



Marine Engine Lube Oil Care

CJC® Oil Filtration & Purification Systems

A brand-new system solution – from the oil filtration experts



Stop running in circles

Start maintaining your engine lubricants with this brand-new cost and CO₂ reducing CJC® Engine Lube Oil Treatment Solution



www.cjc.it

A brand-new technology from CJC® It may change the way you think

It's not just about the lube oil
– it's about the money and the carbon footprint

Lube oil is the lifeblood of engines and it must be maintained clean, dry and in a proper chemical condition to fulfil its purpose and protect the engine. Because of this, technical aspects have always been at the centre of your and our attention, but now we want to force you to change your focus – the ROI of this groundbreaking and brand-new technology will give you something to talk about!

With the right maintenance strategy, it is possible to keep 2- and 4-stroke engines at optimum reliability and constantly optimize TBO (Time Between Overhaul) and OPEX (Operating Expenses).

Engine makers and organizations such as CIMAC have issued recommendations for oil analysis and condemning limits, that ensure oil and engine reliability and uptime. If these recommendations are not followed, risks of operational and financial damages are incurred.

Engines are equipped with several types of in-line re-usable and disposable filters, centrifugal filters, and in-line automatic filters to comply with recommendations. Also, conventional equipment circulating the oil in the sump is used – these are either powered by the engine or a separate pump.

If this equipment malfunctions, is difficult to use, or not properly maintained, it can impact negatively on reliability and lifetime of bearings, fuel pumps, and valves – and the costs can be high.

After 3 years of top-secret and extensive research and trials with major shipowners and engine makers, audited by independent consultants specializing in energy saving, a new groundbreaking and sustainable system technology providing first class results and cost-saving now becomes available.

With this solution you will:

- Reduce OPEX through energy and oil savings
- Reduce your carbon footprint
- Comply with engine lube standards on 2- and 4-stroke engines

CIMAC

4-stroke condemning limits

PROPERTY	METHOD	UNIT	PRECAUTIONARY ACTION	MANDATORY ACTION
Viscosity	ISO 3104	mm ² s ⁻¹ @ 40 °C	- 25 % / + 25 %	- 25 % / + 45
		mm ² s ⁻¹ @ 100 °C	- 15 % / + 15 %	- 20 % / + 25
Base Number	ISO 3771	mg KOH/g	- 40 %	- 50 %
Water content	ISO 3733	% v/v	> 0.2	> 0.4
Flash point	ISO 2719	°C	< 190	< 170
n-pentane insolubles	ASTM D893B	% m/m	> 1.5	> 2.0

2-stroke condemning limits

PROPERTY	METHOD	UNIT	MANDATORY ACTION
Viscosity @ 100 °C	ISO 3104	mm ² s ⁻¹	max. 3.0 mm ² s ⁻¹ decrease max. 3.5 mm ² s ⁻¹ decrease
Acid Number	ASTM D664	mg KOH/g	max. 2.0 KOH/g increase
Base Number	ISO 3771 / ASTM D2896	mg KOH/g	min. 3.0 max. 30
Water Content	ISO 3733 / ASTM D1744	% v/v	max. 0.2
Flash Point	ISO 2719 / ASTM D3828	°C	min. 180
n-pentane and toluene insolubles	ASTM D893B	% m/m	max 1.5

The brand-new CJC® Engine Lube Oil Treatment Solution is groundbreaking and dedicated lube oil maintenance for:

- 2-stroke engines operating on all types of fuel
- 4-stroke engines operating on residuals
- 4-stroke engines operating on distillates and gas

With the brand-new CJC® Engine Lube Oil Treatment Solution you achieve:

- Engine SLOC (g/kWh) reduction by typically 10–20 % on 2-stroke and up to 60 % on 4-stroke engines
- Energy savings in the range of 95-98 % compared to traditional off-line lube oil cleaning equipment
- 99 % sludge reduction

The brand-new CJC® Engine Lube Oil Treatment Solution is:

