



***Tech'Care/Tcc***

**TOTAL**  
Cylinder Care

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ONBOARD IRON MEASUREMENT



# CYLINDER Corrosion

Careful checking of corroded iron level and residual BN in drain oils have become essential in order to verify the good use of the lube oil and make sure the engine is running in good condition.



**Shipping operators are experiencing fundamental changes to the operation of their vessels. These range from new emissions legislation to slow steaming and new designs.**

Each of these changes have increased operational constraints on modern 2-stroke engines and have led to a new approach in cylinder condition monitoring.

It is essential to carefully check corroded iron levels and residual Base Number (BN) in drain oils to verify the best lube oil use and ensure the engine is running in a good condition.

Whilst onshore laboratory testing gives a very accurate measurement of the iron content within the drain oil, laboratory results are not instant and usually show total iron wear and not just corrosive wear.

Total Lubmarine and major engine manufacturers recommend both onshore and onboard iron testing.

The measurement of corroded iron and residual BN allows a diagnosis to be made of:

- the risk of corrosive wear of the liner surface
- the actual BN depletion of the cylinder lube oil.

**With this diagnosis, the lube oil feed rate can then be adapted and optimized to achieve the best running condition.**



# TECH'CARE/TCC, Keeps your Engine Shipshape

**Tech'Care/TCC, provides ship operators with a compact onboard testing kit that allows them to measure quickly and easily the level of corroded iron contained in the cylinder drain oil.**

Tech'Care/TCC has been developed with the users' needs in mind helping them meet the recommendations of the 2-stroke engine manufacturers.

**RELIABILITY** of an accurate automated optical device that directly delivers the concentration of corroded iron in ppm (parts per million).

**SIMPLICITY** that gives any crew member the capability to run the test by following step by step the instructions displayed on the screen of the optical device.


**RAPID** Less than 10 minutes are needed to run a test on one sample.

**FUTURE PROOF** with data that can be easily transferred to a computer and software that can be upgraded for free each time an improved version is released.

**SAFETY** with non-hazardous reagents for safe use and unrestricted shipment including air transport.

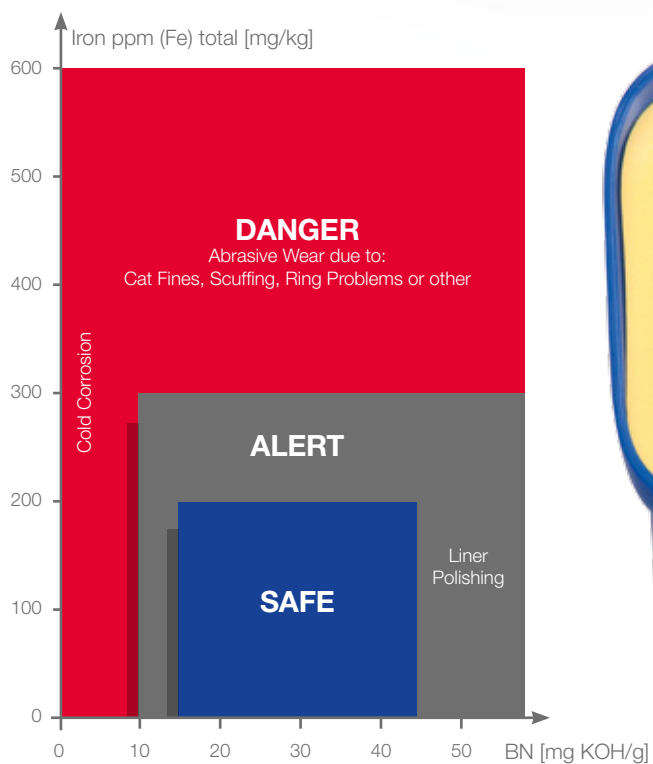
**COST EFFECTIVENESS** with 50 analyses included in the kit before consumables replenishment.

Measuring corroded iron content together with residual BN gives crews the opportunity to adjust the lube oil feed rate. By doing this the acidity present in the cylinder is adequately neutralized whilst ensuring optimum lubrication of the engine. This delivers significant cost saving benefits and will potentially extend the liner's lifetime.



Regular use of Tech'Care/TCC to monitor data trends is extremely important and should be complimented by onshore laboratory tests provided by Diagomar Plus, the Total Lubmarine used oil analysis service.

# MEASURING Corroded Iron





# TOTAL Cylinder Care

**Tech'Care/TCC, your onboard testing kit to measure and track cold corrosion in your engine's cylinders.**

## KIT FEATURES:

- **Non-hazardous reagents** for safe use and unrestricted shipment including air transport.
- **Automated optical device** to avoid human errors in the test interpretation. Fitted with a USB port for convenient data collection and system upgrade.
- **Magnetic carousel** to trap and separate solid iron particles which result from abrasive wear
- Includes sufficient consumables for **50 tests**. **Replacement packs can be ordered from your Lubmarine representative**
- **Unique patented technology**
- **User guide and DVD** for training

“ We have been using Tech'Care/TCC on our vessels with very satisfactory results enabling us to comply with engine designers' latest guidelines. Total Lubmarine has produced a comprehensive tool which we find is extremely simple and quick to use reducing the burden on our crew.”

**Mark BURTRAND**  
Superintendent  
Helikon Shipping Enterprises Ltd.



## **TOTAL LUBMARINE, COMPREHENSIVE SOLUTIONS TO MONITOR YOUR ENGINE'S CONDITION**

### **Tech'Care compact onboard testing kits:**

- Standard: water content, seawater detection and viscosity,
- Pro 2: Standard + insoluble products and Base Number (BN)
  - TCC to measure iron content.

### **Diagomar Plus:**

Four advanced onshore laboratories located worldwide for your convenience offer a comprehensive lube oil analysis service providing you with fast, accurate results in an easy to read format both online and via email.

**Our technical correspondents are available  
to assist you on any matter.**

For further information, please visit  
**[www.totallubmarine.com](http://www.totallubmarine.com)**

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