GODAVARI GAS PRIVATE LIMITED

(A Joint Venture of M/s Andhra Pradesh Gas Distribution Corporation Ltd. and M/s Hindustan Petroleum Corporation Ltd.)

TENDER FOR

PROCUREMENT OF PE PIPES (2 YEARS ARC) FOR CGD PROJECT IN EAST GODAVARI AND WEST GODAVARI GEOGRAPHICAL AREAS OF M/S GODAVARI GAS PRIVATE LIMITED

DOMESTIC COMPETITIVE BIDDING

Tender No. 05/51/E/0086/GGPL/028

VOLUME – II OF II

PREPARED AND ISSUED BY
MECON LIMITED
(A Govt. of India Undertaking)
Delhi, India

MATERIAL REQUISITION- Rev-0

Project : **City Gas Distribution Projects in East and West Godavari GA**

Client : **M/s GGPL, a joint venture company of Andhra Pradesh Gas Distribution Corporation Ltd. (APGDC), and Hindustan Petroleum Corporation Limited (HPCL)**

Item : **Procurement of PE Pipes**

MECON's TS No. : MEC/TS/05/62/028

Scope of supply:

Manufacture and supply of Polyethylene Pipes on **24 Months Annual Rate Contract (ARC) basis** including transporting and handling of all pipes to storage yard and as per details given below:

Sl. No.	Description of Items	Quantity in Meters
1	Size (OD) mm- 90, Grade of Material PE- 100, Standard Dimensions /Ratio (SDR)-11	43,200.00
2	Size (OD) mm- 63, Grade of Material PE- 100, Standard Dimensions /Ratio (SDR)-11	1,00,960.00
3	Size (OD) mm- 32, Grade of Material PE- 100, Standard Dimensions /Ratio (SDR)-11	2,27,830.00
4	Size (OD) mm- 20, Grade of Material PE- 100, Standard Dimensions /Ratio (SDR)-11	6,99,350.00

Notes:

1) All pipe material shall be stored in Store(s) of M/s GGPL within the East & West Godavari GA.

2) Considering large size of GA involving multiple districts/cities, supplies shall be made to designated stores which may be located anywhere within the GA, as per requirement. Exact location of store shall be intimated prior to dispatch of material.

3) Bidders are requested to quote rate with due consideration of Unit of measurement of tendered item(s) given in SOR.

4) Tolerance of Maximum one coil length (size-wise and location-wise) will be allowed to complete the ordered quantity in a PO.

TECHNICALSPECIFICATION FOR

POLYETHYLENE PIPES

(TS NO.: MEC/TS/05/62/028)

MECON Limited

(A Govt. of India Enterprise)

13th &15th Floor, SCOPE Minar,

North Tower Laxmi Nagar District Centre,

DELHI–110092

CONTENTS

Sl. No.	Description	Page no.
1.	INTENT OF SPECIFICATION	PAGE 6 OF 16
2.	SCOPE OF WORK	PAGE 6 OF 16
3.	INSTRUCTION TO THE TENDERER	PAGE 6 & 7 OF 16
4.	QUALITY ASSURANCE PLAN FOR POLYETHYLENE PIPES	PAGE 12 TO 16

1. INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacturer and supply of Polyethylene Pipes used for supply of natural gas.

2. SCOPE OF WORK

The scope of the bidder will include manufacture/supply, inspection/testing /marking/ packaging/ handling and dispatch of polyethylene pipes of grade & thickness as indicated in the Material Requisition & Schedule of Rates, meeting all the requirements as laid down in IS: 14885 (Specification for Polyethylene Pipes for the supply of gaseous fuels), as indicated in SOR including those for material used, dimensions, surface finish, performance test sampling/frequency/conformity etc.

All codes and standards for manufacture, testing, inspection etc. shall be of latest edition.

Purchaser reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions in the original order.

3. INSTRUCTION TO THE TENDERER

Length of the Pipes and their supply will be as per following: -

- 20 mm OD– In each Coil of 100 mtrs. Length
- 32 mm OD– In each Coil of 100 mtrs. Length
- 63 mm OD– In each Coil of 100 mtrs. Length
- 90 mm OD– In each Coil of 100 mtrs. Length
- 125 mm OD– In each Coil of 50 mtrs. Length
- 180 mm OD– Each pipe of 12 mtrs. Length minimum & above.

Protection

- The ends shall be protected by proper end caps to prevent from shocks and ingress of the foreign body.
- Coils shall be covered by black PVC/ PE Film or Hessian cloth to prevent Exposure to direct sunlight.

