

SPECIFICATION

FOR

CONFORMAL COATING RESIN COMBINATION (SILICON RESIN, HARDENER/ACCLERATOR AND SUITABLE THINNER) OF 3 PHASE TRACTION MOTOR TYPE 6FRA- 6068 & 6FXA-7059 OF ELECTRIC LOCOMOTIVES

Approved by

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SPECIFICATION FOR CONFORMAL COATING RESIN COMBINATION (SILICON RESIN, HARDENER/ ACCLERATOR AND SUITABLE THINNER) OF 3-PHASE TRACTION MOTOR TYPE 6FRA-6068 & 6FXA-7059.

**CHITTARANJAN LOCOMOTIVE WORKS, WEST BENGAL, INDIA
NO.: 4TMS.096.094 Alt.1
First Date of Issue:31.05.2021**

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Reason: EEP-PSO-FHS (Misc)/246/2026-HEP-TXM20500 (Computer No. 322215)

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1.0 SCOPE

This specification covers the technical requirement of Conformal Coating Resin Combination (Silicon Resin, Hardener/Accelerator and Toluene/Suitable Thinner) to be used for Conformal coatings on stators for H- and C- class insulation of 3-phase traction motor type 6FRA6068/ 6FXA7059. The material shall comply with this specification, instructions in chemical composition, mechanical properties and all other listed requirements.

2.0 GENERAL

Conformal Coating Resin Combination (Silicon Resin+ Hardener/ Accelerator + Toluene/ Suitable Thinner) is a Silicon varnish containing solvent, which can be applied by painting, dipping or spraying and which cures with air humidity at room temperature to a flexible, high temperature resistance (-65⁰C to 225⁰C) top coat.

2.1 SILICON RESIN or equivalent to Basic Resin SI 32 is a transparent liquid silicone resin containing solvent that polymerizes to an elastomer under the influence of air humidity without giving off acetic acid.

2.2 HARDENER/ ACCELERATOR (equivalent to Accelerator 27) is a liquid component of Conformal Coating Resin Combination to be used with Silicon Resin and Toluene/Suitable Thinner. It is used as Hardener/Accelerator for quick drying of applied coating at room temperature.

2.3 Toluene/ Suitable Thinner is used as a Thinner of Conformal Coating Resin Combination.

Mixing Ratio (sprayable)

- (a) Silicon Resin - 100 parts by weight
- (b) Hardener/Accelerator - 01 part by weight *
- (c) Toluene/ Suitable Thinner - 40 part by weight *

* Manufacturers may suggest ratio as per their product/ formulation.

Conformal Coating Resin Combination cures at 30% relative humidity with or without the catalyst. However after curing without the catalyst it will not possess the same optimum surface hardness, resistance to solvents and dirt-repellent effect.

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Prepared & Checked by	PRADIP KUMAR MANDAL Digitally signed by PRADIP KUMAR MANDAL Date: 2022.08.18 17:09:58 +05'30'	Reviewed by	RANJAN KUMAR PRAMANIK Digitally signed by RANJAN KUMAR PRAMANIK Date: 2022.08.19 12:40:08 +05'30'	
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3.0 REQUIREMENTS

Information for working	Requirements
Spray viscosity at 20°C	20 s, DIN cup 4
Layer thickness after one spraying	50-60 µm
Spreading capacity at 50µm	200 gms/m ²
Can be over sprayed at 20°C	01 hr dust dry
	02 hrs. Touch dry
	12 hrs. Totally cure
Drying at 75°C	05 minutes dust dry
	10 minutes Touch dry
	30 minutes Totally cure
Colour	Clear or Red
Appearance	Smooth, Glossy
Pot life at 20°C with catalyst	02 weeks in sealed container
Pot life at 20°C without catalyst	01 year in sealed container
Flash point	32 °C

4.0 TESTS

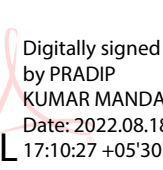
All the test specified in the specification shall be carried out preferably at manufacturer's works. The manufacturer shall arrange all the necessary machinery, apparatus, labour and assistance required for conducting the tests without Extra cost. If any testing facility is not available at firm's premises, the test has to be done from any Govt. approved NABL lab at own (Firm's) cost.

