OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION A

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material ✓Methyl Di Ethanol Amine (MDEA) for KPD Plant
Tender Enquiry No NO. PROC-FA/CB/P&P/CHEM-3201/2018
Due Date
Evaluation Criteria ✓FULL

SCHEDULE OF REQUIREMENT

Sr No	Description	Unit	Quantity	Unit Price (FOB)	Total Price (FOB)	Unit Price C & F BY SEA	Total Price C & F BY SEA	Deviated From Tender Spec. If Any
1	✓METHYL DI ETHANOL AMINE (MDEA) FOR ACID GAS REMOVAL PLANT AS PER ATTACHED REQUIREMENTS	✓Kilo Grams	✓209000					

Note:

1-Bid bond;-Pursuant to tender clause # 2.2, 11.4, 13 & 35.3.2, bid(s) must be accompanied by an upfront bid bond in the form of pay order/ demand draft or bank guarantee issued by scheduled bank of Pakistan or a branch of foreign bank operating in Pakistan for an amount of US $12,500/= (US Dollars One Hundred Two Thousand Five Hundred Only) or equivalent Pak Rupees, with technical bid and valid for 150 days from the date of opening of the bids. The bank guarantee must be issued in accordance with the format as per Annexure-C of the tender documents.

2. Terms and conditions:-Bidders are advice to carefully read all the terms and conditions of the Tender Document available at OGDCL web site in the master tender document.

3- Shipment from ACU member Countries: In case of shipment from ACU member countries, the LC beneficiary should be of that particular country from where the consignment is being shipped.

4. Summary rejection criteria: - The summary rejection criteria at clause # 35 of the tender document may also be examined carefully. Any bid not meeting the criteria spelled in the clause # 35 shall be summarily rejected without any right of appeal. Delivery period of the quoted product should not be more than 120 days after opening of Letter of Credit (LC).

Selective Methyl Di Ethanol Amine (MDEA)

OGDCL invite bids for the supply of 200,000 Kg selective Methyl Di Ethanol Amine (MDEA) in accordance with the terms and conditions specified in the Tender Documents.

1. Scope of Work

The following scope of supply shall be applicable for supply of MDEA.

1.1 Supply of selective MDEA as per quantity mentioned at SOR according to Terms & conditions mentioned at Clause 6.
1.2 Detailed simulation study for KPD plant with process flow diagram, stream and equipment summaries as per data provided at Clause 2.
1.3 Complete physical and chemical specifications of the quoted product.
1.4 Certificate of compatibility for mixing of two brands as per Claus 6.5
1.5 Provide complete operating guidelines, technical literature and details of testing/monitoring parameters required to monitor the performance, quality and operatibility of supplied MDEA.
1.6 Technical support services throughout the usage of supplied MDEA as per Clause-7 on as and when requirement basis.

2. Basis for Selection of Selective MDEA

2.1 Specifications

Offered MDEA should at least comply following basic specifications:

S.No.	Property	Requirement
1	Appearance	Clear and free of foreign matter
2	Color (Pt-Co)	150 (Max.)
3	Flash Point (PMCC)	90- 95 °C
4	Freezing Point	< 21 °C
5	Specific Gravity (20/20 °C)	1.04-1.05
6	Viscosity (at 38 °C)	> 25 cSt
7	Water Solubility	> 10 %
8	Purity (MDEA)	As per sale specs
9	Water Content	As per sale specs

Bidder should invariably mention the exact physical and chemical properties of their quoted product. Only to write conforming to or OK will not be acceptable.

