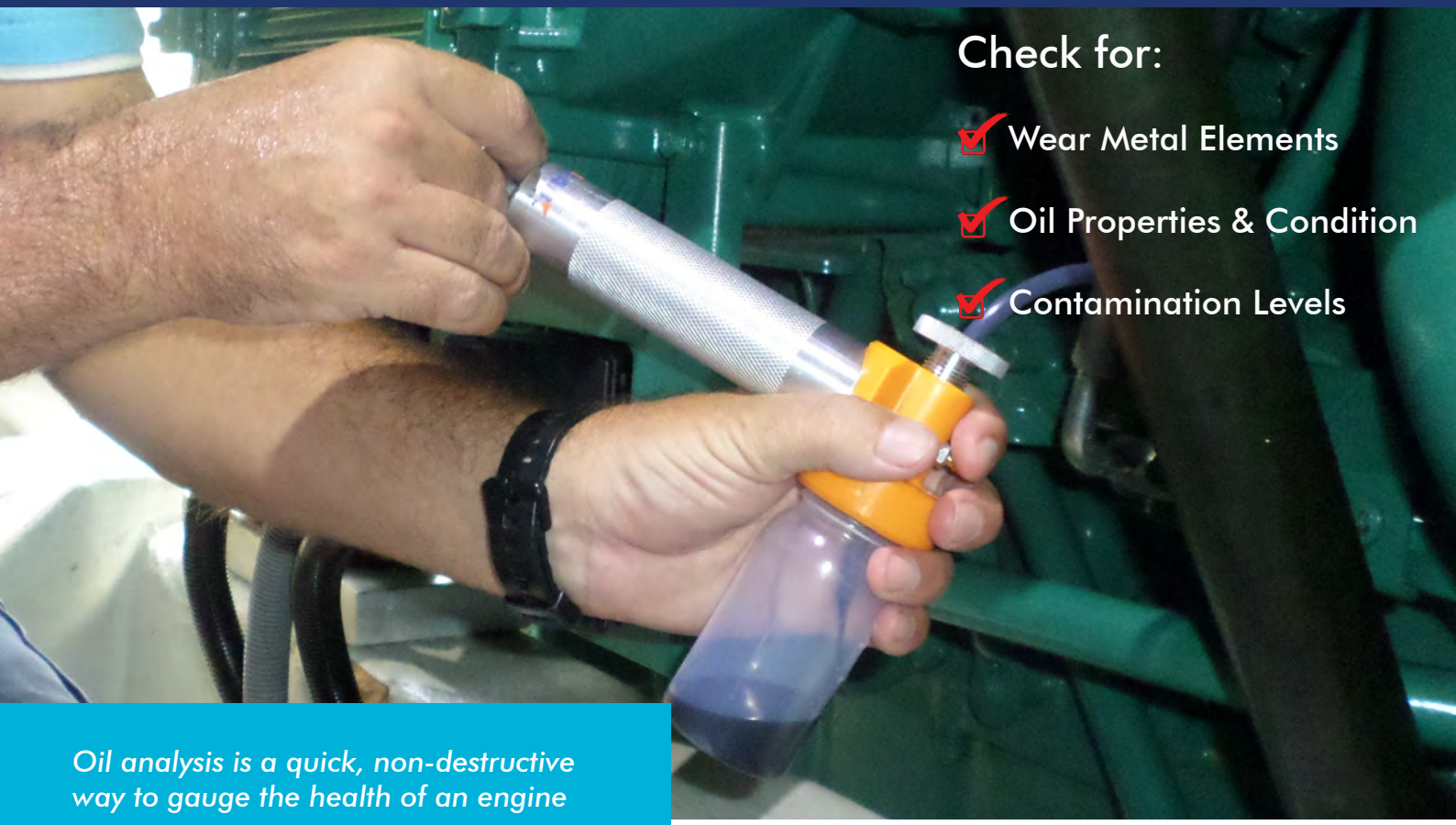
OIL ANALYSIS

WHAT'S IN MY OIL?

ANDAMAN MARINE SURVEYORS



Oil analysis is a quick, non-destructive way to gauge the health of an engine

Oil Analysis provides vital information as to the condition of both the oil and the engine being tested. It can detect wear and contamination problems that, if left unchecked, can severely effect engine performance or cause engine failure.

To achieve the maximum benefit oil samples must be taken at regular intervals with details supplied about the sample to include:

- Lube brand/type
- Viscosity grade
- Lube system capacity
- Total engine hours
- Engine hours since last oil change/sample
- Amount of oil added since last oil change/sample

The more information provided the more useful the results of the analysis are likely to be.

The recommended oil sampling interval for a marine diesel engine is every 500hrs & just prior to oil changes. Regular sampling will enable abnormalities to be detected, allowing pre-emptive action to be taken to prevent further damage.

The easy to interpret laboratory report includes readings for each element tested with abnormal readings highlighted, along with an overall rating for your engine as either "normal", "caution" or "warning".

