

## WALL WASH TEST KIT

PRODUCT CODE: SP-KS-190

- Lab Grade Methanol (2.5 ltr glass bottle)
- Lab Grade D.I. Water (2 ltr glass bottle)
- Potassium Permanganate Crystals (0.1 gram- 6 pcs)
- Chloride Standard Solution (30 ml-2 pcs)
- Sulphuric Acid Concentrate 96% (500 ml)
- Hydrochloric Acid 36% (500 ml)
- Silver Nitrate Solution 5% (30 ml- 3 pcs)
- pH Strips-range 0-14 (100 pcs)
- Cotton Wool ( 1 package )
- Filter Paper ( 1 package )
- Latex Gloves (100 pcs)
- Shoe Covers (100 pcs)
- Pipette- plastic 1 ml (50 pcs)
- Nessler Tubes (2 pcs)
- Measuring Cylinders (2 pcs)
- Stoppedred Measuring Cylinder (2 pcs)
- Volumetric Flask ( 1 pcs )
- Pipette glass 1 ml ( 1 pcs )
- Pipette glass 5 ml ( 1 pcs )
- Pipette glass 10 ml ( 1 pcs )
- Plastic Funnel ( 1 pcs )
- Plastic Half Funnel ( 1 pcs )
- Flashlight (1 pcs)
- Glass bottle (500 ml) for preparing Permanganate test solution
- Plastic Squirt bottle (2 pcs)



## TEST METHODS FOR WALL WASH TEST KIT

### a) Hydrocarbon Test for Methanol

Because of the fact that the surface of a tank or a container for Shipping Methanol must be free of any hydrocarbons, a field test must be applied. The principle of this test is if hydrocarbons go together with water, it will give a milky, cloudy solution.

#### *Procedure:*

- Wash 1 m<sup>2</sup> of the tank surface with cotton-wool and hydrocarbon-free Methanol.
- After washing, squeeze the cotton-wool you use to clean the tank surface to a Nessler tube until you have 15 ml sample Methanol.
- Add 45 ml DI water. ( Now you must have 60 ml sample 15 ml methanol + 45 ml distilled water )
- Shake the mixture and wait for 15 – 20 minutes.
- Compare the result with a blank tube filled with 60 ml DI water.
- If the sample is not completely clear or if it is cloudy, it means there are still hydrocarbons on the tank surface. You must rewash the entire tank surface again and repeat the hydrocarbon test.

Note: Use plastic gloves and shoe cover during the entire test, which you will find in the Wall wash test kit, not to contaminate the samples.

### b) Chloride Test

The principle of this test is that, when chloride mixes with a silver-nitrate solution, it forms a cloudy solution.

#### *Procedure:*

##### Test tube:

- Wash 1 m<sup>2</sup> of the tank surface with cotton-wool, moistened with distilled water
- After washing, squeeze the cotton-wool you use to clean the tank surface to a Nessler-tube until you have 100 ml sample.
- Now you must filter the 100 ml sample DI-water you squeeze. To filter it take one empty Nessler-tube, place a funnel on top and put filter paper inside the funnel.
- After filtration be sure that there is exactly 100 ml of sample DI-water inside the Nessler-tube.
- Add 5 drops of silver-nitrate solution to 100 ml filtered sample DI-water.
- Shake the Nessler-tube for a few minutes.

#### *Reference tube:*

- Prepare a reference solution to compare with test tube.
- Pour 99 ml DI-water in to an empty Nessler-tube.
- Add 1 ml standard chloride solution ( 1 mg chloride per 1 ml )
- Add 5 drops of silver nitrate solution.
- Shake the reference tube for a few minutes.

*Comparing test tube and reference tube: (1 ml standard chloride solution refers to 1 mg chloride on 1 m<sup>2</sup>)*

- When the turbidity of the Test tube is less than the turbidity of the Reference tube; the chloride content on the surface of the tank is lower than 1 mg on 1 m<sup>2</sup>.
- If the turbidity of the Test tube is greater than the turbidity of the Reference tube; the chloride content on the surface of the tank is higher than 1 mg on 1 m<sup>2</sup>.

- If the turbidity of the Test tube is same with the turbidity of the Reference tube; the chloride content on the surface of the tank is 1 mg on 1 m<sup>2</sup>.

- Since you know the total area of the tank and its volume you can calculate the parcel of Methanol to wash the chloride content from the surface of the tank walls.

Note: Use plastic gloves and shoe cover during the entire test, which you will find in the Wall wash test kit, not to contaminate the samples.

#### c) Permanganate Time Test

##### *Scope:*

This method serves as a means of detecting the presence of impurities in alcohols or ketones that reduce potassium permanganate.

Applicable to Methanol, Ethanol, Propanol, Butanol, Acetone, Methyl Ethyl Ketone and Methyl Isobutyl Ketone.

##### *Summary of Method:*

Substances reacting with potassium permanganate in neutral solutions reduce it to manganese dioxide, which colors the solution yellow.

In the permanganate time test, the reaction time of potassium permanganate is measured. In other words, the time between, solution changes from pink-orange to yellow orange is measured.

The color of the test solution changes from pink-orange to yellow orange.

##### *Apparatus:*

- Cylinders ( glass-stoppered, 50 ml tall form.)
- Constant Temperature Bath, capable of maintaining a temperature of  $15.0 \pm 0,5$  °C or  $25.0 \pm 0.5$  °C.
- Pipette capable of delivering 2 ml of solution.
- Clock or stopwatch.

##### *Reagents:*

- Potassium Permanganate Solution, mix 0,1 mg of powder Potassium Permanganate in 0,5 ltr water.

##### *Procedure:*

- Fill a 50 ml glass-stoppered cylinder beyond the mark with the sample to be tested and place it in the constant-temperature-bath (15 °C for Methanol or 25 °C for Acetone)
- When the sample has reached the bath-temperature (about 5 minutes), add with a pipette 2 ml of the potassium permanganate solution.
- Close the tube with stopper, invert once to mix the contents, and return it to the bath.
- Determine the time from addition of the KMnO until the color matches that of the Standard.
- Protect the tube from light during this time.
- When you have finished the test, clean the sample cylinder twice with tap water and fill it with concentrated hydrochloric acid.