2.2. KPD Design Data for Simulation

2.2.1 Raw/Feed Gas Composition

The raw gas mixture used for KPD-TAY Amine design is as follows:

Components	Design Mole %	Operating Mole %
C1	79.22	80.156
C2	5.71	6.577
C3	1.8	2.017
i-C4	0.28	0.329
n-C4	0.43	0.519
i-C5	0.11	0.19
n-C5	0.09	0.17
C6+	0.26	0.68
Water contents (H_2O)	NIL	0.2829
N2	1.87	2.04
CO_2	**10**	**7.14**
H_2S (ppm)	Nil	**10**

Gas Flow Design	:	125 MMSCFD
Water (Design)	:	Nil
Condensate (Design)	:	Nil
Water (Operating)	:	0.2379 BBL/MMSCF
Condensate (Operating)	:	1.68 BBL/MMSCF
Operating Pressure	:	1020 – 1090 psig
Operating Temperature	:	80 – 130 °F
Available Hot Oil Duty	:	55.3 MMbtu/h
Amine Carry over	:	0.05 USG/MMSCF (Max)

2.2.2 Product / Sale / Sweet Gas Specification

The plant is designed for the following product gas specification:

H_2S Concentration	:	NIL (<4 PPM is acceptable)
Sulphur Concentration	:	NIL
CO_2 Concentration	:	Less than 2.7 Mole %
Temperature	:	75 – 120 °F

2.2.3 Ambient Data

Average Barometric Pressure	:	14.52 psia
Minimum winter temperature	:	36°F
Maximum summer temperature	:	118°F

2.2.4 Process Description

Gas Treating System

Feed gas from the Inlet Gas Separators enters the Amine Sweetening Unit at 1060 psig and 124-135 °F temperature. When the feed gas temperature reaches excess of 110 °F, the feed gas will be cooled to 110°F by the Inlet Gas Trim Cooler, E-4401, and then will flow through Feed Gas K.O. Drum V-4401 and Feed Gas Filter Coalescer V-4402. After two stages of knock out vessels, the gas goes into the Amine Absorber C-4401. If the feed gas temperature is below 110 F, it can be heated by the Inlet Gas Hot Oil Heater E-4402, and then fed into the Amine Absorber C-4401. Feed gas enters the bottom of Amine Absorber operating at 1045 psig, where it contacts MDEA solution fed from the 24th (top tray) or 21st tray (both options are available); the CO2 content shall be reduced below 2.7%mol.
Treated gas from the top of Amine Absorber flows to the Treated Gas K.O. Drum,V-4403, and washed by the circulation water to remove the residual amine solution &transports to the downstream Molecular Sieve Unit through pressure control. The design Amine flow rate considered for the unit is 1324 GPM.

Amine Regeneration System

Rich amine at 161.2 °F, from the bottom of Amine Absorber is flashed to 55psig in the Rich Amine Flash Drum V-4404. The flashed vapor including light hydrocarbon gases and CO2 enters the Fuel Gas Absorber C-4404 where it is contacted with lean amine coming from Lean Amine Trim Cooler E-4405 to reduce the flashed gas's CO2 content. The treated fuel gas goes to Fuel Gas System under pressure control and can be flared also. Rich amine from Rich Amine Flash Drum flows through the Rich/Lean Amine Exchangers (Plate type Heat exchangers/AlfalavalCompabloc) E-4404A/B/C and to be heated up to 221 °F, and fed to the Amine Regenerator C-4402 on the 17th tray (3rd tray from top). The level control valve of Amine Flash Drum V-4404 is located at the Regenerator inlet to limit two-phase flow. The regenerator top temperature is 205 °F while bottom is at 245 °F with Amine Regenerator ReboilersE-4406A/B heated by Hot Oil. Acid gas from the top of Regenerator is condensed by the Reflux Condenser EA-4402 and then enters Amine Regenerator Reflux Drum V-4406 at 115-120 °F. The CO2 vapor is vented to atmosphere and the liquid circulated back to the Amine Regenerator via Amine Regenerator Reflux Pumps P-4405A/B. Hot lean amine from the bottom of Amine Regenerator is cooled to 174.4°F by Rich/Lean Amine Exchangers and pumped by Amine Circulation Pumps P-4402A/B through the lean amine air cooler EA-4401 at 130 °F to the Amine Storage Tank T-4401. Lean amine is pumped to 101 psig by Amine Booster Pumps P-4403A/B/C & cooled to 120°F by Lean Amine Trim Cooler E-4405. From E-4405, partially lean amine (20%) flows through the Lean Amine Filters F-4401A/B, Charcoal Filter V-4405 and Carbon Bed after Filters F-4402A/B in series respectively. Since heat stable salts are produced in operation, a continuous stream of filtered lean amine can also be fed to the HSS Removal Unit, PU-4402, from which the lean amine circulates back to Amine Storage Tank T-4401. After filtration, the lean amine is pumped by Amine Charge Pumps, P-4404A/B/C up to 1145 psig to return to the 24th or 21st tray of the Amine Absorber.