Don't wait until it is too late and expensive repairs are necessary.

Contact AMS today to find out more about how regular oil analysis can save you money.

+66 (0)81 893 9985

anthony@ams-sea.com

CUSTOMER
Code : **XXXX**
Name : **Andaman Maritime Services**
Address : 81/18 Moo. 6, Soi Chang, Kathu, Phuket, 83120.
Site :
Location :
Test code : E804

EQUIPMENT
Unit ID : **XXX XXX XXXX XXXX 98 Engine STBD**
Unit Type : Engine Diesel
Unit Make : XXX
Unit Model : XX XXX

OIL
Oil type / Viscosity : (not given)
Oil System Capacity :

Notes (Finding, Evaluation, Interpretation, Suggestion and Recommendation)

Note abnormal copper detected.
All oil conditions and oil tests appear in normal working range.
All contaminant conditions and contaminant levels appear in normal ranges.
Recommend resample in 250 hours from the time this sample was taken, to monitor.
Please advise lube reservoir capacity in liters for a more thorough interpretation.
Please forward sample of new oil that is being used in this component, for analysis and reference comparison purposes.

Somchai J.

Condition History	Test Method	Result	Current Sample	Previous Sample	Baseline and Alarm Limit
			Wear: C / Oil: N / Cont.: N		BASELINE — Alarm Limit: Alarm Limit Matrix -Set Name (Equipment type / oil type): Engine Diesel Marine XXX General SAE 40
Lab ID			359005		
Bottle ID			1111992		
Date Sampled			02-Dec-16		
Oil Hours (Kms)			Not Given		
Unit Hours (Kms)			1026.2		
Oil Change					
Oil Added (Liters)					
Filters Hours (Kms)					

Wear Condition / Wear Element	Test Method	Result	Current Sample: Fine Wear (RDE)	Current Sample: Coarse Wear (RFS)	Previous Sample: Fine Wear (RDE)	Previous Sample: Coarse Wear (RFS)	Reference Oil (RO)	Fine Wear (RDE) U-Caution	Fine Wear (RDE) U-Warning	Coarse Wear (RFS) U-Caution	Coarse Wear (RFS) U-Warning
Iron	D-6595	PPM	14.7	0.1				>25	>50	>25	>50
Chromium	D-6595	PPM	1.0	0.1				>5	>10	>5	>10
Lead	D-6595	PPM	0.0	0.1				>10	>20	>10	>20
Copper	D-6595	PPM	14.4 C	1.0				>10	>15	>10	>15
Tin	D-6595	PPM	0.0	0.1				>5	>10	>5	>10
Aluminum	D-6595	PPM	0.9	0.1				>10	>20	>10	>20
Nickel	D-6595	PPM	0.0	0.1							
Silver	D-6595	PPM	0.0	0.1							
Molybdenum	D-6595	PPM	2.3	0.1							
Titanium	D-6595	PPM	0.6	0.1							

Oil Condition	Test Method	Result	Current Sample	Previous Sample	RO	L-Warning	L-Caution	U-Caution	U-Warning
Viscosity @ 40° C	D-445	cSt							
Viscosity @ 100° C	D-445	cSt	13.6		14.4	<12.2	<13	>15.8	>16.6
Oxidation	E-2412M	Abs	11.7					>15	>25
Nitration	E-2412M	Abs	12.1					>15	>20
TAN	D-974	mg KOH/g.							
TBN	D-4739	mg KOH/g.	15.4			<2	<5		

Contamination	Test Method	Result	Current Sample	Previous Sample	RO	U-Caution	U-Warning
Water	E-2412M	% (Wt.)	0.060			>0.15	>0.2
Fuel	SAW	% (Wt.)	0.10			>3	>5
Glycol	E-2412M	Abs	N/A				
Soot	E-2412M	% (Wt.)	0.74			>1	>1.5
Vanadium	D-6595	PPM	0				
Sodium	D-6595	PPM	8				
Silicon	D-6595	PPM	10.0	0.1		>25	>50

Additive Element	Test Method	Result	Current Sample	Previous Sample	RO
Boron	D-6595	PPM	175		
Magnesium	D-6595	PPM	35		
Calcium	D-6595	PPM	4967		
Barium	D-6595	PPM	0		
Phosphorus	D-6595	PPM	1138		
Zinc	D-6595	PPM	1615	69	

Additional Test	Test Method	Result	Current Sample	Previous Sample	RO	L-Warning	L-Caution	U-Caution	U-Warning
Flash Point	D-3828	°C				<185	<170		
Viscosity Index	D-2270								

Note: Alarm Limits are variable and dependent upon dataset size and to be used as general guideline.
No Sign or N : NORMAL , C or C : CAUTION (first level warning limit) , W or W : Warning (second level warning limit)
Accuracy of interpretation and recommendation are based on representatives sample and information supplied.
No warranty is expressed or implied for this report.