



DESCRIPTION

Amongst the most important parameters with respect to onboard testing are the water content and the total base number in lube and fuel oils. The **MARICHEM COMBINED TEST KIT** enables marine engineers to test water in oil content for engine oils, gear oils, hydraulic oils, etc, whilst also checking on water leakages, lube oil separation and operational contamination in a quick and thorough way.

At the same time engineers on board can very easily test for T.B.N. value (alkalinity) of engine oils.

Water in oil test conforms the reproducibility limits of ISO 3733/ASTM D 95.

TBN test conforms the reproducibility limits of ASTM D2896.

Both test methods are simple and accurate and they can provide quick and valuable test results.

TEST KIT CONTENTS

The **MARICHEM COMBINED TEST KIT** consists of the following parts:

A. Accessories

- ◆ Sturdy case.
- ◆ Reaction vessel.
- ◆ Manometer and injection valve for the Reaction vessel.
- ◆ 1ml, 5ml and 10ml graduated plastic syringes.
- ◆ Magnetic stirrer and magnet. (optional)

B. Reagents

- ◆ 1 pc Water In Oil test solution (50ml)
Order Number: 720112
- ◆ 1 pc Water-free diluent (1000ml)
Order Number: 720111
- ◆ 1 pc T.B.N. test solution (500ml)
Order Number: 720211.

PACKAGING

Order Number : 720100
Container : Sturdy Case

MARICHEM COMBINED TEST KIT™



TESTING PROCEDURE

A. WATER IN OIL TEST

1. Shake the sample to be tested thoroughly in order to obtain a homogeneous mixture. Immediately add 5ml of the oil sample into the reaction vessel using a clean 5ml syringe.
2. Add 5ml of the water-free diluent using a clean 5ml syringe. Also add the magnet if a magnetic stirrer is to be used.
3. Close the reaction vessel, swirl carefully and open the injection valve by turning the base ring counter-clockwise to position "O".
4. Shake the water test reagent bottle thoroughly until a homogeneous mixture is obtained. Take 0.75ml of the water test reagent using an 1ml clean syringe and inject into the test vessel.
5. Close the valve by turning the base ring clockwise to position "S" before removing the syringe.
6. Shake the test vessel in regular intervals and read off the value on the manometer after 10–12 minutes time.
7. In case a magnetic stirrer and a magnet are used, place the reaction vessel on the magnetic stirrer and switch the stirrer on. Let it stir for approximately 10–12 minutes and record the manometer reading.



TEST RESULTS EVALUATION

After the manometer value, from steps 6 and/or 7, is recorded, calculate the water content as follows:

$$\text{Water \% Vol.} = \frac{[\text{Meter Reading (\% Vol)} \times 5]}{\text{Sample Volume Taken (ml)}}$$

► **NOTE:** If the water content of the sample is above 1.24% volume, open the cover, reduce the sample and repeat the test with a smaller amount of oil.

B. T.B.N. (TOTAL BASE NUMBER) TEST

1. Open the reaction vessel and add 5ml water-free diluent using a clean 5ml syringe.
2. Add 10ml of the oil sample into the reaction vessel using a clean 10ml syringe. Add the magnet and close the reaction vessel. Open the valve by turning the base ring counterclockwise to position "O".
3. Fill a clean 10ml syringe with 10ml of the T.B.N. test solution. Insert the syringe into the valve and inject the contents into the reaction vessel.
4. Remove the syringe and wait for 10–15 seconds before closing the valve. Then close the valve by turning the base ring clockwise to position "S" before removing the syringe.
5. In case a magnetic stirrer and a magnet are used place the reaction vessel on the magnetic stirrer and switch the stirrer on. Otherwise, shake by hand. After 15 minutes read off the manometer pressure value and record it. This is the TBN value that must be recorded.



Read the Material Safety Data Sheet before using this product.

For detailed information on safety and health, please refer to Material Safety Data Sheet and/or Product Label.

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