5.0 APPLICATION

Conformal Coating Resin Combination is used as finishing varnish for protection against moisture, and dust for C- class insulation of 3-phase traction motor type 6FRA6068 / 6FXA7059 which can be applied by painting, dipping or spraying and has good adhesion properties to most bases, including metal, silicone resin, silicone rubber and epoxy resin. It is important that bases are free from any loose oxides and greasy residues.

The adhesive strength to metal, ceramic and glass can be improved further by spraying on a coat of silicon primer (equivalent to primer DC 1201). The primer must be dried for 1-2 hours before application of Conformal Coating Resin Combination.

Thoroughly dried finishing varnish can be removed by chlorinated or aromatic solvents if necessary or otherwise be protected from such compounds.

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6.0 REFERENCE TO ABB STANDARDS

This specification is equivalent to ABB specification HTAT: 20315 & HIFE: 650004 for the item Silicon Resin or Equivalent, 4TMS.096.016 for Hardener/ Accelerator.

7.0 SHELF LIFE

Shelf life of the all three material in the original sealed drum at a room temperature 25°C should be ≥ 12 months.

8.0 PACKING

The materials shall be suitably supplied in Drum of 1/2/5/20/25 kgs as per application. The material shall be suitably packed so as to ensure safe transportation of material without any damage.

9.0 MARKING

The material shall be labelled securely and indelibly (e.g. with an adhesive label on an appendage) with the following information –

- Name of the manufacturer, purchase order reference and date.
- Name, quantity, batch no., date of manufacture & expiry date of the material.
- Special precaution for storage, if applicable for the material.

10.0 SPECIAL INSTRUCTION

If any deviation in properties of requirement, firm may seek approval from Dy.CEE/TMD of the same submitting detail justification regarding pot life, viscosity, colour, ratio etc. Firm should submit detail procedure of their product along with offer.

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SPECIFICATION FOR ACCELERATOR-27

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SPECIFICATION FOR ACCELERATOR 27 OF 3-PHASE TRACTION MOTOR TYPE 6FRA- 6068 & 6FXA-7059.		CHITTARANJAN LOCOMOTIVE WORKS, WEST BENGAL, INDIA NO.:4TMS.096.016,REV.1 First Date of Issue:14.05.1998		Page 1 of 4
Prepared & Checked by	SUJIT KUMAR SIL	Reviewed by	RANJAN KUMAR PRAMANIK	Digitally signed by RANJAN KUMAR PRAMANIK Date: 2022.11.16 16:06:02 +05'30'
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SPECIFICATION FOR ACCELERATOR 27 OF 3-PHASE TRACTION MOTOR TYPE 6FRA-6068 & 6FXA-7059.		CHITTARANJAN LOCOMOTIVE WORKS, WEST BENGAL, INDIA NO.:4TMS.096.016,REV.1 First Date of Issue:14.05.1998		Page 2 of 4
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1.0 SCOPE:

This specification covers the technical requirement of accelerator 27 to be used in manufacture of 3-phase traction motor type 6FRA-6068/6FXA-7059. The material shall comply with this specification instruction in chemical composition, mechanical properties and all other listed requirements.

2.0 GENERAL:

Accelerator 27 is used in Resin combination SI 620 with Basic Resin SI 32. It is a Dow Corning product having product and supplier No. DC9076.

3.0 REQUIREMENTS:

(a) Thermal Properties, Flash Point-Approx 17°C

(b) Toxic Class- 3 (According to list of toxic class of the Swiss federal Institute of Health)

4.0 APPLICATION:

Accelerator 27 is used for quick drying of Basic Resin SI 32 in oven.

The mixing ratio 100:5 and applicability of resin combination is 7 to 10 days at 25°C.

5.0 REFERENCE TO ABB STANDARDS

This specification is equivalent to ABB specification HZN 451177 for Accelerator 27 which is a Dow Corning product having product and supplier No. DC9076.

6.0 STORAGE

Storage time permissible, if stored under an aerobic conditions in the original barrel at room temperature 25°C is 12 months.

7.0 PACKING

The material shall be supplied in barrel of 0.1kg. The material shall be suitably packed so as to ensure safe transportation of material without any damage.

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8.0 MARKING

The material shall be labelled securely and indelibly (e.g. with an adhesive label on an appendage) with the following information.

- (a) Name of the manufacturer, purchase order reference and date.
- (b) Name, quantity, batch No, date of manufacture & expiry date of the material.
- (c) Special precaution for storage, if applicable for the material.

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