

and stamped by the

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

ANNEXURE 'A'

Material Sodium Carboxy Methyl Cellulose–Low Viscosity (CMC–LV)
Tender Enquiry No PROC–FA/CB/WS/CMC–LV–4782/2020
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	SODIUM CARBOXY METHYL CELLULOSE (LOW VISCOSITY), CMC–LV	Metric Ton	300					

Note:

- Bid Bond Amount:** 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 \$7,500/= (United States Dollar Seven Thousand Five Hundred Only), or equivalent Pak Rupees, with technical bid and valid for 150 days from the date of opening of the bids.
- Delivery period:** Delivery period of the quoted product should not be more than 180 days from the date of establishment of Letter of Credit (LC).

Vetted PLZ

M. Farasat Sharif
M. FARASAT SHARIF
Mud Engineer
Ext: 2917

TOR / Scope of Work for Third Party Pre-Shipment Inspection of
300 M.TON OF SODIUM CARBOXY METHYL CELLULOSE
(LOW -VISCOSITY) CMC (LV)

Inspecting agency will have to fulfill following terms and conditions in connection to third party inspection related to consignment of 300 M. Ton Carboxy Methyl Cellulose (Low-Viscosity) CMC (LV) prior to shipment, as per delivery schedule against PO # (-----) at the premises of the Manufacturer's facility i.e. (M/s-----).

- a. Carry out physical inspection regarding quantity and packaging of material in accordance with Packing Requirement as per below given detail at manufacturer's facility.

Packing Requirement

Carboxy Methyl Cellulose (Low-Viscosity) should be packed in **25 Kgs** or **55 lbs** net per bag in export quality new multi-wall paper bags having thick, high density inner polythene liner for rendering the material completely moisture proof. The material should be palletized as **900-1000 kg**, wrapped with thick polyethylene sheet and tightly strapped. The packaging of the material should be of international standards and capable to safe transportation during ocean / road journey from port of shipment to well site and to withstand prolonged weather conditions at the storage points and at the well sites / locations.

b. **Marking**

The following markings have to be checked on each bag.

- (i) Name of the product.
 - (ii) Name of the Manufacturer.
 - (iii) Date/month/ year of manufacture.
 - (iv) Minimum shelf life
 - (v) Supply order number against which supplies are made.
 - (vi) Lot No.____/ Batch No._____.
- c. Draw random samples as per laid down procedure of agency selecting Square Root of Total sacks from the material ready for shipment, mix all the samples thoroughly to get one (01) composite sample and divide it in 04 (Four) equal parts.
- d. 01 Sample to be tested in 3rd party Lab or witnessed by TPI inspector in manufacturer Lab, 01 each to be kept with bidder & TPI inspector respectively for their record and 4th Sample duly sealed by TPI firm to be dispatched to OGDCL at the following address :-

Manager I/C (Drilling Services)
Room No.308, 3rd Floor,
Tower-B. OGDCL House, Plot No.3013(New)
F-6/G-6, Blue area, Jinnah Avenue Islamabad, Pakistan
Tel: 0092-51-920023737.

*Vetted
Please.*

Saim
04/09/2020
SAIM MAQSOOD
Senior Engineer
Ext: 2221

Fazal
07/09/2020
FAZAL RAHIM
T.O Manager I/C (D.S)
Dy. Chief Eng (DF)
Ext: 2373

- e. The Third Party Inspection firm will be bound to dispatch the Inspection report along with Lab analysis Report; completed in all aspect by courier within 7 days. An advance scanned copy must be communicated immediately after inspection to following addresses:
- i- riaz_mangi@ogdcl.com, Manager Incharge (Drilling Services)
 - ii- javid_sabir@ogdcl.com. Sr. Procurement Officer (SCM)-Foreign
 - iii- saima_maqsood@ogdcl.com Sr. Mud Engineer
- f. Since the scope of work includes the inspection of chemical followed by the laboratory testing therefore the TPI inspector for testing of sample must be a chemist / chemical engineer having past experience of Mud chemicals testing or competent enough for completion of assignment.
- g. The TPI firms are required to mention in their proposal that testing would either be done in TPI firm's lab / third party lab or manufacturer's lab duly witnessed by TPI inspector (if lab facility is not available with TPI firm) and testing charges be quoted accordingly.
- h. The TPI firms are required to draw samples as per "clause-c" and one sealed sample to be dispatch directly to OGDCL. The sample courier charges be quoted in separate line item in the proposal.
- i. The TPI firms are required to mention the cost of single visit of inspector for inspection of total quantity as well as cost of two (02) visits of inspector for inspection of partial consignment.
- j. Above mentioned terms and conditions should be followed in its true letter and spirit.

