

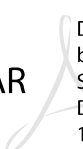



SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURE & SUPPLY OF PRIMER PAINT, TOP COATING PAINT, HARDENER FOR TOP COATING PAINT & THINNER FOR TOP COATING PAINT FOR 3-PHASE TRACTION MOTOR TYPE 6FRA- 6068 & 6FXA-7059 OF ELECTRIC LOCOMOTIVES.

ISSUED BY

**TRACTION MOTOR DEPARTMENT
CHITTARANJAN LOCOMOTIVE WORKS
CHITTARANJAN – 713 331
WEST BENGAL**

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ALTERATION SHEET FOR MANUFACTURE & SUPPLY OF **PRIMER PAINT, TOP COATING PAINT, HARDENER FOR TOP COATING PAINT & THINNER FOR TOP COATING PAINT** FOR 3-PHASE TRACTION MOTOR TYPE 6FRA- 6068 & 6FXA-7059 OF ELECTRIC LOCOMOTIVES

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SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURE & SUPPLY OF PRIMER PAINT, TOP COATING PAINT, HARDENER FOR TOP COATING PAINT & THINNER FOR TOP COATING PAINT FOR 3-PHASE TRACTION MOTOR TYPE 6FRA- 6068 & 6FXA-7059 OF ELECTRIC LOCOMOTIVES

1. **Scope :-** This schedule of technical requirement (STR) is being issued to serve as guidelines to manufacturers/firms for manufacturing **PRIMER PAINT, TOP COATING PAINT, HARDENER FOR TOP COATING PAINT & THINNER FOR TOP COATING PAINT FOR 3-PHASE TRACTION MOTOR TYPE 6FRA- 6068 & 6FXA-7059 OF ELECTRIC LOCOMOTIVES 6FRA** as per Specification No. 4TMS.096.019 & 4TMS.096.020 (Latest Version) format of Quality Assurance Plan (QAP) to be followed, Minimum Machinery and Plant, Testing facilities & Measurement facilities required. This STR should be read in conjunction with the relevant Specification. The firm should satisfy themselves having complied with the requirements of the Specification and STR.
2. **Reference: -** ABB (Data Sheet) or equivalent
3. **Requirement: -** The firm should be certified to ISO 9001 by an agency accredited by NABCB.
4. **Production Capacity:** Annual production capacity calculation for the full production range must be given on the basis of time required for each process.
5. **Desired aspect in QAP: -** The QAP shall be submitted as per RDSO's QAP Format No. QM-RF-8.1-3 version 1.0 or latest instruction issued by competent authority by CLW. QAP has to be approved by CLW.
6. **M&P, Testing and Measuring instrument :-** List of typical M&P required for manufacture, testing and measuring instruments furnished in page 4 of 5 & 5 of 5 is for general guidance only and actual manufacturing operations, specific testing & measuring instruments shall be submitted and get approved by the firm as a part of QAP.
7. **Internal Quality Control System:-**
 - 7.1 The manufacturer shall procure all the raw materials from standard brand preferably from RDSO /CLW approved sources along with test certificates and sources should be available as and when asked for. If RDSO/CLW sources are not available then raw material from reputed firm shall be procured.
 - 7.2 Quality Assurance Process of incoming materials, manufacturing process used for the subject items including type test, supply criteria covering specn. Acceptance norms, agency if tested from outside lab, format of records etc.
 - 7.3 Detailed process flow chart indicating process of manufacture and individual product
 - 7.4 The testing and measuring equipments and validity of calibration should be current and calibration certificate issued by the calibration agency should be maintained.
 - 7.5 Relevant Standards like IS/BS/IEC/ASTM etc. shall be available with the firm.

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**SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURE & SUPPLY
OF PRIMER PAINT, TOP COATING PAINT, HARDENER FOR TOP COATING PAINT
& THINNER FOR TOP COATING PAINT FOR 3-PHASE TRACTION MOTOR TYPE
6FRA- 6068 & 6FXA-7059 OF ELECTRIC LOCOMOTIVES**

A. Machinery and Plant:-

1. Sand Mill/LMZ Sand Mill, Capacity 20 Lt.(Min. Chamber cap- 10 Lit).
2. High Speed Mixer/High Speed Disbuser/pug mixer.
3. Basket Mill/Bead Mill/ Dyno mill.
- 4 Air Compressor.
5. Chiller
6. Spray Booth
7. Solvent Pump
8. Slow speed premixer and High speed Premixer/Variable speed premixer
9. Diesel Generator of adequate Capacity
10. Weighing Balance
11. Hot air Electric Oven
12. Weighing Machine, 300 kg., Least count 0.100 Kg.
Weighing Machine, 60Kg, Least count 0.050 Kg.
Weighing Machine, 100 Kg., Least count 25.00 gm.
13. Electronic Balance, 1.00 Kg., least Count 10.00 gm

B. Testing facilities :-

1. Humidity chamber as per IS: 101 *
2. Gas Liquid Chromatograph *
3. Abel's Flash point Apparatus as per IS: 101*
4. Centrifuge as per IS: 101 *
5. Carl Fischer for moisture testing of solvent
6. Viscometer
7. Hegman Gauge
8. Thermometer

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9. Spectro Photometer *
10. Spectra Light Booth
11. Gloss Meter
12. Viscosity cups.
13. Salt Fog Test Cabinet as per ASTM B117 or equivalent
14. Cross cut Adhesion tester as per ASTM D3359
15. Sagging index as per IS: 101
16. Gloss-O-Meter for 60 degree angle of incidence as per IS: 101
17. Cryptometer or Black & White Charts as per IS: 101
18. Flexibility & Adhesion Apparatus as per IS: 101
19. Scratch Hardness Tester as per IS: 101 *
20. Flow Cup (Ford Cup No. 4) as per: IS101
21. Weight/10 Litre Cup as per IS: 101
22. Muffle Furnace *
23. Distillation Plant *

*Can be done at NABL/Govt. Approved Lab.

C. All Plant & Machinery, Testing and Measuring instruments are to be filled up as per following format.

SL No.	Description of plant & machinery	Make(Name of manufacturer & country)	Year of Installation	Capacity/ Range	Quantity	Accuracy

Note: - Vague language like available or will install is not to be considered. CLW reserves the right to cancel the capacity cum capability assessment without any prior intimation.

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