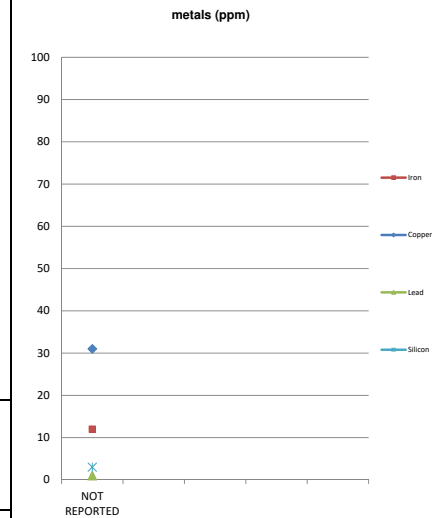
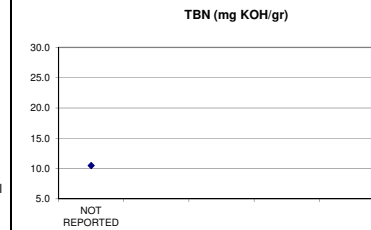
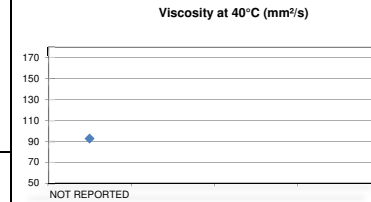




LUBRICATING OIL ANALYSIS REPORT

Customer information		Report Identification					Status		
Customer: Messengers, Master & Owners of M/Y JESTER C/O: WALSH MARINE		Report number: 190918-44		Report's issue date: 18.09.2019					
		Lab sample number: 190917-13-1							
Ship system: MAIN ENGINE PORT									
Sample Information		Last Sample	Previous Samples				Critical Limits		
		1	2	3	4	5	normal	caution	alert
Port :		NOT REPORTED							
Date sampled:		NOT REPORTED							
Sampled by:		CLIENT							
Date delivered:		17.09.2019							
Delivered by:		CLIENT							
Date tested:		18.09.2019							
Oil in use (type&grade):		NOT REPORTED							
Oil service hours:		100							
Total engine hours:		1700							
Physicochemical properties									
Method									
Appearance	VISUAL	Black							
Viscosity at 100°C (mm ² /s)	ASTM D7042	12.91							
Viscosity at 40°C (mm ² /s)	ASTM D7042	92.69							
TBN (mg KOH/gr)	ASTM D2896	10.5							
TAN (mg KOH/gr)	ASTM D664	-							
Flash point (°C) (PMC)	ASTM D93	>190							
Insolubles content (%m/m)	ASTM D893	0.44							
Water (% vol)	ASTM D6304	0.05							
Wear metals and contaminants (ppm)									
Tin (Sn)	ASTM D5185	1							
Iron (Fe)	ASTM D5185	12							
Copper (Cu)	ASTM D5185	31							
Nickel (Ni)	ASTM D5185	0							
Chromium (Cr)	ASTM D5185	1							
Lead (Pb)	ASTM D5185	1							
Magnesium (Mg)	ASTM D5185	888							
Aluminium (Al)	ASTM D5185	2							
Silicon (Si)	ASTM D5185	3							
Vanadium (V)	ASTM D5185	0							
Cleanliness level									
4µm(c)		-							
6µm(c)		-							
10µm(c)		-							
14µm(c)		-							
21µm(c)	ISO 4406	-							
25µm(c)		-							
38µm(c)		-							
70µm(c)		-							
ISO Code		-							
NAS Class	NAS 1638	-							
Comments									
Normal values of physical-chemical properties and wear metals. The lubricant in proper condition for further use. The element Magnesium is high and could be lubricant additive. The cleanliness level testing is not applicable on black or hazy oils and the minimum required quantity of sample is 200ml.									
OPERATOR: Christina Drakakaki- Chemical Lab Analyst					APPROVED: Evagelia Mante - Chemical Lab Manager				



