

Emirates National Oil Company Limited (ENOC) LLC

Att: Mr. Prashant Bhatt

NO OBJECTION LETTER: ENOC STRATA SERIES LUBRICATING OILS

Dear Sir,

The ENOC Strata LSF 412 lubricating oil has gone through a 4 912 -hour validation test in the Wärtsilä® 8L20 PAAE036265 main engine on board the vessel M/V Cito. Based on the results of the engine inspection and lubricating oil analyses, Wärtsilä has no objection to the use of the following ENOC products:

Product	SAE grade	Base Number	Fuel category, ISO 8217:2017(E)
Strata LSF 312	30 ^{*)}	12	ISO-F-DMX, DMA, DFA, DMZ, DFZ, DMB, DFB, LBF ^{**)}
Strata LSF 412	40	12	ISO-F-DMX, DMA, DFA, DMZ, DFZ, DMB, DFB, LBF ^{**)}
Strata LSF 315	30 ^{*)}	15	ISO-F-DMX, DMA, DFA, DMZ, DFZ, DMB, DFB, LBF ^{**)}
Strata LSF 415	40	15	ISO-F-DMX, DMA, DFA, DMZ, DFZ, DMB, DFB, LBF ^{**)}
Strata MSDO 320	30 ^{*)}	20	ISO-F-DMX, DMA, DFA, DMZ, DFZ, DMB, DFB, LBF ^{**)} ISO-F-RMA 10 – RMK 700 ^{***)}
Strata MSDO 420 ^{**)}	40	20	ISO-F-DMX, DMA, DFA, DMZ, DFZ, DMB, DFB, LBF ^{**)} ISO-F-RMA 10 – RMK 700 ^{***)}

^{*)} Use of SAE 30 lubricating oils is allowed only in the engine types Wärtsilä® Vasa 22 / 22/26 and Wärtsilä® Vasa 32 / 32LN. In these engine types the suitability of SAE 40 grade lubricating oils depends on the capacity of the lubricating oil cooler used in the installation.

^{**)} LBF stands for liquid bio fuel, for which fuel quality an internal fuel specification is available.

^{***)} Use of BN 20 lubricating oils is allowed in the below mentioned Wärtsilä® DF engine types provided that the monthly service hours on max. 1,00 % m/m sulphur residual fuel don't exceed 15% of the total monthly service hours. Respectively the allowed monthly service hours on 1,01 – 2,50 % m/m sulphur residual fuel are max. 5% of the total monthly service hours. Use of BN 20 oils is also allowed in all below mentioned diesel and DF engines when using max. 0,10 % m/m sulphur fuels (Ultra Low Sulphur Fuel Oil RM).

Handled by
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Revision

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The statement is valid for the engine types Wärtsilä® Vasa 22 / 22/26, Wärtsilä® Vasa 32 / 32LN, Wärtsilä® 20, Wärtsilä® 26, Wärtsilä® 31, Wärtsilä® 32, Wärtsilä® 38, Wärtsilä® 46, Wärtsilä® 46F, Wärtsilä® 50, Wärtsilä® 64, Wärtsilä® 20DF, Wärtsilä® 31DF, Wärtsilä® 32DF, Wärtsilä® 34DF, Wärtsilä® 46DF, Wärtsilä® 50DF and Sulzer® Z40 / ZA40 / ZA40S provided that fuel quality also fulfils the fuel specifications of Wärtsilä and that the engine type specific lubrication requirements are taken into account.

Instructions for other older engine types manufactured by Wärtsilä can be requested from Wärtsilä Services units being in response of a particular engine type in question.

Distillate fuel operation: In the first place BN 10 – 20 lubricating oils are recommended to be used, but the use of BN 30 lubricating oils is also allowed, but not preferred, since sulphur content of distillate fuels is nowadays low and a high alkali reserve in lubricating oil is not needed. However, the use of BN 30 oils shall be avoided in DF engines which are operated in turn on gaseous fuel and distillate fuel due to their sensitivity to lubricating oil's high sulphated ash content.

These lubricating oils will be included in Wärtsilä's list of lubricating oils having passed Wärtsilä's lubrication oil testing criteria.

ENOC undertakes all responsibility for the performance of the lubricating oils in service of the above mentioned engine types to the exclusion of any liability of any Wärtsilä company belonging to Wärtsilä group. ENOC along with other possible manufacturers and distributors of the products in question shall indemnify, compensate and hold harmless Wärtsilä and companies belonging to Wärtsilä group from and against any claims, damages and losses caused by the lubricating oils in question.

ENOC undertakes to inform the undersigned / responsible representatives of Wärtsilä of any subsequent changes in the formulation of the lubricating oil brands in question.

Yours faithfully,

Wärtsilä Finland Oy
Marine Business, Marine Power Solutions, R&D and Engineering



Stefan Saario
General Manager, Engine Expertise



Kai Juoperi
Chief Expert, Engine Fluids