

MARITEC FUEL TESTING REPORT - DIVA 369

To : PT AKR CORPORINDO TBK
 Attn To : Mr. Ronal

 Report No : RPT-230015299-FULL REPORT-D01
 Sample No : ML2315473
 JobNo(s) : ML2315473-MFR-0001-01

 Purchase Order No : 095/L-JKT/2023
 Date Of Report : 01-Jun-2023
 Vessel Name : Diva 369
 IMO Number : -
 Sample Type : Hsfo
 Sampling Port : Surabaya - Indonesia
 Sampling Date : 21-May-2023
 Sampling Point : Pipe Of Jetty Nilam-Surabaya
 Sampling Method : Dripping Method
 Supplier : PT AKR
 Bottle type : MARITEC HDPE
 Seal Data : Maritec A3804079
 Seal Condition : Seal Intact
 Sent From : Jakarta - Indonesia
 AWB : Indonesia Freight Forwarder EPI: 22570
 Date Sent : 29-May-2023
 Date Received : 31-May-2023

PROTEST NOTE ISSUED : No

RESULTS COMPARED TO ISO 8217:2005 RME 180 TABLE-2 SPECIFICATIONS.

			TEST RESULT	ISO SPECS	
Density @ 15 Deg C	kg/m3	ISO 12185	949.5	991.0	Max
Specific Gravity @60/60 F	-	-	0.9501	Converted	
KV 50	mm2/s	ISO 3104	72.8	180.0	Max
KV 100	mm2/s	ISO 3104	12.5	Non-spec	
Flash Point	Deg C	ISO 2719	>70	60	Min
Pour Point	Deg C	ISO 3016	15	30	Max
MCR	%m/m	ISO 10370	10	15	Max
Ash	%m/m	ISO 6245	0.01	0.10	Max
Water	%V/V	ISO 3733	0.1	0.5	Max
Sulphur (ISO 2005 Specs)	%m/m	ISO 8754	2.65	4.50	Max
Sulphur (Statutory)	%mass	ISO 8754	2.65	3.50	Max
Vanadium	mg/kg	IP 501	23	200	Max
TSP	%m/m	ISO 10307-2	0.01	0.10	Max
AL + SI (2 + 4)	mg/kg	IP 501	6	80	Max
Zinc	mg/kg	IP 501	<1	15	Max
Phosphorus	mg/kg	IP 501	<1	15	Max
Calcium	mg/kg	IP 501	1	30	Max

The sample results relate only to the items tested and have been compared according to the specifications listed in ISO 8217:2005 (E) Table-2 Specs

under ISO-F RME 180 and THE SPECIFICATIONS ARE MET.

ADDITIONAL PARAMETERS (NON-ISO)

Al	mg/kg	IP 501	2
Si	mg/kg	IP 501	4
Sodium	mg/kg	IP 501	11
Iron	mg/kg	IP 501	4
Lead	mg/kg	IP 501	<1
Magnesium	mg/kg	IP 501	<1
Nickel	mg/kg	IP 501	3
Potassium	mg/kg	IP 501	<1
API Gravity	-		17.4
Net Specific Energy	MJ/kg		40.87
Gross Specific Energy	MJ/kg		43.28
CCAI(Ignition Quality)	-		831

Glossary : KV50=Kinematic Viscosity @50 Deg C;

MCR = Micro Carbon Residue; TSP = Total Sediment Potential;

(Al+Si) = Aluminum+Silicon; CCAI = Calculated Carbon Aromaticity Index

OPERATIONAL ADVICE-

Min Transfer/Storage Temp	25	Deg C
Temp at Separator Inlet	80	Deg C
Temp for injection viscosity of 10 cSt	109	Deg C
Temp for injection viscosity of 13 cSt	99	Deg C
Temp for injection viscosity of 15 cSt	93	Deg C
Temp for injection viscosity of 18 cSt	87	Deg C

NOTE : We do not have details of your shipboard machinery and assume your vessel has conventional centrifuge(s). Please complete vessel technical information form which is attached and return to Maritec as soon as possible.

DENSITY

The fuel density is below the max. Limit for all types of purifiers. Operate the centrifuges in series, e.g. purifier followed by a clarifier. Refer to the centrifuge maker's nomogram. Select density (test result density and not BDN density), recommended separation temperature at 80 °C and the minimum flow rate to cover the vessel's speed.

With density, fuel temperature and flow rate, the gravity disc size can be selected from the nomogram. Note that any change to density, inlet temperature or flow rate will affect the selection of gravity disc and the selection process has to be repeated. If unable to maintain the water seal with the selected gravity disc, then try with a gravity disc that is one size smaller.

POURPOINT

Note the pour point of +15 Deg C. The temperature of the fuel storage tanks is recommended to be maintained at a minimum of 10°C above the tested pour point. If wax like sludge is observed in the fuel system filters or the purifier sludge leading to operational down time, it is recommended to conduct further

analysis by ASTM D5773 equivalent to determine the Wax Appearance Temperature (WAT) and Wax Disappearance Temperature (WDT) to have a better assessment of the minimum limits of storage, transfer, and purification temperature.

The test report shall not be reproduced except in full, without the written approval of the laboratory

Thanks & Best Regards

Mr Ng Ruisen / NI

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