


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

JULY' - 2017




ISSUED BY

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

APPROVED BY –


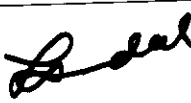
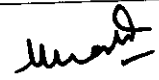


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 SSE/Drg.& Design/Elect.	 SSE/Drg.& Design/Mech.	 DY.CEE/TMD

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

Sl No.	Alt. No.	Authority	Description	Initial	Date

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1. Scope :- This schedule of technical requirement (STR) is being issued to serve as guidelines to manufacturers/firms for manufacturing **TOP COATING PAINT, PRIMER 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. 4MS.096.019 & 4MS.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, Drawing 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 :- QAP has to be specific for each product, as per page- 4 of 6.

6. M&P, Testing and Measuring instrument :- List of typical M&P required for manufacture, testing and measuring instruments furnished in page 5 of 6 & 6 of 6 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 :-


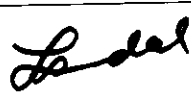
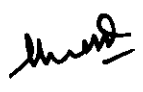
7.1 The manufacturer shall procure all the raw materials from standard brand preferably from RDSO /CLW approved sources along with test certificates and sources should be available as and when asked for. If RDSO/CLW sources are not available then raw material from reputed firm shall be procured.

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 out side 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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Format CLW/MLAS/EL/F/04-----Appendix - 4 (1/1)

QAP to be submitted by the vendor shall cover the following aspects :-

1. Index pages.
2. Copy of ISO 9001 certificate from NABCB registered body.
3. Organisation Chart clearly bringing out the quality control set up.
4. Qualification of the personnel manning only the quality control set up.
5. List of M&P and testing facilities.
6. Process flow chart indicating step by step process of manufacture of an item or a family of items for which the process is same.
7. Details of sub- vendors:-

Name of item	Sub vendors	ISO status	Inspection plan of sub vendor

The sub-vendor should have all the requisite infrastructure of manufacturing and testing facilities preferably under one roof .




8. Quality Assurance System – Inspection and testing plan with formats to be filled up for:-

- Incoming material
- Process Control
- Product Control

This must be furnished in the following format:-

Subject/Product/Process	Sample size & its frequency of Inspection.	Parameters of Inspection	Mode of Inspection./ Equipment Used	Acceptance Limit/criteria/ Specified value as per Drg./Specn.	Format No. where record will be kept

- Notes:-
1. Sample formats used for recording must be submitted.
 2. General ISO 9001 documents not to be submitted.
 3. Firm must not depend only on TC for incoming material.
 4. Record of SN (8) above shall be checked during inspections at firm's premises.
 5. QAP has to be specified for each product.

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A. Machinery and Plant :-

1. Sand Mill/LMZ Sand Mill, Capacity 20 Lt. (Min. Chamber cap-10 Lit)
2. High Speed Mixer/High Speed Disburer/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, 60 Kg. 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

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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