- Equally relevant for newbuild and retrofit



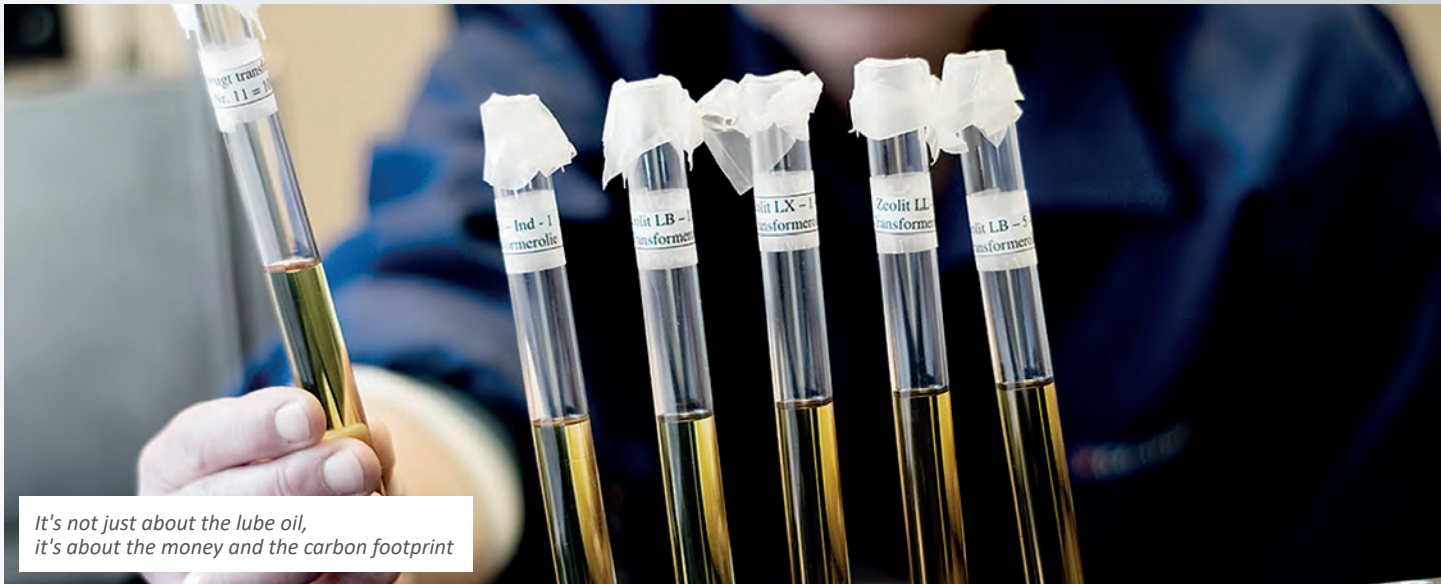
**The International Council
on Combustion Engines**

**Conseil International des
Machines à Combustion**

Proven @SupplyVessel

Supply Vessel Shipowner,
Denmark

Application:
ME 4-stroke, medium speed, operating on MGO



*It's not just about the lube oil,
it's about the money and the carbon footprint*

CJC® Engine Lube Oil Treatment Solution benefits both the environment and OPEX positively

Problem

One of the major Danish shipowners experienced high oil consumption due to frequent top-up, too high manpower for maintenance, almost 8,000 l of sludge to be disposed of, and an energy consumption of 235,655 kWh per year. All in all, not a financially viable or sustainable set-up, so something had to be done.

Solution

The CJC® Engine Lube Oil Treatment Solution was installed as an alternative to the more traditional technologies on one of the main engines. The goal was to compare not only the oil cleanliness, dryness and oxidation level, but also to measure the implications on the operation and financial parameters.

After 10,000 hours of operation, the conclusion was clear; the innovative and groundbreaking technology from CJC® had proven its worth.

Results per engine

- 60 % reduction in manhours for maintenance
- 60 % reduction in oil consumption – 9,000 l/year
- 99.7 % sludge reduction – 7,641 l/year
- 97.6 % reduced energy consumption – 229,961 kWh/year
- 97.6 % reduction in carbon footprint – 140 t/year
- 11.5 months payback time



*Our customer is one of
the major Danish shipowners*



*Is your conventional oil circulating equipment up
for overhaul or do you just want to do the math?
Calculate your reduced costs and carbon footprint
with the brand-new CJC® Engine Lube Oil
Treatment Solution*

... or just call us!



CJC® Engine Lube Oil Treatment Your compliance guaranteed

In an industry driven by tradition and compliance, how do new technologies gain a foothold?

Most marine systems rely on a set of parameters laid out by class and/or OEMs, and marine engine lube is one of the most rigorous. Following the guidelines, makes it easy to document that the shipowner has taken relevant action to ensure proper and safe operation of the vessel.

This philosophy also makes it easy for suppliers to know what a new technology must live up to.

