



WT SULFI TEST KIT™

DESCRIPTION

The **WT SULFI TEST KIT** is engineered to detect Sodium Sulfite concentration in re-circulating Boiler Water systems by testing Boiler Water samples. This way we can determine the effectiveness of the system against free Oxygen. We may also specify the quantity of **OXYCONTROL** needed or not in order to stabilize the system being at either low or high pressure.

CONTENTS OF THE TEST KIT

Contents of the test kits are sufficient for 200 tests with an average Sulfite concentration up to 50 mg/lit SO_3^{-2} .

A. Accessories

- ◆ 1 piece of Plastic test tube with a ring mark of 5ml
- ◆ 1 piece of Graduated syringe 0–1ml
- ◆ 1 piece of Titration syringe 0–100mg/lit (1 graduation mark = 2mg/lit)

B. Reagents

- ◆ 1 Bottle of 100ml reagent solution, Sulfit–1
- ◆ 1 Bottle of 30ml reagent solution, Sulfit–2
- ◆ 1 Bottle of 10ml indicator solution, Sulfit–3
- ◆ 1 Bottle of 100ml titration solution, Sulfit TL SU100

PACKAGING

Order Number : 700110

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 Sulfite ions (SO_3^{-2})

1. Rinse the test tube several times from the sample you wish to determine the Sulfite ions concentration SO_3^{-2} and fill it with the sample till the ring mark of 5ml.
2. Use the dosage syringe and fill it with 1ml of the reagent solution Sulfit–1 and add the content of the syringe to the sample of water and mix.
3. Add 2 drops of the reagent Sulfit–2 and shake lightly the sample. The solution turns yellow. In case the solution remains colorless then the Sulfite ions SO_3^{-2} concentration is more than 100mg/lit and proceed to



point 6 for the determination of the Sulfite concentration.

4. Add 1 drop of Sulfit–3, then the solution turns greyish to yellowish blue.

5. Use the titration syringe and fill it with the solution Sulfit TL SU100 till the value of 100mg/lit. Add the titration solution dropwise while lightly swirling the test tube at the same time. Continue slowly adding the titration solution until the test solution is completely colorless. Read off the sample Sulfite content in mg/lit SO_3^{-2} from the titration syringe (lower rim of the black plunger).

6. Should the test solution not change the color to yellow after the addition of two drops of Sulfit–2 then the Sulfite concentration is higher than 100mg/lit SO_3^{-2} . In this case repeat the test and add 2 ml of the reagent Sulfite–1 instead of just 1ml. Then the range of titration syringe changes from 0–100mg/lit to 100–200mg/lit. In the case of even higher Sulfite concentration add correspondingly larger amounts of Sulfit–1 to the sample until the addition of Sulfit–2 changes the color to yellow. Please note results at such high levels are not normally found in closed Boiler systems.

B. Evaluation of the Test Results

With above procedure we can determine the Sulfite concentration in the Boiler System. If the Sulfite levels are observed to be higher or lower than what is advised, then you have to consult the following evaluation table in order to decrease or to increase the daily dosage by 25% respectively.



TABLE: Sulfite Ions Concentration (SO_3^{-2}) in ppm (Boiler System)

ppm SO_3^{-2} 0–450 psi	0–20	20–30	30+
ppm SO_3^{-2} 450–850 psi	0–10	10–15	15+
Dosage	Increase 25%	Satisfactory	Decrease 25%

Initial Oxycontrol Dosage: 1.2 lts per ton of water

When for any reason blowdown is performed in the Boiler system then the initial **OXYCONTROL** dosage of 1.2lts per tone of water has to be introduced into the system until stabilization of the Sulfite concentration to the satisfactory levels. That could be easily achieved by performing the Sulfite Test on a daily basis and at anytime applying the appropriate **OXYCONTROL** dosage. Regarding the **OXYCONTROL** dosage you have to apply at anytime please be advised by the Table.

C. Additional Information

Most of the corrosion damage to boilers and associated equipment occurs during idle periods. While Boilers can corrode as the results of low boiler water pH or misuse of certain chemicals, corrosion is primarily caused by Oxygen. The corrosion is caused by the exposure of wet metals to Oxygen in the air or in water (pitting corrosion).

Oxygen scavengers are chemical compounds that react with the residual Oxygen and they not only provide added protection to the Boiler but to the condensate system as well.

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 SULFI TEST KIT** measurements and the **Boiler Water Treatment program**, feel free to contact the **MARICHEM MARIGASES Worldwide Services** technical department.

 **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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