LAB EVALUATION OF CARBOXY METHYL CELLULOSE (LOW -VISCOSITY)
CMC (LV)

A: TECHNICAL SPECIFICATIONS:

SR. NO.	PROPERTIES	REQUIRED SPECIFICATIONS	EXACT VALUE OF THE OFFERED PRODUCT
01.	Appearance	Hygroscopic free flowing powder.	
02.	Moisture content	8% Maximum	
03.	Bulk Density (g/l)	Minimum 650	

settled please.

Saima Maqsood
04/09/2020
SAIMA MAQSOOD
Senior Mud Engineer
Ext: 2221

Fazal Rahim
07/09/2020
FAZAL RAHIM
T.O Manager I/C (D.S)
Dy. Chief Eng (DF)
Ext: 2373

B) PERFORMANCE TEST:

PERFORMANCE TESTING (AS PER API SECTION 9)			
SR. NO.	REQUIRED SPECIFICATIONS	REQUIRED SPECIFICATION S	EXACT VALUE OF THE PRODUCT
01.	Viscometer Dial Reading at 600 rpm	90 Maximum	
02.	Filtrate Volume	10cm ³ , Maximum	

NOTE: Detailed procedure for Performance testing is enclosed at Annexure-B

*Vetted
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SECTION 9
TECHNICAL-GRADE LOW-VISCOSITY CMC
(CMC-LVT)

9.1 Description

a. Technical-grade low-viscosity carboxymethylcellulose (CMC-LVT), an alkali metal salt of carboxymethylcellulose that is chemically modified to obtain a water soluble polymer. The manufacturer shall maintain documentation of analysis of the cellulosic raw material used.

b. The product obtained is a free-flowing or granulated powder and is not normally purified of byproducts formed in the reaction. It is known as CMC-LVT.

c. CMC-LVT shall be deemed to meet this specification if a composite sample representing no more than one day's production conforms to the physical requirements of Table 9.1, represents the product produced, and is controlled by the manufacturer.

TABLE 9.1
CMC-LVT

PHYSICAL REQUIREMENTS

Requirement	Specification
Solution Properties	
Viscometer Dial Reading at 600 rpm	90, maximum
Filtrate Volume	10 cm ³ , maximum

SOLUTION PROPERTIES

9.2 Equipment

- a. Thermometer: 32-220 ±1°F (0-105 ±0.5°C)
- b. Balance: precision of 0.01 g
- c. Mixer (e.g., Multimixer Model 9B with 9B29X impellers or equivalent as shown in Fig. 2.1): Each spindle will be fitted with a single sine-wave impeller approximately one inch (25mm) in diameter mounted flush side up.
- d. Mixer Container: approximate dimensions — 7 inches (180 mm) deep, 3-13/16 inch (97 mm) ID top, 2-3/4 inch (70 mm) ID bottom (e.g., Hamilton Beach mixer cup No. M110-D, or equivalent)
- e. Spatula
- f. Motor-Driven Direct Indicating Viscometer: as referenced in API RP 13B-1, 1st edition, June, 1980, Par. 2.4
- g. Deionized (or distilled) water
- h. Timers: two interval, mechanical or electrical, precision of 0.1 minute
- i. Sealed container: about 500-cm³ with lid
- j. Filter press: as referenced in API RP 13B-1, 1st edition, June, 1980, Par. 3.2
- k. Graduated cylinders: one 10 ±0.1 cm³ (TC), one 100 ±1 cm³ (TD), and one 500 ±5 cm³ (TD)

- l. pH meter (optional): precision of 0.1 pH unit
- m. Container, glass or plastic, with stopper or lid for salt solutions
- n. API Standard Evaluation Base Clay (see Par. 1.4)
- o. Sodium chloride: (CAS #7647-14-5)
- p. Sodium bicarbonate: (CAS #144-55-8)

9.3 Procedure — 600 rpm Dial Reading

a. Prepare a solution of CMC-LVT. Add 10.5 ±0.01 g CMC-LVT to 350 ±5 cm³ of deionized water at a uniform rate over a time interval of about 60 seconds while stirring on the mixer.