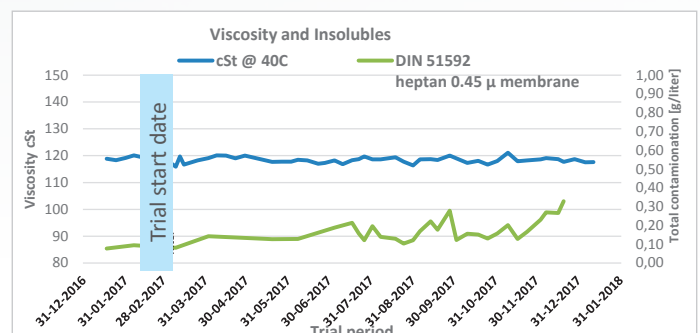
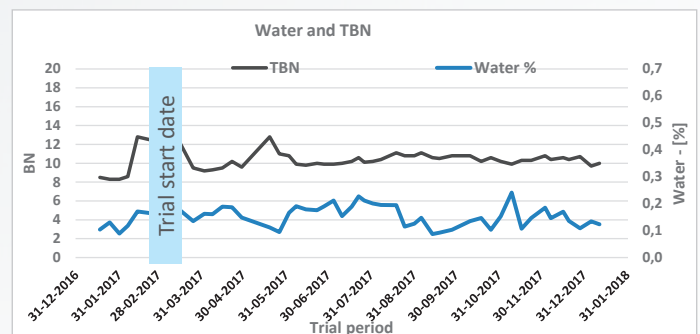
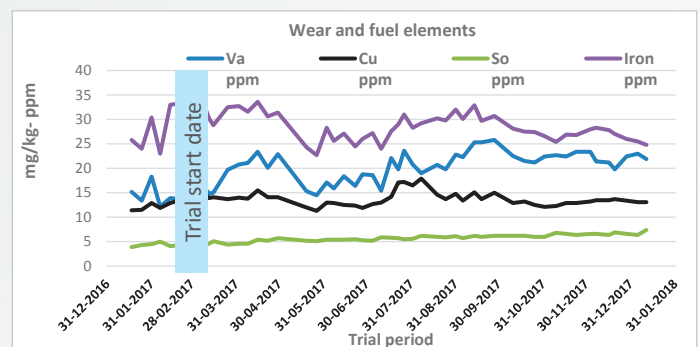
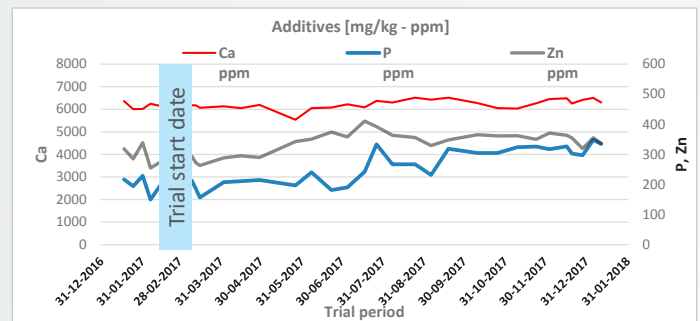
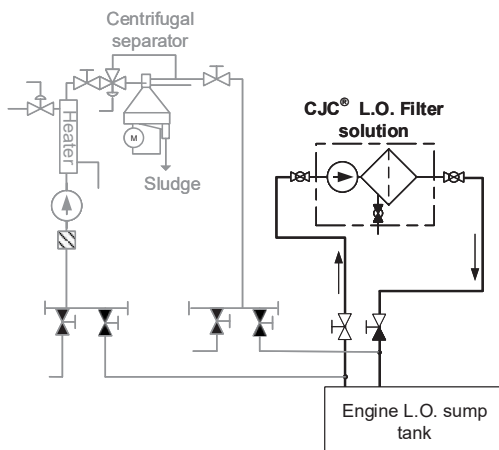
We from CJC® also rely on technologies proven over many years, and when developing our new system solution, we needed to prove our worth in a real-life trial in order to gain a foothold. We therefore decided to test our new CJC® Engine Lube Oil Treatment Solution – to analyse **what the effects would be on:**

- Additives
- Wear and fuel elements
- Water and TBN
- Viscosity and insolubles

The installation was in parallel to conventional technologies, as can be seen from the diagram below, but with only the CJC® solution operating. After 5,000 hrs trial and documentation, the result was a "No Objection Letter" from the engine maker, and implementation in guidelines from top engine makers.

The installation of the CJC® Engine Lube Oil Treatment Solution uses existing piping and just needs electrical wiring and is thereby as simple and easy as possible to install. Please ask us for an installation guide, to see how easy it is.

