

TECHNICAL SPECIFICATION FOR 140 mm PE 100 PN-8 HDPE PIPES with Denatonium Benzoate:

1. Scope

This Specification covers technical requirements of design, Constructional features, inspection, testing, supply and transportation of **140 mm PE 100 PN-8 HDPE PIPES with Denatonium Benzoate**.

2. Application and Standards:

- a. IS 4984:2016 – HDPE pipe
- b. IS 12235 – Method of test for Plastic pipes

3. General Construction Requirement of HDPE pipe Material

a. Pipe shall be manufactured from virgin PE-100 grade HDPE compound only. Material should be strictly supplied confirming IS 4984:2016.

B. Minimum content of Denatonium Benzoate: 30 ppm

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|-------|----------------|---|-------------------|
| i. | Material | : | PE100 |
| ii. | Pressure class | : | PN-8 |
| iii. | Colour | : | Black |
| iv. | Nominal size | : | 140mm |
| v. | Outside dia. | : | 140mm to 140.90mm |
| vi. | Tolerance | : | 0.9mm |
| vii. | Thickness | : | 8.30mm – 9.30mm |
| viii. | Grade | : | PE100 PN8 |
| ix. | Length | : | 100m |
| x. | Jointing | : | Butt Fusion |

4. Marking

Each length of the conduits shall be marked by screen printing & embossing on pipe perfectly at 50mm, from one end, with the following information as per relevant clause of the standard:

- i. Name of DISCOM & name/trade mark of supplier
- ii. BIS logo
- iii. Nominal size of conduit
- iv. Country of manufacturer
- v. Information relating to conduit classification

5. Type test certificate

The firm has to submit type test certificate as per IS 4984:2016 within commencement period without affecting delivering schedule.

- i. Hydrostatic Pressure Test
- ii. Tensile strength and Elongation
- iii. Carbon Black Content
- iv. Carbon black Dispersion
- v. Density Test
- vi. Oxidation Induction Time
- vii. Elongation at Break and Yield Strength
- viii. At 27 degree C. Temp for 100 h & 10.7 MPa Induced hoop stress (Cl. 8.1 Table 5)
- ix. At 80 degree C. Temp for 48 h & 5.7 MPa Induced hoop stress (Cl. 8.1 Table 5)
- x. At 80 degree C. Temp for 165 h & 5.4 MPa Induced hoop stress (Cl. 8.1 Table 5)
- xi. At 80 degree C. Temp for 1000 h & 5 MPa Induced hoop stress (Cl. 8.1 Table 5)
- xii. Overall migration (cl.8.6)
- xiii. Tensile strength of Butt-Fusion
- xiv. Slow crack growth Rate

6. Acceptance of lot

6.1 Sampling and acceptance criteria.

The numbers of samples randomly selected from the lot shall be in accordance with acceptance criteria shall be in accordance with IS4984:2016

6.2 Acceptance Tests

The selected sample shall be subject to the acceptance test in following order as per IS4984:2016

- i. Visual inspection
- ii. Checking of dimensions
- iii. Length
- iv. Wall thickness verification
- v. Density Test at 27 degree cent.

- vi. Carbon Black Content
- vii. Hydrostatic Pressure Test
- viii. Tensile Strength Test
- ix. Elongation at Break
- x. Melt flow Rate (at 190 degree cent and 5.0Kg load)
- xi. Oxidation Induction Time
- xii. Overall Migration
- xiii. Crush Resistance Test – Pipe shall withstand 750N without cracking
- xiv. HPLC analysis to confirm presence of Denatonium Benzoate.

6.2.1 Visual inspection:

6.2.1.1 Marking: Checking and verification of the details as per clause no. 4 of specification

6.2.1.2 Construction: Checking and verification of inside and outside surfaces of conduits which shall be reasonably smooth and free from burrs, flash and similar defects. In addition, the edges over which the conductors or cables are likely to be drawn shall not damage the cables or conductors.

7. Tenderer should submit 2 numbers of samples along with the offer. Offer without sample will be straight way rejected. Sample should be submitted at RSO, Rajkot, Dudhsagar Road, Rajkot on or before last date of submission of offer.

8. Guaranteed Technical Parameters (GTP)

Tenderer should submit the required details in attached guaranteed technical parameters (GTP). Offer without GTP will be straight way rejected.

Annexure – A

Manufacturer's Name:

Address:

GAURANTEED TECHNICAL PARTICULARS (GTP)

Technical information and guaranteed technical information for supplier of HDPE pipe.

Part-A: Bidder has to confirm following important requirement.

Sr. No.	Particulars	Confirmation
1	HDPE pipe shall be supplied as per confirming IS 4984:2016	
2	Dimension shall be as under	
	Outside diameter 140mm – 140.9mm	
	Wall thickness 8.30mm – 9.30mm	
	Length 100m	
3	Marking shall be as per clause no. 4 of specification	

Part-B: Bidder has to furnish below details for above material

Sr. No.	Particulars	Confirmation
1	Colour of pipe - Black	
2	Manufacturer trade mark name	

Part-C: Bidder has to enclose following documents and has to confirm for the same.

Sr. No.	Particulars	Confirmation
1	Confirmation of submission of type test as per clause number 5 from Govt. Approved NABL laboratory.	
	The name of laboratory	
	Laboratory Test Report Number	
	Date of report	
2	Two(2) numbers of samples to be sent with tender	
3	List of plant & machinery	
4	List of testing equipment	
5	List of order pending / executed at least past 2 years for the item offered	
	(A) With subsidiaries of GUVNL	
	(B) With the purchase other than the subsidiaries of GUVNL	

Part-D: Bidder has to mention below deviation if any quoting relevant clause of specification.

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Signature

Company's seal

Date:

Place: