



## WT ALKA TEST KIT™

### DESCRIPTION

The **WT ALKA TEST KIT** is engineered for the determination of P & M Alkalinity value in the water treatment systems. The P & M Alkalinity's value is expressed in parts per million (ppm) in the Boiler System. The test results enable us to define any time the quantity of **ALKALINITY CONTROL** necessary or not in order to regulate the water properties, as they must be adjusted to the boiler's efficiency and effective operation.

### TEST KIT CONTENTS

Contents of the test kit are sufficient for 200 tests with an average Alkalinity value of 10°d (German degrees) or 4mmol/lit HCl.

#### A. Accessories

- 1 piece of Test tube with a ring mark of 5ml
- 1 piece of Titration syringe 0–7.2mmol/lit HCl or respectively 0–20°d (1 graduation mark = 0.5°d or 0.2mmol/lit)

#### B. Reagents

- 1 bottle of 100ml titration solution Carbonate Hardness TL C 20
- 1 bottle of 10ml of indicator P
- 1 bottle of 10ml of indicator M

### PACKAGING

Order Number : 700107

Container : Plastic Case

### TESTING PROCEDURE

#### Pre-treatment

Before testing, samples must be cooled to 25°C by passing them through a cooler.

#### A. Determination of P-Alkalinity value

1. Rinse the test tube several times with the test sample and fill it up to the mark of 5ml.
2. Add 1 drop of the indicator P and mix by shaking.
3. a. If the test sample remains colorless the P-Alkalinity value is 0. Then you have to **continue from the part B** for the determination of **M-Alkalinity's value, by following the steps B.1–B.5.**
3. b. If the test sample color turns red, fill the titra-



tion syringe with the solution Carbonate Hardness TL C 20 till the indication 0.

4. Add the titration solution Carbonate Hardness TL C 20 drop wise and when red color has completely vanished, you must immediately start to gently shake the test tube.
5. Read off the P-Alkalinity value in °d (German Degrees) or in mmol/lit HCl and convert it in parts per million (ppm) CaCO<sub>3</sub>, for that purposes you may be advised by the part C.

#### B. Determination of M-Alkalinity value

1. Keep the water sample of the P-Alkalinity test for the determination of the M-Alkalinity's value.
2. Add 1 drop of indicator M and mix by shaking.
3. a. If test sample color turns orange the M-Alkalinity value is identical with the P-Alkalinity value.
3. b. If test sample color turns blue fill the titration syringe with the solution Carbonate Hardness TL C 20 till the indication 0.
4. Add the titration solution Carbonate Hardness TL C 20, that has remained in the syringe from the P-Alkalinity determination, drop wise, till the solution turns orange. In case the syringe filling is not sufficient to reach color change fill up the syringe once more with the solution Carbonate Hardness TL C 20 and continue titration till the color change as described above.
5. Read off the M-Alkalinity's value in °d (German Degrees) or mmol/lit HCl and convert it to parts per million (ppm) as Calcium Carbonate (CaCO<sub>3</sub>). The quantity of titration solution that used in all the procedure corresponds with the M-Alkalinity value.



**C. Evaluation of the test result**

For the conversion of the P & M-Alkalinity value from mmol/lit HCl or °d (German Degrees) to parts per million (ppm) as CaCO<sub>3</sub>, you may consider the following:

$$1 \text{ }^\circ\text{d (German Degrees)} = 17.8\text{mg/lit CaCO}_3$$

or

$$1\text{mmol/lit HCl} = 49.8\text{mg / lit CaCO}_3 = 50\text{ppm CaCO}_3$$

For samples less than 100ppm CaCO<sub>3</sub> of the P-Alkalinity supply the system with the dosage of **ALKALINITY CONTROL** as presented in the following table.

For samples greater than 150ppm CaCO<sub>3</sub>, perform blowdown and replenish with distilled or fresh water and determine the P and M-Alkalinity after the system’s replenishment.

The **ALKALINITY CONTROL** dosage which has to be applied anytime you perform the test in the Boiler System is described by the table.

**Initial dosage of ALKALINITY CONTROL:  
150ml/ tones of fresh water**

After initial dosage has been introduced into the system, you have to perform the tests twice every 3–6 hours and on a daily basis, until stabilization of the system.

Thereafter tests may be conducted in two to three days intervals or so.

**D. Additional Information**

The M-Alkalinity value should be less than 50% of the P-Alkalinity value. If not, then add 1 liter of **ALKALINITY CONTROL** and repeat the test again after 3 hours time.

After the test results are obtained, they must be recorded in the **MARICHEM Boiler Water Treatment Log Sheets**. At the end of every month, these Log Sheets should be submitted by the engineer responsible to the owner company, who in turn should send them to **MARICHEM MARIGASES Worldwide Services** for further evaluation and technical analysis.

For more information and literature concerning the **WT ALKA TEST KIT** measurements and the Boiler Water Treatment program, feel free to contact the **MARICHEM MARIGASES Worldwide Services** technical department.

**TABLE I: P-Alkalinity, ppm CaCO<sub>3</sub> or mmol/lit HCl in the Boiler Water Treatment**

<b>Quantity of Solution TL C 20, mmol/lit HCl</b>	0-0.6	0.8-1.4	1.6-1.8	2.0-3.0	Over 3.0
<b>ppm CaCO<sub>3</sub></b>	0-30	40-70	80-90	100-150	Over 150
<b>Dosage of ALKALINITY CONTROL per tone of water</b>	0.15lit	0.10lit	0.05lit	Satisfactory	Blowdown required

**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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