Installation of the
CJC® Engine Lube Oil Treatment Solution
uses existing piping,
just needs electrical wiring



Proven @ContainerVessel

Container Vessel Shipowner,
Germany

Application:
5,000 hours trial MAN B&W 11K 98ME-MK7



Copenhagen, 12 Januar 2022

No objection letter for CC Jensen system lubricating oil filter CJC filter type: Marine Lube Oil Purifier 27 or 427 with LOX elements Two-stroke engines: All types and fuels

*A 46-week trial verified the effects on
the engine lube oil quality of the new CJC® solution*

CJC® Engine Lube Oil Treatment
Solution keeps the oil in
perfect condition

Problem

Many shipowners are very concerned about keeping their engine lubes in a quality that warrants compliance with CIMAC and engine manufacturers. At the same time, they are looking for financial and environmental savings.

Solution

The CJC® Engine Lube Oil Treatment Solution was installed – as an alternative to the more traditional technology – on a MAN 2-stroke low speed diesel engine to analyse if the characteristics of the lube oil would change. After 5,000 hours of operation, the conclusion was clear; the innovative and groundbreaking technology from CJC® kept the lube oil characteristics in condition for further use, and it would reduce energy consumption and improve financial gains.

Technical results

- ~ **Constant** Additive content
- ~ **Constant** Viscosity and insolubles
- ~ **Constant** Water and TBN
- ~ **Constant** Wear and fuel elements

All within CIMAC condemning limits.

Financial results

- **10–20 %** saving in SLOC – 20–30 l/24 h
- **98 %** sludge reduction
- **97 %** less energy consumption/year for lube oil treatment
- **> 221 t** CO₂ emissions saved/year
- **11–22 months** payback time



*CJC® is installed on vessels of the
world's largest shipowners*



*We invite you to visit our website to dive deeper
into class compliance using CJC® solutions
...or just call us!*



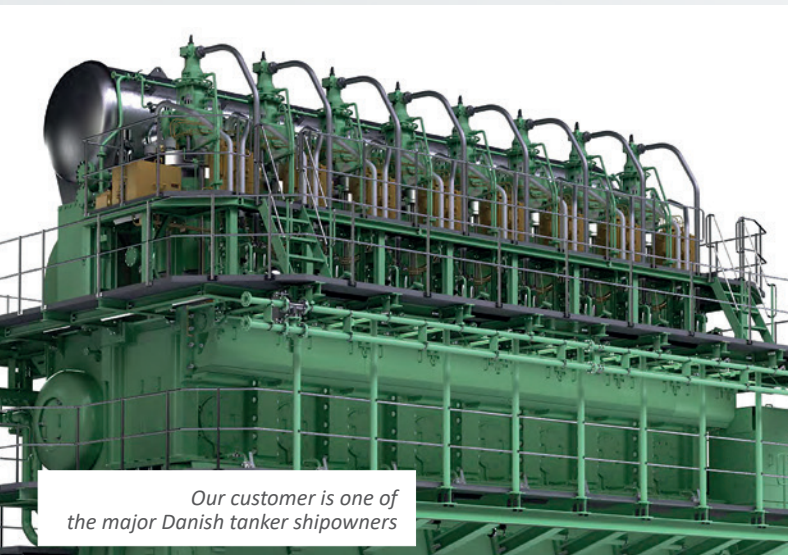
Proven @TankerVessel

Application:

4-stroke trunk diesel engine operated on HFO

Tanker Vessel Shipowner, Denmark

The CJC® Engine Lube Oil Treatment Solution also works with HFO



Our customer is one of the major Danish tanker shipowners

Is your conventional oil circulating equipment up for overhaul or do you just want to do the math? Calculate your reduced costs and carbon footprint with our brand-new system.

...or just call us!

Test on 5 vessels and 15 generating sets proved economical benefits.

Crew involved were positive towards the project

Problem

A Danish tanker vessel shipowner was aiming to save DRC (Direct Costs) in the range of 15,000 USD per year by installing the brand-new CJC® Engine Lube Oil Treatment Solution. The assumption was also that it would be equal to or better than conventional technologies in maintaining oil, and that it would be easy to install.

Solution

The CJC® Engine Lube Oil Treatment Solution was installed and tested on five different vessels with MAN 23/30H 800/960 kW and Yanmar GN2/AL-SV 900 kW running on HFO or LSHFO.

After 10,000 hours of operation the conclusion was that the innovative and groundbreaking technology from CJC® had proven its worth in a financial business case.

Results

Among other positive effects, the glacier filter was inspected before and after 3,000 hrs of trial, and the sludge layer was proven reduced from 5 mm to 0 mm. Service life of the filter inserts were improved considerably, and oil characteristics were improved, e.g. vanadium levels improved by a factor 5.

