

## TERMS AND CONDITIONS FOR SUPPLY OF LUBRICANTS FOR ENGINES AND COMPRESSORS OF NASHPA PLANT:

1. The OEM of the offered brand must have 10 years of blending / manufacturing experience of the lubricants.
2. The supplier / bidder should also have minimum 10 years of experience for supply of such lubricants in oil and gas / petrochemical industry.
3. Bidder must also confirm the use of quoted brand for gas engines and compressors in the oil & gas or petrochemical industry. Reference list to be provided by the bidder.
4. The quoted brand of oil must be in use in the industry for last 5 years (min).
5. The offered brand of oil must have approval / recommendation for Caterpillar / Waukesha Engines and Ariel / Cameron Compressors by its OEM / packager. Valid documentation to be provided with the bid.
6. The required specifications of desired lubricants is attached for reference. The quoted oil should meet these specifications. Documentary evidence to be provided.
7. In addition to provision of technical literature including MSDS of the offered brand of oil, the properties of the offered oil are to be mentioned on the attached specification sheets.
8. The offered brand of oil must have similar properties as those listed in the specification sheet. The offered oil shall not be accepted if there is any major deviation in its properties from any of the required properties of the oil as mentioned in the specification sheet.
9. If due to the standard size of packaging (drums or cans) the exact quantity of the oil cannot be supplied, the near equivalent of the required quantity shall be acceptable.

*Amir*

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### Specifications for SAE VG-40 Engine Oil

Test Procedure	ASTM Test Method	Specifications of Shell Mysella S5 N40 Oil	OGDCL's required Specification Range	Bidder's offered specifications
Lube Oil Name			Shell Mysella S5 N40 or equivalent oil	Vendor to advise
SAE Viscosity grade	n/a	40	firm	
Kinematic Viscosity, @ 40 deg C	ASTM D445	125	123-135	
Kinematic Viscosity, @ 100 deg C	ASTM D445	13.5	13.2 to 13.8	
Density, kg/m3 (@15.0°C)	D4052	890	880-900	
Flashpoint Cleveland Open Cup deg C	D92	264	258-265	
Pour Point, °C	ISO 3016	-18	-18 or lower	
Base No., mg KOH/g	ASTM D2896	4.5	4.5 to 6.5	
Sulphated Ash, %wt	ISO 3987	0.48	0.48 to 0.52	
Phosphorus, ppm	ASTM D4047	300		

Note: The properties / specification range of the required brand of oil are mentioned in the above table. The properties of the offered brand of oil to be provided by the bidder in the above given table.

*James G*

**VG-150 Circulation oil for Bearings / Compressor / Industrial Equipment**

Test Procedure	ASTM Test Method	Specifications of Shell Morlina S2 BL150	OGDCL's required Specification Range	Bidder's offered specifications
Lube Oil Name			Shell Morlina S2 BL150 or equivalent oil	Vendor to advise
SAE Viscosity grade	ISO 3448	150	firm	
Kinematic Viscosity, @ 40 deg C	ASTM D445	150	145-155	
Kinematic Viscosity, @ 100 deg C	ASTM D445	15	14.2 to 15.2	
Density, kg/m3 (@15.0°C)	ISO 12185	887	875-900	
Viscosity Index	ISO 2909	95	93 to 96	
Flashpoint Cleveland Open Cup deg C	ISO 2592	262	255 to 275	
Pour Point, °C	ISO 3016	-15	-15.3 or lower	
Rust, Distilled Water	ASTM D665A	pass	pass	
Emulsion Test - @82 deg C (minutes to 37 ml of H2O)	ASTM D1401	20	15 to 20	
Oxidation Control Test: TOST, hrs	ASTM D943	1300+	close to 1300	
Oxidation Control Test: RBOT, mins	ASTM D2272	400+	close to 400	
Foam Test, Seq II, ml foam at 0/10 mins	ASTM D892	10/0	10/0	

Note: The properties / specification range of the required brand of oil are mentioned in the above table. The properties of the offered brand of oil to be provided by the bidder in the above given table.

*Amir*