List of Documents

The successful bidder shall submit the following for approval of Purchaser/Consultant after placement of order:

- The Quality Assurance Plan (QAP & Sampling Plan)

- Certified test result of PE Compound (clause 5 of IS:14885)
- Performance Requirements (clause 8 of IS:14885)
- Type Test (clause 9.1 of IS: 14885)

MARKING

- The pipe shall be marked in continues length in addition to the requirement of the applicable code.
- Marking on the pipe shall be as given below:

  "Godavari Gas Private Limited. Manufacturer's Name PE100 DN-X-(W.T.) MM-SDR- GAS IS: 14885:2022 ISI CM/L-Batch or Coil no.-Sequential Meter Marking"

Legend:

DN-Nominal Diameter
W.T.-Wall Thickness
SDR-Standard Dimensions Ratio

LIST OF PREFERRED MANUFACTURER/SUPPLIER FOR RAW MATERIAL OF POLYETHYLENE PIPES AND LIST OF PREFERRED TPI FOR POLYETHYLENE PIPES INSPECTION

MECON Limited

(A Govt. of India Enterprise)

13th&15th Floor, SCOPE Minar, North Tower

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CONTENTS

Sl.No.	Description	Page no.
APPENDIX-I	LIST OF PREFERRED MANUFACTURER/SUPPLIER FOR RAW MATERIAL OF POLYETHYLENE PIPES	Page 10&11 of 16
APPENDIX-II	LIST OF PREFERRED TPI FOR POLYETHYLENE PIPES INSPECTION	Page 11 of 16

APPENDIX-I:-

LIST OF PREFERRED MANUFACTURER/SUPPLIER FOR RAW MATERIAL OF POLYETHYLENE PIPES

Raw Material for PE100 compound (Orange) shall be purchased from the following, as recommended by PE100+ Association:

Product	Manufacturer
Borsafe™HE3492-LS-H(orange)	**Boreali**
Borsafe™HE3492-LS-H(orange)	**Borouge**
ELTEX®TUB125N2025(orange)	**INEOSO&P**
ELTEX®TUB125N6000(orange)	**INEOSO&P**
Hostalen CRP 100 orange	**LyondellBasell**
Hostalen CRP 100 RESIST CR orange	**LyondellBasell**
Total Petrochemicals–GradeXSC50–Orange	

Notes:

1. The successful bidder may also procure the PE raw material from any other PE compound supplier, apart from those listed in the table above, subject to the condition that the said supplier has earlier supplied the same product for the intended services and the offered product is in their regular manufacturing/ supply range and the same may be accepted subject to following: -

a) The raw material used should meet the material properties' requirement as mentioned in IS 14885:2022.

b) The PE material so procured should meet the requirements of three fundamental properties - Creep Rupture strength, Stress Crack resistance and Resistance to rapid crack propagation -as per the recommendation of PE100+ association, which are tabulated below.

Property	Test Method	PE 100+ Association requirements
Creep Rupture Strength	Pressure test at 20°C and 12.0 MPa	> 200 h
Stress Crack Resistance	Pipe notch test at 80°C and 9.2 bar	> 500 h
Resistance to Rapid Crack Propagation	S4 Test at 0°C	pc > 10 bar

c) The said PE compound supplier should not be in the Holiday list of Client/ MECON/ Other PSU.

d) The PE compound supplier should have supplied for intended services i.e., for manufacturing of PE pipes for supply of natural gas fuel, at least 15% of quantity required for manufacturing of SOR quantity of PE Pipes of same size, thickness, schedule, pressure & temperature ratings, SDR, etc. or higher (as applicable) as per technical details mentioned in SOR & Tender specification and in a single Purchase order (PO) and the same should have been supplied within last seven (07) year from the date of approval request made by the successful bidder.

Apart from the documents issued by the PE pipe manufacturer, certificate towards use of PE compound from the said supplier from end user of the PE pipes (for CGD services) will also be required.

Remarks:

1) The successful bidder will be required to submit credible documentary evidences like Material Test certificates from accredited labs, undertaking against banning/Holiday, copies of orders and proof of execution, performance certificates (if available), certificate from end user etc in support of the above.

2) Time taken during review/approval of the documents submitted by the successful bidder against points mentioned at sl. Nos. a) to d) above shall be solely to successful bidder's/supplier's account and in no case the bidder/ supplier shall be entitled for any time or cost benefit.

