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TECHNICAL SPECIFICATION FOR E-GLASS FIBRE

**NTPC BARH SUPER THERMAL POWER PROJECT
STAGE I (3 x 660 MW)-UNIT NOS. 1, 2 &3**

1. SCOPE

- 1.1. This standard covers the general requirements for external thermal insulation for piping, vessels, tanks and equipment operating at temperatures at ambient through 760°C (1400°F).
- 1.2. This standard sets forth specifications and acceptable products for preformed pipe insulation from 0.5” to 44” in diameter.

2. INSULATION MATERIALS

- 2.1. Insulation shall be manufactured from E-Glass Fibres and mandrel-wound into a high-density pipe cover product.
- 2.2. Insulation shall contain no organic binder materials. Binders that off-gas formaldehyde and/or ammonia when heated shall not be used.

3. DENSITY (ASTM C 302)

- 3.1. Density shall be a nominal 200 kg/m³ (12.5 lb/ft³) +/- 10%

4. MAXIMUM THERMAL CONDUCTIVITY

- 4.1. Thermal conductivity of insulation material shall be less than:
0.044 W/m°C (0.302 Btu in/h/ft²/°F) at 93°C (200°F)
0.055 W/m°C (0.381 Btu in/h/ft²/°F) at 204°C (400°F)
0.071 W/m°C (0.490 Btu in/h/ft²/°F) at 316°C (600°F)

5. LINEAR SHRINKAGE (ASTM C 356)

- 5.1. Linear Shrinkage shall be less than 0.5% when tested at 650°C (1200°F)

6. COMPRESSIVE RESISTANCE (ASTM C 165)

- 6.1. Compressive Resistance shall be greater than 180 kPa (26 psi) @ 5% deformation

7. MOISTURE SORPTION (ASTM C 1104)

- 7.1. Moisture Sorption shall be less than 0.5 % vol

8. SURFACE BURNING CHARACTERISTICS (ASTM E84) (Shall not exceed)

- 8.1. Flame Spread Index (FSI) = 0
- 8.2. Smoke Developed Index (SDI) = 0

9. STRESS CORROSION

- 9.1. Materials must not promote or contribute to the corrosion of austenitic stainless steel

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Rev	Date	Alteration	Prepared	Checked	Approved



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DATASHEET-A

SYSTEM	PIPE SIZE (ID X Thick) (mm)	INSULATION THICKNESS (mm)	PIPE LENGTH FOR 1 UNIT (mm)	PIPE LENGTH FOR 3 UNITS (mm)	DESIGN PRESSURE (Kg/cm ²)	DESIGN TEMP. (Deg. C)	TOTAL SURFACE AREA FOR 3 UNITS(m ²)	Remarks
MS PIPING	ID231.2x43.39	120	2800	8400	272.4	574	11.6	
MS PIPING	ID194.9x33.09	120	700	2100	272.4	574	2.52	
HRH PIPING	ID515X18.19	120	1100	3300	53.1	574	7.0	
HRH PIPING	ID375X13.72	120	11200	33600	53.1	574	58.0	