- 60 % reduction in manhours for maintenance
- 60 % reduction in oil consumption – 4–6000 l/year
- 99.7 % sludge reduction – 4–6000 l/year
- 97.6 % reduced energy consumption – reduced to 7,776 kWh/year
- 97.6 % reduction in carbon footprint – reduced to 2 t/year
- 14 months payback time

Just do the math

New lube oil treatment saves kWh

It's not just about the lube oil,
it's about the money & the carbon footprint

The bulk of costs for maintaining engine lube clean and dry is energy and oil consumption.

To make it easy for you to precisely calculate ROI on retrofitting the CJC® Engine Lube Oil Treatment Solution, we have developed a very simple and verified calculation model that can be used for all 2- and 4-stroke engines.

Numerous calculations carried out so far have shown a payback time of 6–22 months, and we invite you to contact us, to make a specific calculation for your system in a short phone call. **It's really that simple and your Finance Department will love it!**

This CJC® Engine Lube Oil Treatment Solution is installed offline, similar to conventional equipment with its own pump. The main advantage, however, is that installation, operation and maintenance is much easier.

The CJC® FlowDrive features automatic adjustment of the cleaning capacity to ensure efficient and economic cleaning and maintenance of the main lubricating oil system. Along with the CJC® FlowDrive, the genuine CJC® Filter Inserts type LOX, LO4R and LO4D facilitate

continuous and uncomplicated operation during sea passage, manoeuvring, and port stay. The outstandingly high dirt-holding capacity ensures very long lifetime of filter inserts. The simplicity of the complete system makes it ideal for retrofit installations as well as for newbuilding projects.

Extensive field trials with major shipowners have proven > 98 % availability of the system and continuous compliance with lube oil condition requirements. User feedback has shown that land-based operators and vessels crews are thrilled to work with the system. They point to the simplicity and results compared to conventional technologies.

And rest assured, all CJC® Solutions for marine and offshore comply with IACS class rules and maritime regulations including requirements to materials certificate, Class II and III piping, SOLAS requirements, applied standards on steel and pipe work, and welding procedures. Naturally, we also comply with OEM requirements, which can be seen from the "No Objection Letter" we received from a major engine manufacturer.



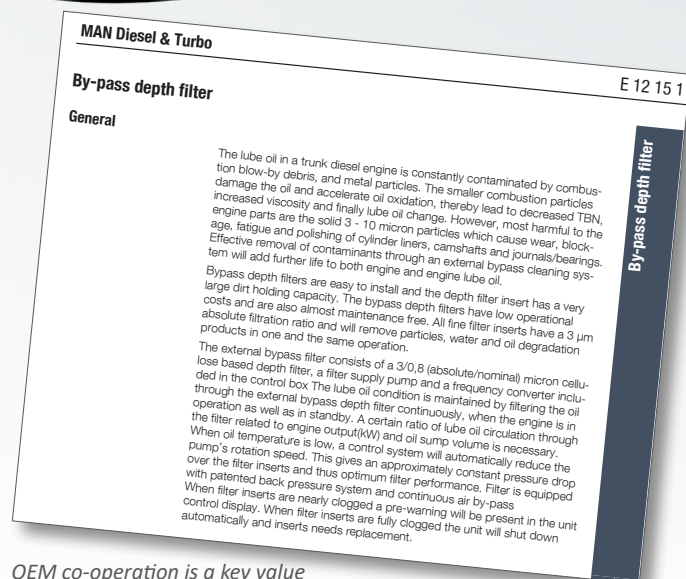
Proven in extensive trials by third party consultants over the past years.



Verified and approved by both major engine makers and class societies.



Up to 60% less oil consumption
99% sludge reduction
97% energy saving



OEM co-operation is a key value
to CJC®, paving the way for new innovations



It's groundbreaking! There really isn't a single argument that will stand up against this new technology. It's CIMAC compliant, it's easy and it's feasible - just do the math!

Kim Kjaer, Global Segment Manager



The Synonym for Oil Care

Proactive Maintenance



Consulting

We offer you oil care systems that are optimally adapted to your machine.



Evaluation

Using your machine data, you will recognise that the investment is more than worthwhile.



Service

You can expect a personal, regional contact person who will also visit you on-site.



Challenges

We also check complex cases for filterability and offer cost-effective solutions.

Contact us! Mail or call us:

+39 0592 92 94 98
filtrazione@cjc.it

Karberg & Hennemann Srl
Via Baccelli, 44
41126 Modena
Italy

www.cjc.it

Certified according to
DIN EN ISO 9001
Quality Management Systems

