and thermostable fibre or Superior Preoxidised PAN material.

3.2 Construction, Workmanship and Finish:

3.2.1 Fire barrier cloth shall be used for covering the PU foam of Seats and Berths as per relevant drawings of coaches. Upholstery shall be covered over the fire barrier-PU foam as per relevant drawings of the coaches.

3.3 Colour:

Unless otherwise specified the colour of Fire barrier cloth shall be of natural, grey or black colour.

3.4 Dimensions & Tolerance:

The dimension and tolerance of the Fire barrier cloth shall be strictly as per the relevant drawing or as specified by the purchaser.

3.5 Physical Properties:

3.5.1 Tests shall be conducted from the product as per the methods indicated for the respective tests shall conform to the following requirements:-

Table-1

SN	Properties	Value	Tolerance	Unit	Test Method
1	Weight (Max)	250 (for 2 to 3 mm thick)	-----	gm/m2	ISO-9073-1
		400 (for 4 mm thick)			
		600 (for 6 mm thick)			
2	Thickness	2 to 3	±0.5	mm	ISO-9073-2
		4			
		6			
3	Tensile strength	CD ≥150	Pass	N/5cm	ISO-9073-3
		MD≥100	Pass		
4	Tear resistance	CD≥100	Pass	N	ISO-9073-4
		MD≥70	Pass		
5	Elongation at 100 N	CD ≤ 80	Pass	%	ISO-9073-3
		MD≤80	Pass		

6	Heat Release Rate	R21-HL3 AS PER EN 45545-2			ISO-5660-1
7	Smoke Opacity				ISO-5659-2
8	Smoke Toxicity				ISO-5659-2 Annexe C
9	Abrasion resistance (9 kPa) cycle	70000	Pass	cycle	ISO-12947-2

4. PROTOTYPE APPROVAL:

The Firm shall supply a sample along with the following details at the time of prototype testing as per PO or as per applicable guideline:

i. Supplier shall submit test certificate of parameters of specification from:
   (a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned at SN-1 to 5 & 9 of Table-1 of clause no. 3.5.1 of this specification in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.
   (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, **report from** any Government's lab/any **Government recognized/approved lab for such test** in India will be acceptable.
   (c) **In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in SN- 1 to 5 & 9 of Table-1 clause no. 3.5.1 in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for such specific tests.**
   (d) Fire property test (SN-6, 7 & 8 of Table-1 of clause no. 3.5.1) shall be conducted at any 'CERTIFER' lab or lab empanelled by RDSO, to perform test as per EN-45545-2, R21 & HL3.

ii. Material and Safety date sheets.

iii. Firm should submit MOU with reputed raw material supplier for their support in setup of process and supplying the material.

iv. The bulk manufacturing shall be undertaken only after approval of Prototype. This clause of Prototype approval is applicable for the first supply by new firm as well as in case of change of design and change of manufacturing process or raw material.

5. Approval of advance sample:

The supplier shall be required to submit the details of manufacturing process and test certificates. The testing shall be carried out as mentioned in above **clause no. 3.5.1 of Table-1.**

If the supplier is not OEM, firm should provide the test certification from approved fire barrier manufacturer.