APPENDIX-II: -

LIST OF PREFERRED TPI FOR POLYETHYLENE PIPES INSPECTION

The Successful Vendor shall choose any one Third party inspection agency (TPIA) from the below list along with QAP submission. Client / MECON shall be intimated regarding the TPIA. The Successful Vendor shall appoint the approved TPIA for inspection purpose and mention name of the approved TPIA in QAP.

i. Det Norske Veritas (DNV)
ii. Germanischer Lloyd
iii. Bureau Veritas
iv. Moody International
v. SGS
vi. Certification Engineer International Ltd (CEIL)
vii. Technische Ulierwachungs Verein (TUV)
viii. Velosi
ix. American Bureau Services (ABS)
x. AB-Vincotte
xi. Lloyd Register of Industrial Services
xii. Meenaar Global
xiii. VCS Quality Services Private Limited

Apart from inspection by TPIA, inspection shall also be performed by MECON/Client's delegate, as set out and specified in the codes and particular documents forming this specification.

SECTION-III

QUALITY ASSURANCE PLAN

FOR

POLYETHYLENE PIPES, Rev-01

MECON Limited

(A Govt. of India Enterprise)
13th&15thFloor,
SCOPE Minar, North Tower
Laxmi Nagar District Centre, Delhi-110092

GGPL GODAVARI GAS PRIVATE LIMITED	**QUALITY ASSURANCE PLAN FOR PE PIPES**	**PROJECT:**_____ **FOA/LOA No & Date:**_____ **PACKAGE NAME:** _____ **QAP NO.:**_____

Sl. No.	Component/ Operation	Type/ Method of Check	Extent of Check	Equipment Used	Ref .Standard	Acceptance Norms	Format Of Record	Agency			Remarks
								M	T	PMC /CLIENT	
A	**RAWMATERIAL**										
(i)	Density	Review of TC	For each Lot/batch of Raw Material used	Electronic Balance	IS:7328:2020 Raw material mfr. Test Certificate	As per clause 8.3 of IS14885:2022,Table-2	RMTC & Test results	V&P	W	R/W	Lot wise/ batch wise RMTC from the compound supplier shall be reviewed by the manufacturer's appointed TPIA & PMC/Client for compound classification (PE80/PE100) as per table-1 and Its characteristics as per table-2 & 3 of IS14885:2022 along with results of tensile tests. Test mentioned against Sl No. A (i), (ii), (iii), (iv) and (v) shall be performed. By the PE pipe manufacturer and their QA/QC department. The same shall be witnessed by manufacturers appointed TPIA and Reviewed/Witnessed by PMC/Client. Further the Material test result carried out at PE pipe manufacturer works shall be produced to TPIA & PMC/Client for comparison with RMTC result.
(ii)	Melt Flow Rate	Review of TC		MFR Tester	IS:2530:1963 & raw material mfr.Test Certificate	As per clause 8.4 of IS14885:2022,Table-2	RMTC & Test results	V&P	W	R/W	
(iii)	Thermal stability (OIT)	Review of TC		OIT Tester	IS14885:2022	As per clause 8.6 of IS14885:2022	RMTC & Test results	V&P	W	R/W	
(iv)	Pigment Dispersion	Review of TC		Dispersion Tester	IS14885:2022	As per clause 8.5 of IS14885:2022	RMTC & Test results	V&P	W	R/W	
(v)	Volatile matter content	Review of TC		Electronic Balance &Oven	IS14885:2022	As per clause 8.7 of IS14885:2022	RMTC & Test results	V&P	W	R/W	
(vi)	Resistance to Gas Constituents	Review of TC		-	IS14885:2022	As per clause 5.5of IS14885:2022	RMTC	R	R	R	
(vii)	Anti-oxidant	Review of TC		-	IS14885:2022	As per clause 5.3of IS14885:2022	RMTC	R	R	R	
(viii)	U.V. Stabilizer	Review of TC		-	IS14885:2022	As per clause 5.4 of IS14885:2022	RMTC	R	R	R	
(ix)	Classification of PE compound	Review of TC		-	IS14885:2022	As per clause 4.2 of IS14885:2022	RMTC	R	R	R	
(x)	Resistance to rapid crack propagation	Review of conformity certificate		-	IS14885:2022	As per ISO 4437-1:2014	conformity certificate	R	R	R	
(xi)	Calibration	Review of Certificates	-	-	Certificates	Certificates	-	R	R	R	
B	**In process Inspection**										
1	**Appearance**										
(a)	Colour	Visual	Randomly as per IS14885	Visual	The colour of the pipe shall be Orange	As per clause 4.4 of IS14885:2022	Test Report	P	W	RW/R	
(b)	Finish of the pipe	Visual		Visual	IS14885:2022	As per clause 7 of IS14885:2022	Test Report	P	W	RW/R	
2	**Dimension of Pipe**										
(a)	Outside Diameter	Measurement	Randomly as per IS14885	PI Tape/ Vernier Caliper	IS14885:2022	As per IS14885:2022,Table-4	Test Report	P	W	RW/R	
(b)	Wall Thickness	Measurement		Ball Ended Micrometer	IS14885:2022	As per IS14885:2022,Table-6& 7	Test Report	P	W	RW/R	

