

LUKOIL Marine Lubricants  
Att: Mr. Stefan Claussen

## **NO OBJECTION LETTER: LUKOIL EFFORSE 4004 LUBRICATING OIL**

Dear Sir,

The Lukoil Efforse 4004 lubricating oil has gone through a 4393 -hour validation test in the Wärtsilä® 20V34SG PAAE033771 engine at the Summit Narsingdi power plant located in Bangladesh. Based on the results of the engine inspection and the lubricating oil analyses, Wärtsilä has no objection to the use of the following Lukoil product:

### **Efforse 4004**

(SAE Grade: 40, Base Number: 5,56 mg KOH/g, Sulph. ash content: 0,49 % m/m)

The statement is valid for the engine types Wärtsilä® 175SG, Wärtsilä® 220SG, Wärtsilä® 25SG, Wärtsilä® 28SG, Wärtsilä® 34SG, Wärtsilä® 50SG, Wärtsilä® 20DF, Wärtsilä® 32DF, Wärtsilä® 34DF and Wärtsilä® 50DF with natural gas as main fuel. The gas quality has to fulfil the natural gas specification of Wärtsilä and the engine type specific lubrication requirements have to be taken into account.

Use of Lukoil Efforse 4004 lubricating oil in the engine types Wärtsilä® 20DF, Wärtsilä® 32DF, Wärtsilä® 34DF and Wärtsilä® 50DF is limited to the installations running continuously on natural gas as main fuel. If liquid fuel is used as main fuel, higher BN lubricating oils designed and validated for distillate fuel operation of medium-speed diesel engines have to be used.

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

Lukoil undertakes all responsibility for the performance of this lubricating oil in service of the above mentioned engine types to the exclusion of any liability of any Wärtsilä company belonging to Wärtsilä group.

Handled by  
K JuoperiReference  
NoL Efforse 4004.docDate  
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Lukoil along with other possible manufacturers and distributors of the product 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 oil in question.

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

Yours faithfully,

Wärtsilä Finland Oy  
PowerTech / R&D



Kai Juoperi  
Manager, Engine Fluids



Stefan Saario  
General Manager, Engine Operation Expertise