



# EAL Oil, Environmentally Acceptable Lubricant Cape Size Bulk Carrier, Stern Tube

## CJC™ Application Study

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### CUSTOMER

TMS-Dry, shipowner in Greece.

### SYSTEM

**System:** Stern tube on Cape Size Bulk Carrier

**Oil type:** Vickers Hydrox Bio 100  
Environmentally Acceptable  
Lubricant (EAL) / Biodegradable Oil

**Oil volume:** 3,000 litres

**Viscosity:** 100 cSt @ 40°C

**VGP:** 2013 Vessel General Permit  
Compliant

### PROBLEM

The EAL oil was highly contaminated with water, reaching a level of 366,502 ppm. The customer drained the oil from the stern tube and stored it in drums to avoid damage on components such as bearings and seals. As the oil was highly emulsified, water separation was not possible, neither by centrifugal forces nor by gravitational separation.

### SOLUTION

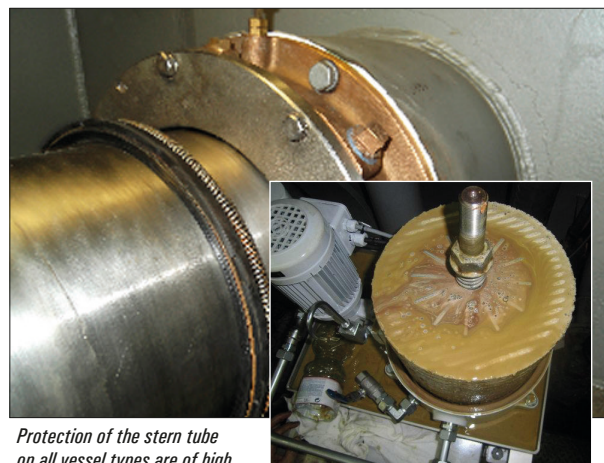
Before installation of the CJC™ Desorber/Filter Combi Unit, a sample was taken and analysed by a laboratory. This sample indicated that the water content reached a level of 351,900 ppm (35.19%). The CJC™ Desorber/Filter Combi Unit was installed on the drums and after 72 hours in operation, a second sample was taken. It appeared that the water content was now reduced to 600 ppm (0.06%). This successful water removal made the customer purchase the unit. This solution combines a CJC™ Desorber D10 with a CJC™ Fine Filter HDU 27/27 with one CJC™ Filter Insert, type BLA (3 µm absolute).

### RESULT

After only a few days of filtration on the first drum water was efficiently reduced from 351,900 to 600 ppm (35.2 to 0.06%).

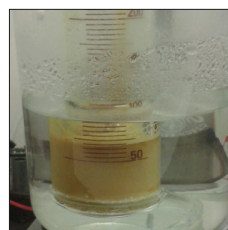
### CUSTOMER COMMENTS

**Fleet Manager on TMS-Dry, Bulk Carrier:**  
"The CJC™ Combi Unit effectively removed the water from a very expensive lubricant, while our crew is very satisfied with easy installation and low maintenance cost of the CJC™ Units".

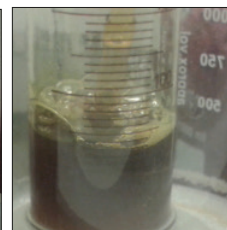


Protection of the stern tube on all vessel types are of high importance in order to increase both component and oil life-time

Dirty CJC™ Filter Insert, saturated with highly emulsified EAL oil. After filtration, the stern tube oil is now free of water. Thus, risk of breakdown reduced!



EAL oil contaminated with water  
- before CJC™ Oil Filtration



EAL oil now without water  
- after CJC™ Oil Filtration



The CJC™ Desorber/Filter Combi Unit

### RESULT

| Date                        | Colour | Appearance | Visc. @ 40°C cSt | Water ppm |
|-----------------------------|--------|------------|------------------|-----------|
| Before installation of CJC™ | Yellow | Opaque     | 292.9            | 351,900   |
| After installation of CJC™  | Brown  | Clear      | 94.4             | 600       |

### WATER DEVELOPMENT