(c)	Ovality	Measurement	Randomly as per IS14885	Vernier Caliper	IS14885:2022	As per IS14885:2022, Table-5	Test Report	P	W	RW/R	
3	Marking	Visual		Visual	IS14885:2022	Indelible marking by Ink Jet Printing as per clause10 of IS14885:2022 as Given below	Test Report	P	W	RW/R	
4	Length	Measurement		As per PO	IS14885:2022	As agreed by the purchaser	Test Report	P	W	RW/R	
Note	For randomness selection, Sampling, frequency of test and criteria for conformity refer clause no 9.of of IS 14885:2022										
C	**Final inspection**										
1	Colour	Visual	Randomly as per IS 14885	Visual	The colour of the pipe shall Be Orange	As per clause 4.4 of IS 14885:2022	Test Report	P	W	RW/R	
2	Finish of the pipe	Visual		Visual	IS 14885:2022	As per clause 7 of IS 14885:2022	Test Report	P	W	RW/R	
3	Dimension of Pipe										
(a)	Outside Diameter	Measurement	Randomly as per IS14885	PI Tape/ Vernier Caliper	IS 14885:2022	As per IS14885:2022,Table-4	Test Report	P	W	RW/R	
(b)	Wall Thickness	Measurement		Ball Ended Micrometer	IS 14885:2022	Asper IS14885:2022,Table- 6&7	Test Report	P	W	RW/R	
(c)	Ovality	Measurement		Vernier Caliper	IS 14885:2022	As per IS14885:2022, Table-5	Test Report	P	W	RW/R	
4	Marking	Visual		Visual	IS 14885:2022	Indelible marking by Ink Jet Printing as per clause 10 of IS 14885:2022 as Given below	Test Report	P	W	RW/R	
5	Length	Measurement		As per PO	IS 14885:2022	As agreed by the purchaser	Test Report	P	W	RW/R	
6	Hydraulic Pressure resistance for 165 Hrs 80°C (Plain Pipe)	Visual	As per Annex E of IS4984	Hydrostatic Pressure Tester	IS 14885:2022	As per clause No. 8.1 No failure or leakage for 165Hrs at 5.4 MPa induced stress as per Table 9 of IS 14885:2022	Test Report	P	W	W/R	
7	Slow Crack Growth Rate Test-Hydraulic Pressure resistance for 500 Hrs 80±1 °C (for pipe size 63 mm dia and above) (Notched Pipe) (Type Test)	Visual	As per Annex J and Annex E of IS 4984	Hydrostatic Pressure Tester	IS14885:2022	As per clause No .8.10. No failure or leakage at 0.92 MPa induced stress as per Table 9 of IS 14885:2022	Test Report	P	R	R	Test pieces to be prepared as per Annex J of IS 4984 from SDR11 & PE pipe size 110 mm dia, or ordered nearest Higher size SDR 11 nominal dia pipes.
	Note: If pipe sizes below 63 mm are manufactured then the test mentioned in sl no-7above is not required. However in such cases the test certificate from the raw material (resin) supplier forest abolishing conformity to the above requirement for pipe size 110 mm or above (SDR11) pipe will suffice										
8.	Squeeze –Off Test (Type Test)		As per Annex-	Hydrostatic		Hydrostatic strength at 80 °C for 165 h at 5.4 MPa					Review test report and no signs of