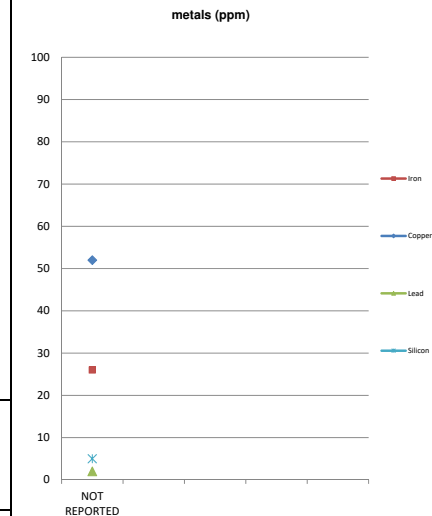
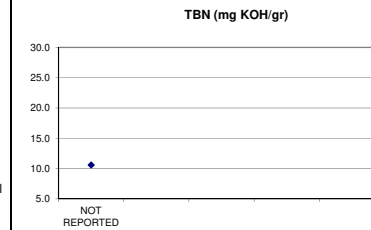
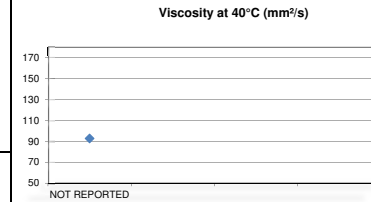
Where Quality Comes First

① The results relate only to the items tested in the premises of this laboratory. This report reflects our finding at time and place of intervention only and does not refer to any other matters. The test results shown on this report affect only the samples received in this laboratory and not necessarily the whole from which these samples were drawn.
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LUBRICATING OIL ANALYSIS REPORT

Customer information		Report Identification					Status		
Customer: Messengers, Master & Owners of M/Y JESTER C/O: WALSH MARINE		Report number: 190918-44		Report's issue date: 18.09.2019					
		Lab sample number: 190917-13-2							
Ship system: MAIN ENGINE STBD									
Sample Information		Last Sample	Previous Samples				Critical Limits		
		1	2	3	4	5	normal	caution	alert
Port :		NOT REPORTED							
Date sampled:		NOT REPORTED							
Sampled by:		CLIENT							
Date delivered:		17.09.2019							
Delivered by:		CLIENT							
Date tested:		18.09.2019							
Oil in use (type&grade):		NOT REPORTED							
Oil service hours:		100							
Total engine hours:		1700							
Physicochemical properties									
Method									
Appearance	VISUAL	Black							
Viscosity at 100°C (mm ² /s)	ASTM D7042	13.01							
Viscosity at 40°C (mm ² /s)	ASTM D7042	92.75							
TBN (mg KOH/gr)	ASTM D2896	10.6							
TAN (mg KOH/gr)	ASTM D664	-							
Flash point (°C) (PMC)	ASTM D93	>190							
Insolubles content (%m/m)	ASTM D893	0.49							
Water (% vol)	ASTM D6304	0.05							
Wear metals and contaminants (ppm)									
Tin (Sn)	ASTM D5185	2							
Iron (Fe)	ASTM D5185	26							
Copper (Cu)	ASTM D5185	52							
Nickel (Ni)	ASTM D5185	0							
Chromium (Cr)	ASTM D5185	2							
Lead (Pb)	ASTM D5185	2							
Magnesium (Mg)	ASTM D5185	906							
Aluminium (Al)	ASTM D5185	3							
Silicon (Si)	ASTM D5185	5							
Vanadium (V)	ASTM D5185	0							
Cleanliness level									
4µm(c)		-							
6µm(c)		-							
10µm(c)		-							
14µm(c)		-							
21µm(c)	ISO 4406	-							
25µm(c)		-							
38µm(c)		-							
70µm(c)		-							
ISO Code		-							
NAS Class	NAS 1638	-							
Comments									
Normal values of physical-chemical properties and wear metals. The lubricant in proper condition for further use. The element Magnesium is high and could be lubricant additive. The cleanliness level testing is not applicable on black or hazy oils and the minimum required quantity of sample is 200ml.									
OPERATOR: Christina Drakakaki- Chemical Lab Analyst					APPROVED: Evagelia Mante - Chemical Lab Manager				



Where Quality Comes First

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