6. Quality Assurance, test & documents:

Requirement description	Requirement detail	Remarks
Quality Assurance plan	The manufacturer shall have the detailed quality Assurance plan. The Plan shall be submitted for the approval by respective PU. The QAP document shall clearly document the following and control the test record formats. **1.** Control over outsourced products and processes **2.** Testing of raw material and establishing its traceability **3.** Sampling Plan **4.** Type Tests **5.** Routine tests **6.** Acceptance tests **7.** Raw Materials	The QAP shall be submitted in PDF as per MCF format (Annexure-A of MCF Specification MMDTS19021, Rev-05). Quality control requirement will be done as per clause no. 5 of MCF specification MMDTS19021, Rev-04.
Type Tests	These tests shall be done on a sampled lot of prototype. Such Tests are required only on initial approval, change of design and change of manufacturing process or raw material. These tests are to be repeated as detailed in prototype of approval process after every 36 months or as specified in PO as quality control measure. • Fire and smoke characteristics as per EN 45545-2, R21& HL3 (SN-7 & 8 of Table-1 of clause no. 3.5.1) Smoke density and Toxicity test for FST properties, as per SN 7 & 8 of Table-1 of clause no. 3.5.1, will be Type test till a time sufficient laboratories in India as well as with firm's premises are developed. Fire property test shall be conducted at any laboratory which is assessed by "CERTIFER" Railway Certification Agency (list enclosed) or lab empanelled by RDSO, to perform test as per EN-45545-2, R21 & HL3. In this regard report to be submitted to Consignee. The cost of testing will be borne by the manufacturer. All other tests (SN-1 to 6 & 9) of Table-1 of clause no. 3.5.1) which are part of Routine test & Acceptance test shall be conducted during Type test. MCF reserves the rights to get FST property tested for any lot, for which charges will be borne by the	The records of the Type tests shall be maintained by the manufacturer and shall be made available upon demand. These records shall be traceable and verifiable.

	firm. This Type test has been provisional till a time sufficient laboratories are not available in the country. However, if the consignee or inspecting agency desires to do the Type tests, before 36 months, the supplier should not deny the same. There are various circumstances when Type tests may be needed on next supply before three (03) years of last supply /last Type tests. eg: • In case of doubt in Type test certificate. (Previous) • Complaint regarding Type test certificates. • Failure of material attributable to any of the parameters covered in Type tests, etc.	
Routine Tests	These tests are required to verify the functional working of the system. These may require simulated in-puts for testing the operation under full range of inputs. These tests shall be done by the manufacturer during manufacturing and record maintained for inspection. These tests (SN- 1 to 6 & 9 ofTable-1 of clause no. 3.5.1) are to be repeated after every 12 months or as specified. All other test which is part of Acceptance test shall be conducted during Routine test. • Weight • Thickness • Tensile strength • Tear resistance • Elongation at 100 N • Abrasion resistance • Heat Release Rate	The records of the routine tests shall be maintained by the manufacturer shall be made available upon demand. These records shall be traceable and verifiable.
Acceptance tests	These tests shall be done on all or samples of lot for bulk supply. Sampling shall be done as per IS:2500 Following tests (SN-1 to 6 & 9) of Table-1 of clause no. 3.5.1) shall be considered as Acceptance tests: • Weight • Thickness • Tensile strength • Tear resistance • Elongation at 100 N • Abrasion resistance • Heat Release Rate All other parameters apart from Type test &	These shall be conducted by the consignee or their authorized agency prior to dispatch. All infrastructures required to enable acceptance tests shall be provided by the bidder / OEM. The records of the acceptance tests shall be enclosed along with the supply

	routine test shall be checked as per Acceptance test. Documents for Routine test & Type test with above detailed periodicity & validity shall also be checked during acceptance test & enclosed with acceptance test documents.	consignment. These records shall be traceable and verifiable.

Note:

1. For Abrasion resistance, firm will give guarantee certificate along with the supply of 6 years.
2. Supplier shall submit test certificate of parameters (SN-1 to 9 of Table-1 of clause no. 3.5.1) of specification for Type Tests, Routine Tests & Acceptance tests from :
   (a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned in SN-1 to 5 & 9 of Table-1 of clause no. 3.5.1of specification in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.
   (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, **report from** any Government's lab/any **Government recognized/approved lab for such test** in India will be acceptable.
   (c) **In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in SN- 1 to 5 & 9 of Table-1 clause no. 3.5.1 in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for such specific tests.**
   (d) Fire property test (SN-6, 7 & 8 of Table-1 of clause no. 3.5.1) shall be conducted at any 'CERTIFER' lab or lab empanelled by RDSO, to perform test as per EN-45545-2.
   (e) Test reports shall not be more than one (01) years old from the date of tender opening except Fire property test (SN-6, 7 & 8 of Table-1 of clause no. 3.5.1). Test report for Fire property test as per EN 45545-2, R21 &HL3 Shall not be more than three (03) years older from date of tender opening.

