



## AC240

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This specification describes Glass Backed Uniform Mica Tape (GUAT-CN-3) and Sheet (GUA-CN-3) hereafter abbreviated as mica. Mica is reconstituted i.e. it contains 5% ARAMID (AROMATIC POLYAMIDE) FIBRES BY WEIGHT. type and binder is tri-functional epoxy resin. (proprietary item of m/s Hitachi chemical LTD (JAPAN)/NRK (JAPAN)/UCAL/JER.

Classification, dimension and tolerance of this micc are given in Table 4.


Table 1

Symbol	Nominal thickness (mm)	Nominal width (mm)	Nominal length	Tolerance			
				Thickness of each point (mm)	Average thickness (mm)	Width (mm)	Length (in)
GUA-CN-3 -0.13-4-B	0.13	19	30mm	+0.05	+0.03	±0.5	+1
		25		-0.03	-0.01		0
		32					
GUA-CN-3 -0.13-8-B	0.13	455	1000mm	+0.05 -0.03	+0.03 -0.01	+5 0	+0.1 0

Note : a : Width      b : Length

ALT. NO.	AUTHORITY	DESCRIPTION	INITIAL	DATE
4	DY.CEE/TMD	PARA 5-8 ADDED, REF. NO. EL/TM/20039, DT. 12.12.06	<i>[Signature]</i>	12.12.2006
5	DY.CEE/TMD	PARA 1 MODIFIED, REF. EL/TM/20039, DT. 04.02.08	<i>[Signature]</i>	04.02.2008

	DWN	<i>[Signature]</i>	7/12/11	INTEGRAL SPEC.	Hitachi, Ltd. Tokyo Japan	HITACHI WORKS LTD. 10W 202- <i>[Signature]</i> SN <i>[Signature]</i> 1 SH 1 06
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## 3. Quality

Quality of this mica is given in Table 2.

Table 2

(Testing method: JIS G2116)

No.	Item		Unit	Quality		Remarks
				GUAT-CN-3 -0.15	GUAT-CN-3 -0.15	
1	Weight (Mass per unit area)		g/m <sup>2</sup>	165±20	165±20	
2	Mica content (Composition test)		%	55±5	55±5	
3	Binder content (Composition test)		%	24±3	24±3	
4	Tensile strength		N/15mm	≥ 200	≥ 200	
5	Breakdown voltage	Average	kV	≥ 1.3	≥ 1.3	
		Minimum	kV	≥ 1.0	≥ 1.0	
6	Winding property		-	Good	}	ANNEXURE 'A'
7	Rewinding property to roll		-	Good		BE FOLLOWED

## 4. Shelf life

Shelf life of this mica is 12 months after manufacturing date in normal condition (20±15°C, 65±20% RH).

## 5. SAMPLING, WINDABILITY AND OTHER CRITERIA, etc.

THE PROCEDURES INDICATED IN ANNEXURE 'A' ATTACHED SHALL BE FOLLOWED DURING INSPECTION.

ANNEXURE 'A'; SPECIFICATION NO. A0271 FOR ACCELERATOR/CATALYST (P-200) AND SPECN. NO. A0272 FOR TRIFUNCTIONAL EPOXY RESIN SHALL FORM THE PART OF THIS SPECIFICATION.

7. ARAMID CONTENT SHALL BE TESTED AS PER TEST METHOD IEC-371-2 OF SECTION 6.4

3	DY.CEE/TMD	AGAINST NOTE 6 AND NOTE 3 IN ANNEX. A MODIFIED VIDE NOTE NO. EL/ITM/2039, DT. 13.06.2012	21.7.2006	
2	DY.CEE/TMD	PARA 16 TABLE 2 MODIFIED AND NOTES 5, 6 AND 7 ADDED ANNEXURE 'A' Sheet added VIDE NOTE NO. EL/ITM/2039, DT. 01.12.2005	15.01.2006	
1	DY.CEE/TMD	Para 6 modified Ref. 1/NO.EL/ITM/2013 dt.	27-5-2012	
ALT. NO.	AUTHORITY	DESCRIPTION	INITIAL	DATE
1	1/12	MATERIAL SPEC.	Hitachi, Ltd. Tokyo Japan	HITACHI WORKS DNG. 10W 702-670 SH. No. 10W 702-670



**ANNEXURE 'A'**  
**TO SPECN. NO. A0270 for Glass Mica Tape**  
**(GUAT-CN-3)**

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**1. Sampling:**

In case of GUAT-CN-3 the no. of rolls to be selected for sampling shall be as per table-1 in para-3 of IS 8402:1987

**2. Application/Windability test:**

This test shall be carried out as per clause - 17 of JIS No. C2116:1992.

**3. Flexibility Test:**

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To judge the quality of the tape from the point of view of flexibility, the test shall be carried out as per para-18 of JIS No. C2116:1992 as a routine measure/test \*

**4. Process for preparation of tape for windability test:**

4.1 Each roll of tape shall be dipped in solution of Methanol/Methyl Alcohol with 0.25% Catalyst P-200 to specn No. A0271 until bubbling stops/ ceases-dipping time shall not, in any case, be more than 15 minutes

4.2 Each roll of tape shall then, be removed from the solution and then <sup>dry in air and</sup> kept in a tight container for about 16 (sixteen) hrs. Each roll of tape is, thus, ready for winding. The tape duly treated in solution shall be used in tapping on the ~~dummy~~ main pole/commutating pole of HTM

**5. Tape shall satisfy the following criteria for acceptance:**

5.1 Layers of tape, layer-to-layer, shall not be too sticky while opening the tape from the bobbin in the process of winding of the coils.

5.2 No delamination of Mica and Glass fibre tapes shall take place.

5.3 The delamination of glass tape and mica tape shall not occur while cutting some portion of the tape during winding process at the round zones of the coils

5.4 No tearing of Mica layer of tape shall take place while applying hand pressure (tension) of about 2 (two) kgf during winding/tapping

5.5 Glass Fibre from the tape edges shall not come out

5.6 Mica shall not fall from the tape

5.7 Flexibility of tape shall be such that it (tape) shall stick to the coil profile/faces and shall not become loose while releasing hand tension

\* **FOLLOWS:-** GUAT-CN<sub>3</sub> TAPES/SHEETS TO BE APPLIED ON A DUMMY MP. COIL (DIMN. OF APPROX. 43x73mm; CORNER DIA. 2.5mm.) OR CP. COIL (DIMENSION OF EX. 35x82mm; CORNER DIA. 3.2mm.). THE ACCEPTANCE TO BE GIVEN FINDING THE RESULTS THERE ON & THERE SHALL BE NO CRACK OF MICA PAPER AND TEARING OF THE SUBSTRATUM GLASS CLOTH.

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5.8 "THERMO GRAVIMETRIC ANALYSIS (TGA) TEST FOR THE SUBJECT MATERIAL SHOULD BE CARRIED OUT BY THE SUPPLIER ONCE IN EVERY THREE YEARS AND VALUES OBTAINED SHOULD BE RECORDED."

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PART OF SPECN NO  
A 0270 FOR  
GLASS MICA TAPE  
(GUAT - CN - 3)

DY. CEE/TMD

CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL

NO. BW. 702-670  
DATE: 15.01.2008