NOTE: CMC-LVT shall be added away from impeller shaft to minimize dusting.

b. After stirring 5 ±0.1 minutes, remove container from mixer and scrape its sides with the spatula to remove or dislodge any CMC-LVT adhering to container walls. Be sure all CMC-LVT clinging to the spatula is incorporated into the solution.

c. Replace the container on the mixer and continue to stir. The container may need to be removed from the mixer and the sides scraped to dislodge any CMC-LVT clinging to container walls after another 5 and 10 minutes. Total mixing time shall equal 20 ±1 minutes.

d. Age the solution for 2 hours ±5 minutes in a sealed or covered container at room temperature. Record storage temperature.

e. After aging, stir the solution on the mixer for 5 ±0.1 minutes.

f. Pour the solution into the viscometer cup provided with the direct indicating viscometer. The dial reading at the 600 rpm rotor speed setting of the viscometer shall be recorded when a constant value at 600 rpm is reached. The reading shall be taken at a solution test temperature of 77 ±2°F (25 ±1°C).

9.4 Procedure — Filtrate Volume

a. Prepare an ample volume of saturated salt solution by thoroughly mixing in a suitable container 40 to 45 g of sodium chloride per 100 ±1 cm³ of deionized water. Allow solution to stand for approximately 1 hour. Decant solution or filter it into a storage container.

b. Prepare a clay-base suspension by adding 350 ±5 cm³ of the saturated salt solution to the mixer container. Add 1.0 ±0.1 g of sodium bicarbonate and stir on the mixer for about 1 minute.

c. Slowly add 35.0 ±0.1 g of API Standard Evaluation Base Clay while stirring on the mixer.

d. After stirring 5 ±0.1 minutes, remove container from mixer and scrape its sides with the spatula to dislodge any clay adhering to container walls. Be sure all clay clinging to the spatula is incorporated into the suspension.

e. Replace the container on the mixer and continue to stir. The container may need to be removed from the mixer and the sides scraped to dislodge any clay clinging to the container walls after another 5 and 10 minutes. Total stirring time after adding the clay shall equal 20 ± 1 minutes.

f. Add 3.15 ± 0.01 g (9.01 ± 0.03 g/L) of CMC-LVT to the suspension while stirring on the mixer, adding at a uniform rate over about 60 seconds.

g. After stirring 5 ± 0.1 minutes, remove the container from the mixer and scrape its sides with the spatula to dislodge any CMC-LVT adhering to container walls. Be sure all material clinging to the spatula is incorporated into the suspension.

h. Replace the container on the mixer and continue to stir. The container may need to be removed from the mixer and the sides scraped to dislodge any CMC-LVT clinging to the container walls after another 5 and 10 minutes. Total stirring time shall equal 20 ± 1 minutes.

i. Age the suspension for 2 hours ± 5 minutes in a sealed or covered container at room temperature. Record storage temperature.

j. After aging, stir the suspension on the mixer for 5 ± 1 minutes.

k. Immediately pour CMC-LVT-treated suspension into a filter press cell. Before adding the suspension, be sure each part of the filter cell is dry and that all gaskets are not distorted or worn. The temperature of

the suspension shall be $77 \pm 2^\circ\text{F}$ ($25 \pm 1^\circ\text{C}$). Pour the suspension to within about 1/2 (13 mm) of the top of the cell. Complete assembly of the filter press cell. Place the filter cell in the frame and close the relief valve. Place a container under the drain tube.

l. Set one timer for 7.5 ± 0.1 minutes and the second timer for 30 ± 0.1 minutes. Start both timers and adjust pressure on the cell to 100 ± 5 psi (690 ± 35 kPa). Both of these steps shall be completed in less than 15 seconds. Pressure shall be supplied by compressed air, nitrogen or helium.

m. At 7.5 ± 0.1 minutes on the first timer, remove the container and any adhering liquid on the drain tube and discard. Place a dry 10-cm^3 graduated cylinder under the drain tube and continue collecting filtrate to the end of the second timer set at 30 minutes. Remove the graduated cylinder and record the volume of filtrate collected.

9.5 Calculation — Filtrate Volume

Calculate the filtrate volume of the CMC-LVT-treated suspension as:

$$\text{Filtrate vol., cm}^3 = 2 \times V_c \quad (a)$$

where V_c = volume filtrate collected between 7.5 and 30 minutes

Record calculated value.