7. Packing conditions:

It should be ensured that mode of packing is such that possibility of damage, tearing etc. during transit & handling.

8. Marking:

Manufacturers name and lot number marking should be done on the inner side at appropriate place on the packaging.

9. Warranty:

Fire barrier cloth should necessarily have provision of 6 years warranty from the date of dispatch of coach from MCF, for any kind of performance related failure including tearing, loss in FST property etc and to be replaced with new Fire barrier cloth which shall again have warranty of 6 years from the date of replacement. The performance for tear & loss in FST properties should not deteriorate from specified value during service of product.

10. Process audit requirement(in every 3 years):

Audit of OEMs for manufacturing & testing activities of material will be done by M/s RITES or any agency authorized by concerned PU in every 3 years.
It shall be responsibility of OEM to get audit done by M/s RITES or any agency authorized by concerned PU at its own cost.

Auditor will audit manufacturing & testing process at premises of the supplier. During audit, all tests except Type test (Fire and smoke characteristics as per EN 45545-2, R21 & HL 3 for SN-7 & 8 of Table-1 of Clause no. 3.5.1) shall be conducted as per specification & shall be made part of the report. **However, auditor shall pick & send sealed sample to labs as detailed in Note of Para 9 of this specification for testing of all parameters in Table-1 of clause no. 3.51 of this specification.**

Reports of tests from labs shall also be made part of audit report. However, provisional audit report may be issued meanwhile, till receiving reports from labs.

OEMs shall keep valid audit report & submit the valid audit report on demand. For Type test, report not older than three (03) shall be submitted during audit.

At any stage of procurement i.e. tender opening date, Purchase order placement date & during supplies, valid process audit report shall be available with supplier/tenderer. However, in case, audit report validity of three (03) years has expired but the supplier/tenderer has applied for audit/re-audit to RITES/or agency authorized by concern PUs well in advance i.e. at least three (03) months before expiry date of last audit report, case of such supplier/tenderer shall be proceeded & shall not be rejected on this account. However, for such cases, it shall be responsibility of supplier/tenderer to submit valid audit report within three (03) months after expiry at validity of last audit report. In case of new suppliers, CCA report shall be considered first audit report.

SECTION-B

1. SCOPE

This Section covers the infrastructural requirements for manufacture of Fire barrier cloth for Seats and Berths used in coaching stock.

2. REQUIREMENTS

All vendors seeking registration with MCF, shall comply all the requirements mentioned below.

3. PLANT, MACHINERY AND INFRASTUCTURE REQUIREMENTS

3.1 The manufactures shall adequate space and a covered area with cemented floor to accommodate the following.

a) Damp free place for storage of raw materials
b) Independent manufacturing area for manufacturing of Fire barrier cloth.
c) Inspection area.

3.2 The firm should have complete manufacturing facilities for Fire barrier cloth for Seats and Berths as per this schedule at their works. List of manufacturing facilities shall be as given below.

- Fibre Opening and blending machine
- Hopper feeder
- Carding Machine (for fine fibres min. width 100")
- Cross lapper (min. 2500 mm output with servo control)
- Needle Punching machine (double board, min. 5000 needle/m)
- Finish Needle Punching machine (double board min. 5000 needle/m)
- Calendaring machine (with heating up to 250°C and pressure min 100kg/cm²)
- Thermo-bonding oven min width 1600mm for heat setting fabric(Temperature range 100°C to 260°C)
- Vacuum Packing machine for rolls
- Edge Trim Opener (up to 100kg/hr)
- Winder with tensioning system
- Flatbed CNC oscillating knife machine (bed size 1600mm x 3000mm) for roll to sheet cutting with vacuum suction bed and tolerance of 100 microns Single needle lock stitch machines.