8.	Squeeze –Off Test (Type Test)	Review	C of IS14885:2022 Annex E	Pressure Tester	IS 14885:2022	after squeeze-off and subsequent re-rounding, shall be demonstrated by testing in accordance with Annex C.	Test Report	P	R	R	Localized swelling, leakage or weeping to be observed. Test Specimen should not burst during the prescribed test duration.
9	Hydraulic Pressure resistance for 1000Hrs 80°C (Plain Pipe) (Type Test)	Review	As per Annex E of IS 4984	Hydrostatic Pressure Tester	IS14885:2022	As per clause No. 8.1 No failure or leakage for 1000Hrs at 5.0 MPa induced stress as per Table 9 of IS14885:2022	Test Report	P	R	R	Review the type test report and compare with RM supplier's TC .Frequency of test shall be once in four years.
10	Hydraulic Pressure resistance for 100 Hrs 20°C (Plain Pipe) (Type Test)	Review		Hydrostatic Pressure Tester	IS14885:2022	As per clause No. 8.1 No failure or leakage for 100 Hrs at 12.0 MPa induced stress as per Table 9 of IS14885:2022	Test Report	P	R	R	Review the type test report and compare with RM supplier's TC. Frequency of test shall be Once in two years.
11	Reversion	Measurement	Annex F of IS4984	Vernier Caliper & Oven	IS14885:2022	As per clause No. 8.2 IS14885:2022 reversion shallnotbegreaterthan3%	Test Report	P	W	W/R	
12	Density	Measurement		Electronic balance	IS:7328:2020 & raw material mfr .Test Certificate	As per clause 8.3 of IS14885:2022,Table-2	Test Report	P	W	W/R	
13	Melt flow Rate	Measurement		MFR Tester	IS:2530:1963 & raw material mfr. Test Certificate	As per clause 8.4 of IS 14885:2022,Table-2	Test Report	P	W	W/R	The tested value of MFR shall be within ± 20 percent of the nominated value declared by the compound manufacturer as per table-2 of IS14885:2022
14	Pigment Dispersion	Visual	As per Annex A of IS 14885	Dispersion Tester	IS 14885:2022	As per clause 8.5of IS 14885:2022	Test Report	P	W	W/R	
15	Thermal stability (OIT)	Measurement	Annex B of IS 4984	OIT Tester	IS 14885:2022	As per clause 8.6 of IS 14885:2022	Test Report	P	W	W/R	
16	Tensile yield strength	Measurement	Annex H of IS 4984	Tensile & Elongation Tester	IS 14885:2022	As per clause 8.8 of IS 14885:2022	Test Report	P	W	W/R	At 23 ± 1 °C the yield stress and elongation at break shall 15 MPa, Min and 350 percent, Min respectively.
	Elongation at break	Measurement			IS 14885:2022	As per clause 8.8 of IS 14885:2022	Test Report	P	W	W/R	
17	Volatile matter content	Measurement	Annex C of IS 4984	Electronic Balance & Oven	IS 14885:2022	As per clause 8.7 of IS 14885:2022	Test Report	P	W	W/R	
18	Resistance to Weathering (Type Test)	Review	Annex B	-	-	As per supplier's TC, As per Clause 5.6 & 8.9 of IS 14885:2022	RMTC & Test Report	P	R	R	
19	Calibration	Review of Certificates	-	-	Certificates	Certificates	-	V/R	R	R	

20	Supply, Packing Handling and Transportation of PE Pipe		Visual	-	-	IS 14885:2022	As per clause 11 of IS 14885:2022	Test Report	P	W	W/R	
Note		For randomness selection, Sampling, frequency of test and criteria for conformity refer clause no 9.0 of IS 14885:2022										

Marking: -

CLIENT NAME SUPPLIER NAME PE100 DNX (W.T)MM SDR11 GAS IS:14885(ISI LOGO) CM/L…….BATCH NO .....METER MARKING COIL NO… GAS

Legend:

M –Manufacturer of PE Pipes, TPIA- Third Party Inspection Agency, PMC– Project Management Consultant, RW-random Witness, R–Document Review, P–Perform, W–Witness, V–Verification of documents, RMTC –Raw Material Test Certificate, R/W:-Review or Witness

Notes:

1. In case of volatile matter ≥ 250mg/kg and ≤350mg/kg, Water Content Test as per EN:12118/ ISO:760 shall be performed and witnessed by TPI and reviewed by PMC/Client.
2. All Type tests shall be reviewed with raw material suppliers' test certificate/conformity certificate.
3. All external labs, if used for testing, shall be NABL accredited.
4. TPIA/PMC shall check the material while opening of bag and the raw material shall be loaded in the hopper in their presence. Additionally, PMC/ CLIENT reserves the right to inspect randomly or review the record prior to giving clearance for dispatch.
5. Since all standards are subject to revision, the latest revision shall supersede the order one and be referred for manufacturing of PE pipes.
6. Sample size of each type of test shall be as follows:

Type of Test	**Table to be referred from IS14885:2022**
Type test	Table-11
Acceptance Tests	Table-12
Scale of Sampling for Visual and Dimensional Requirements	Table-13
Scale of Sampling for Acceptance Tests other than Visual and Dimensional Requirements	Table -14

For CONTRACTOR/SUB-CONTRACTOR

(Stamp & Signature)