2.2.1.5 Amine Contractor Towers / Stripper Design Data

Amine Contractor

(a). Design

Internal Diameter	:	114 inches
No. of plates	:	24
Tray spacing	:	23.6"inches
Passes	:	2 pass
Metallurgy	:	316L
Type	:	Two pass, valve trays
Tray Material	:	316L
Tray Weir Height	:	Adjustable 1.97 – 3.94 inches
Vessel Height	:	73.67 feet (T/T)
Design temperature	:	200°F
Design Pressure	:	1200 psig

(b). Operating Parameters

Feed Tray	:	21st or 24th tray
Operating pressure	:	1045 psig
Operating temperature	:	100-110°F
Top Temperature (Gas Leaving)	:	126°F
Bottom temperature (MDEA Leaving)	:	150 °F
MDEA Inlet Temperature	:	10-15°F higher than feed gas
Flow Rate	:	1000 GPM

Amine Regenerator

(a). Design

Internal Diameter	:	132 inches
No. of plates	:	20
Tray spacing	:	23.6" inches
Passes	:	20-18 1 pass tray, 18-1 2 pass trays
Metallurgy	:	316L
Tray Material	:	316L
Tray Weir Height	:	Adjustable 1.97 – 3.15 inches
Vessel Height	:	75.33 feet (S/S)
Design temperature	:	300°F
Design Pressure	:	50 psig

(b). Operating Parameters

Operating pressure	:	12 psig
Operating temperature	:	183 – 245°F
Top Temperature (Gas Leaving)	:	205°F
Bottom temperature (MDEA Leaving)	:	245°F
MDEA Inlet Temp.	:	213°F
Reflux Inlet Temperature	:	115-120 °F
Hot Oil inlet Temperature	:	315 ° F

3. Necessary Data/ Attachments with Bid

3.1. Clients / Sales Achievement (for same application)

S.No	Name of client with address and phone Nos.	Contract/Purchase order No. with date	Quantity Supplied

3.2. Technical Bid Attachments

S.No	Description
01	Original authority letter issued by the manufacturer to bidder and local agent for quoting their product.
02	Complete product data memorandum, specifications, application notes, storage, and handling.
03	Compatibility certificate/declaration with existing in use MDEA for mixing of two brands as per Clause-6.5.
04	Detailed simulation report of KPD plant as per data at Clause 2
05	MSDS and valid ISO-9001 & ISO-14001 certificates of manufacturer
06	Fresh 3rd party lab analysis report of the product
07	Client list as per format given at Clause-3.1
08	Two letters of recommendation / performance (as per Clause 6.6)

3.3. Bid Summary Sheet

Bid summary sheet should be mentioned at least following information/data.

S. No.		Description	
01	A	Name of Bidder	
	B	Complete address, phone, fax numbers, web site and email of bidder	
02	A	Name of Local agent	
	B	Complete address, phone, fax numbers, web site and email of local agent	
03	A	Name of manufacturer	
	B	Complete address, phone, fax numbers, email and website of manufacturer	
04		Brand Name of Product	
05		Country of origin/manufacturing facility	
06		Port of shipment	
07		Effective service life of product	
08		Packing detail	
09		Delivery period	

4. Packing

4.1. MDEA will be supplied in brand new drums as per manufacturer's specifications. Packing should be of international standard (pelletized packing).

4.2. Each drum should be clearly marked with contract no., chemical name, and name of manufacturer, net & gross weights, lot/batch No. and expiry date.

5. Delivery Period

MDEA should be delivered in minimum possible time not more than 120 days after LC opening.

6. Specific Conditions and Vendor/bidder Liabilities

The company (OGDCL) invites bids from bidders for the supply of Selective MDEA in accordance with the terms and conditions listed below:

6.1. Only genuine manufacturers will be considered for technical evaluation having manufacturing experience at least 10 years duly supported by valid ISO certificates for manufacturing / production of offered MDEA. Trade houses and stockiest will not be treated as manufacturers.

6.2. Bidder should be submitted two sets of technical bids (01 original and 01 copy). All documents listed at Claus 3 must also be attached with bid.

6.3. Bidder must have a local set-up and technical experts for technical and back-up services in Pakistan to render technical assistance to OGDCL in shortest possible time and effective manner. Detail C.V. of local technical expert(s) must also be attached with bid. Declaration of back-up services from manufacturer through authorized local agent must also be submitted with bid.

6.4. Bidder shall provide complete details with their technical bid for the shipping, storage, handling and topping/mixing procedure of their offered MDEA.

6.5. Bidder will have to confirm and submit a firm declaration (on original manufacturer letterhead) regarding:

a. Vendor shall guarantee that their offered Selective MDEA will achieve results/ performance as per Clause 2.2.2 and shall fulfills the process requirements by using the existing plant configuration/scheme duly verified by simulation reports.
b. Compatibility/equivalency of quoted MDEA with currently in use MDEA (Jefftreat MS-100) for future mixing and topping.
c. Quoted MDEA not reactive nor degraded (loss of chemical properties) upon mixing/topping with MDEA (Jefftreat MS-100).
d. Provision of back-up support services (including troubleshooting, field visit and analytical services) through authorized local agent on as and when required basis.

6.6. If bidder did not supply quoted MDEA to OGDCL previously, they will have to submit two performance / recommendation letters from their clients (preferably from Pakistan) to whom they supplied at least 100 drums of quoted MDEA during last 07 years.

6.7. Bidder will have to mention all the testing/monitoring parameters required to evaluate the quality, performance and operatibility of their quoted MDEA.

6.8. Specifications of quoted MDEA must be mentioned clearly, word accepted or complied will not acceptable. Shelf life of product is not less than 30 months.

6.9. Bidder will have to submit information/data regarding the foaming tendency of their offered MDEA and also recommend compatible brand(s) of Antifoam with their quoted MDEA.

6.10. OGDCL will carry out 3rd party pre-shipment inspection at its own cost from approved firms. The TPI firm will submit report directly to OGDCL and consignment will only be shipped after acceptance/endorsement of TPI report(s) by OGDCL.

6.11. OGDCL may witness TPI, the bidder will responsible to arrange at least 05 days visit of 02 OGDCL officials to manufacturing facility for following programs:

a. Endorsement of TPI
b. Visit of manufacturing facility
c. Basic training on amine sweetening process and quality control
d. Visit of manufacturer R&D and QC facilities.

6.12. Bidder can quote separate price for above visit which will not include in financial evaluation, however payment will only be made if OGDCL availed visit program. Visit prices should cover visa, travelling and boarding lodging charges.

7. Technical Services

7.1. Local agent will be responsible to arrange their technical expert visit (free of cost) to OGDCL KPD Plant for troubleshooting throughout the usage of their supplied MDEA on as and when required basis (not more than 01 visit per year).

7.2. Local agent will be responsible to arrange complete analysis of MDEA sample(s) from manufacturer's testing / R&D facility on as and when required basis. Analysis charges can be quoted separately (not included in financial evaluation) and shall be valid for 02 years however payment will only be made for such analysis if availed by OGDCL as per quoted rates. Analysis of MDEA samples covers sample transportation to manufacturer testing facility and covered all general parameters, gas chromatographic analysis, metal scan and impurities.

7.3. Acceptance of following perpetual technical support.

i. Telephonic / email conversations, no limits
ii. Update of new product/development