4. TESTING FACILITIES:

4.1 The firm should have suitable facility / Machine to test as per SN- 1 to 6 & 9 of Table-1 of clause no. 3.5.1.

- Cone calorimeter as per ISO :5660-1 from RDSO approved source for HRR testing as per EN 45545-2, R21 & HL3
- Steel scale (0 to 300 mm)
- Measuring tape (3m & 5m)
- Thickness gauge (0-12.4 mm)

- Weighing machine (0 to 100kg)
- GSM Cutters
- GSM Tester (0-1000 gm)
- LAB WT Box (0-200 gm)
- Universal Tensile Testing machine (up to 2KN)
- Martindale abrasion testing machine as per ISO:12947-2
- Constant Rate of Extension (CRE) testing machine
- Humidity chamber for conditioning of samples

4.2 The firm should have arrangement for periodical calibration of all the gauges & instruments.

5. QUALITY CONTROL REQUIREMENTS

5.1 The firm should have acquired ISO: 9001 certification and the product for which the approval is sought should be broadly covered in the scope of the certification for manufacture and supply.

5.2 The Quality manual of the firm for ISO: 9001 should clearly indicate at any stage the control over manufacturing and testing of the said railway product.

5.3 There should be a system to ensure the traceability of the product from raw material stage to finished product stage. The system should also facilitate to identify the raw material composition from the finish product stage.

5.4 It should be ensured that there is a Quality Assurance Plan for the product detailing the following various aspects:

- Organization chart
- Process flow chart
- Stage inspection details from raw materials stage to finish product stage
- Various parameters to be checked and level of acceptance of such parameters indicated and method to ensure control over them.
- Disposal system of rejected raw material and components.

5.5 There should be at least one full time technologist having a minimum bachelor's degree in relevant field with experience of at least 5 years or a person with diploma in relevant field with 12 Years experience. He should be free from day-to-day production, testing and quality control responsibilities. He should be mainly responsible for development of a product, analysis of products, control over raw material, and corrective action in case of difficulties in achieving the parameters.

5.6 Ensure that the in charge of the Quality Control Section is having a Qualification of minimum bachelor's degree in the relevant field and has a minimum of 5 years experience Alternatively he should be a diploma holder with minimum of 12 years experience. He should be actively involved in day-to-day activities of quality control/ stage inspection/ compliance of QAP etc.

5.7 The firm must ensure that proper analysis is being done on monthly basis to study the rejections at various internal stages and it is documented.

5.8 The firm should ensure that latest version of all the relevant specifications, IS standards are available with them.

6. DOCUMENTATION

Firm shall maintain following documents/records:

6.1 A well documented Quality Plan.

6.2 Stage inspection results including finished products results.

6.3 Records of final products inspection by external agencies, Non-conformity reports and case analysis as well as action taken thereof.

6.4 Records for maintenance of M&Ps.

6.5 Ensure that proper systems are available for dealing with customer complaint.

****

Annexure-A

MCF QAP format (Annexure-1 of MCF document no. MMDF0011, Rev-01, dated 08.02.2022**)**

Name of the firm

Head Office Address	Manufacturing Unit Addresses	
ABC XYZ STATE with PIN Telephone: Mobile: Email:	ABC XYZ STATE with PIN Telephone: Mobile: Email:	Add more columns if more required

PL Number of the item	
Description of the item	
Specification/Drawing number of the item	
Purchase order number with date	

Date of submission of QAP: DD.MM.YYYY

Approved by	Issued by	Page Number
Signature with date and stamp	Signature with date and stamp	1 of X

ANNEXURE-I

QAP	PL Number & Item Description	Internal Doc. No.	Revision
Name of the firm		ABCD-1234	XX

Index of QAP

Approved by	Issued by	Page Number
Signature with date and stamp	Signature with date and stamp	2 of X

ANNEXURE-I

QAP	PL Number & Item Description	Internal Doc. No.	Revision
Name of the firm		ABCD-1234	XX

1. **Company Profile** (*Maximum 250 words*)

May include brief history, date of setup, founders, products/services, organization chart, article of association of the company as per companies act,1956.

2. **Certificates and Essential Documents**

Clear images/scans of factory license and ISO certifications (9001, 14001, others). Please ensure that the text is legible.

3. **Process Flow chart/Installation Flow Chart**

Description of manufacturing process

A. Process flow chart indicating various stages/activities of manufacturing process for an individual product, with quality control points
B. Details of manufacturing & testing processes to comply specification(s)

Sl. No.	Clause	Requirement of manufacturing process as per specification	Process details to comply the specification requirements

Note

(i) Process flow chart shall indicate all the operations involving procurement, handling, manufacturing, & testing of the product from raw material to finished product, including RDSO/RITES/Consignee inspection/dispatch.
(ii) There should be a separate flow chart for each item.

4. **Details of Procurement - Raw material/Components/Sub-assemblies**

A. Details of components/sub-assemblies manufactured in-house

Sl. No.	Item Name	Drawing No	Material Grade	Source of Raw Material

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B. Details of components/sub-assemblies purchased from approved sources of ICF/MCF/RCF/RDSO

Sl. No.	Item Name	Drawing No	Material Grade	Source (Firm name & Address)

C. Details of outsourced/imported items

Sl. No.	Item Name	Drawing No	Material Grade	Source (Firm name & Address)

5. **Inspection Procedure**

Provide the inspection process followed at the firm for subject item(s). It may include stage inspections where critical parameters are inspected before sending to the next stage, material composition test when the material is received from an outside agency, inspection of material properties and critical dimensions at the time of final dispatch to Indian Railways units. Kindly provide details in the following format.

Sl. No.	Type of inspection Raw material or Incoming product/ Assembly or Stage/Final dispatch of the item to consignee	Sample Size & its Frequency of inspection	Inspection parameter	Mode of inspection/ Test equipment used	Criteria or limits of acceptance	Record of inspection maintained at Register No./Compute r file name & address

Note: Provide internal inspection dimensional/material checklists for raw material, stage assembly, final assembly, as annexure.

6. **Rejection Handling Plan**

Rejections are part and parcel of any manufacturing process and can occur at any stage. It is essential to have a clear plan to handle the rejections due to various reasons. In a few situations, rework may be done to correct the workpieces. In others it might not be feasible and/or recommendable. A rejection handling plan clarifies the rejection criteria and further required processing for rework or scrapping. Analyzing rejects is a key component to improve the efficiency and quality of the output.

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Kindly provide the details of handling rejection of work-in-process (WIP) and recording such incidents.

7. **Tool and machine calibration plan**

The machines, tools, fixtures, jigs, gauges, and instruments used for manufacturing, testing, and inspection should be regularly calibrated to ensure that they are accurate for their intended use. A schedule of calibration for all the essential machines, tools, gauges, and instruments may be planned by taking into account both usage rate and that machine's particular maintenance needs. Kindly provide details in the following format.

Sl. No.	Name and ID of Tool/Machine/Gauge/ Instrument	Make and Model Number	Range/Capacity	Frequency of calibration	Due date of calibration	Record of calibration maintained at Register No./Computer file name & address

8. **Requirement of Qualified/Experienced Personnel as per Specification(s)**

Details of qualification/experience of the quality control personnel specified in the relevant STR/MDTS/ Specification for the items to be manufactured may be provided in the following format.

Sl. No.	Specified Requirements		Details of Personnel Employed			
	Clause number with specification details	Qualification/ Experience	Name	Designation	Technical Qualification	Experience

Note: Welding procedure specification **(WPS)**, Welding Procedure Qualification Record **(WPQR)** and Welder Qualification Test Certificate **(WTC)** to be submitted wherever applicable.

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Note: "This QAP does not have any deviation from Purchase order" will be written on front page of QAP.