

CHLORIDE LMP TEST KIT



DESCRIPTION

The Chloride LMP Test Kit contains everything needed to measure chloride in boiler water for low-pressure (0-32 bar and medium-pressure (32-60 bar) boiler systems as well as makeup water. The easy drop count titration method provides accurate results. This method utilizes silver nitrate chemistry where the sample is neutralized below the phenolphthalein indicator endpoint (pH 8.3). After neutralization, potassium chromate indicates the end point of the silver nitrate titration of chloride. The number of drops of silver nitrate required to reach the endpoint is multiplied by a factor to determine the ppm of chloride.

APPLICATION AND USE

For low-pressure and medium-pressure boiler systems on standard treatment, Drew Marine recommends testing boiler water chloride levels once a day per boiler. The maximum accepted level of chloride in the boiler water for low-pressure boiler systems is 300 ppm while the maximum accepted level of chloride in boiler water for medium-pressure boiler systems is 40 ppm. This test can also be used to detect chloride in makeup water and treated cooling water. Sample Pretreatment should be used prior to chloride testing for cooling water treated with MAXIGARD® diesel engine water treatment, LIQUIDEWT™ cooling water treatment or DREWGARD® CWT diesel engine cooling water treatment.

Before testing, samples must be cooled to 25° C (77° F) by collecting through a sample cooler for safety and to prevent flashing which concentrates the sample.

See reverse side for test procedure.



Chloride LMP Test Kit
(Range 10-40 ppm and 100-400 ppm Chloride)
PCN 0373019

TEST KIT CONTENTS

- 2 each 2 oz. (60 ml) Silver Nitrate
- 1 each 1 oz. (30 ml) Sulfuric Acid N/10
- 1 each 1 oz. (30 ml) Phenolphthalein
- 1 each 2 oz. (60 ml) Potassium Chromate
- 1 each plastic vial (10-ml mark)
- 1 each glass tube (2-ml mark)



Contact your Drew Marine representative for more information

PROCEDURE

1. Ensure proper PPE is worn (latex gloves, safety glasses) prior to performing this test.
2. For samples less than 100 ppm chloride: Rinse the plastic vial and fill to the mark (10-ml) with sample to be tested.

For samples greater than 100 ppm chloride: Rinse the tall glass test tube and fill to the mark (2-ml) with sample to be tested.

3. **Neutralize the sample** by adding 3 drops of phenolphthalein indicator to the sample. Swirl to mix. If the sample turns pink, add sulfuric acid dropwise with swirling until the sample turns clear. Add 1 more drop.

If the sample does not turn pink, add 1 drop of sulfuric acid.

4. **Adjust the color** of the sample by adding 6 drops of potassium chromate. The sample will be yellow.
5. **Counting the drops**, add silver nitrate dropwise. Swirl between drops until the sample turns orange.
6. **Calculate the Chloride Concentration** If the plastic vial was used in Step 1: Number of drops of silver nitrate x 10 = ppm chloride.

If the glass test tube was used in Step 1: Number of drops of silver nitrate x 50 = ppm chloride.

SAMPLE PRETREATMENT

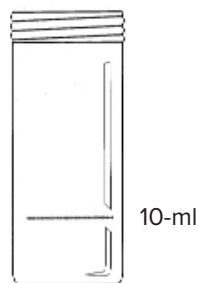
Sample Pretreatment should be used when testing for chloride in cooling water treated with MAXIGARD® diesel engine water treatment, LIQUIDEWT™ cooling water treatment or DREWGARD® CWT diesel engine cooling water treatment.

ITEMS NEEDED FOR SAMPLE PRETREATMENT

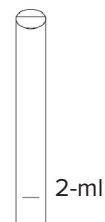
Chloride LMP Test Kit	PCN 0373019
Sample Pretreatment, 50 gm (includes 0.5 gm scoop)	PCN 0374025
Filter Paper, Box of 100	PCN 0225012
Funnel, Plastic	PCN 0221010
Stirring Rod, Plastic, 150 mm	PCN 0417015

PROCEDURE

1. Add one scoop (0.5 gm) of Sample Pretreatment to approximately 70 ml cooling water and stir well.
2. Let stand for two minutes to allow precipitate to settle.
3. Filter the sample and proceed with the chloride determination using the Chloride LMP Test Kit.



Step 2



Step 2



Step 3, 4, 5, 6



Contact your Drew Marine representative for more information

Drew Marine maintains Safety Data Sheets on all of its products. These documents contain health and safety information for the development of appropriate product handling procedures to protect your employees. Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Drew Marine products.



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