

## DESCRIPTION

**EK-5 WH** is a catalyzed sulfide based oxygen scavenger. It is an additive for boiler water and condensate line which consists of organic compounds that prevents corrosion, scab, furring, sludge in the form of precipitation and foaming in the steam boiler, steam lines, boiling water boiler and condensate line. There is no need to use any other additives (treatment chemicals). EK-5 WH alone is sufficient for boiler applications.

Chemical Name : Water conditioning (Chemical Mixture)  
Document No : SP-KS-007  
Trade Name : **EK-5 WH (BOILER WATER TREATMENT)**  
Usage : Additive against scab and corrosion in steam boiler, steam lines and boiling water systems. It is the only substance which protects both the boiler and the condensate line.

### A. ORGANIC PROPERTIES

Appearance  
Physical State (20°C) : Liquid  
Color : Transparent liquid  
Odor : Sulfide odor

### B. PHYSICAL PROPERTIES

pH : 9.0 – 11.0  
Molecular weight : -  
Explosion Limit : None  
Flash point : None  
Relative Density : 1.10 – 1.20 g/cm<sup>3</sup>  
Solubility : Completely soluble in water.

## APPLICATION, FEATURES & BENEFITS

- ✓ In regular use, it provides significant energy saving by preventing furring, corrosion which may occur within the generator. It ensures maximum physical life for boiler pipes.
- ✓ In regular use, it prevents corrosion, perforation in condensate lines (steam lines) so prolongs the life of both lines and condensate stops and therefore provides energy savings.
- ✓ In regular use, it provides most efficient output by keeping the steam quality at maximum.
- ✓ In regular use, it prevents abrupt stops, explosion, perforation, blocking and provides both time and Money savings without requirement of extra cleaning process in periodical maintenance.

- ✓ In regular use, it decreases energy cost and increases steam quality by shortening the regime period of the boiler (the period of steam production starting from the working time).

## **STORAGE INFORMATION**

Packed in original plastic jerry cans of 25-30-35-70-200 L. Storage period is 3 years.

## **DIRECTIONS FOR USE/APPLICATIONS & DOSAGE RATES**

If there is no treatment chemical in boiler water or if it is the first time you start on treatment program. First dosage will be 30 g for 1 ton water. Following dosage will be calibrated to 100 g/ton. The most ideal dosing place is make up water inlet line, water station of the degasser or condensate (hot well) tank. Our recommend for dosing process is to be done by a dosage pump for the continuity of the process.

## **TEST METHOD**

**PHOSPHATE TEST:** It is performed in order to test the presence and sufficiency of EK-5-WH in the boiler water. It controls the hardness, mud i.e. furring. Presence of 20-40 ppm phosphate is sufficient. In the presence of high phosphate, the system has to be partially bluffed until the ideal phosphate amount and the dosage should be increased in the presence of low phosphate. Dosing 100 g EK-5WH to 1 ton of water adds 3 ppm phosphate. If the concentration of the boiler is 10, this reflects to the boiler as 30 ppm.

For the boiler pressure of 0-30 atm 20-40 ppm phosphate is sufficient.

**SULFIDE TEST:** As EK-5 WH is catalyzed sulfide based it is recommended to use for the boilers up to 30 atm maximum.

For 0-10 atm boilers 50-60 ppm,

For 10-20 atm boilers 40-50 ppm,

For 20-30 atm boilers 30-40 ppm of sulfide provides sufficient protection.

**CHLORIDE TEST:** It is performed to determine whether there is sea water leakage or the salinity content.

In low pressure boilers (0-20 atm), 300 ppm chloride must be the maximum limit.

In medium pressure boilers (20-30 atm), 100 ppm chloride must be the maximum limit.

If presence of chloride is above of these values, the system should be brought to ideal ranges by partial bluffs.

**ALKALINITY TEST:** Alkalinity test helps us to determine the accuracy of pH value in the water. It is directly proportional with pH. Alkalinity ratio determines the ideal phosphate ratio depending on the pH of the water.

## BOILER WATER TREATMENT

In low pressure boilers (0-20 atm), 300 ppm p.Alkalinity must be the maximum limit.

In medium pressure boilers (20-30 atm), 200 ppm p.Alkalinity must be the maximum limit.

In case that alkalinity is above these ranges the system must be brought to ideal ranges by partial bluffs.

**NOTE:** In boilers fed with high quality (demineralize) water, If the alkalinity value does not fit into the required ranges you may benefit from our product namely ERAY (Alkalinity Control Substance). Adding 10 g (10 ppm) of ERAY product to 1 ton of water will give 5 ppm p.Alkalinity to the water.

**HARDNESS TEST:** It is performed to measure whether there's any hardness leakage in water or not. It is measured as  $\text{CaCO}_3$ . As the system water's hardness value does not exceed 5 F = 50 ppm it is recommended to feed the system with demineralized water or discharging water. If the hardness of feed water is high 30-40 ppm phosphate must be present in the boiler.

**pH BOILER:** It is the indicator of the acidity and alkalinity of the water. The ideal pH range in the boiler water is 9.0-11.5. As the boiler pressure decreases (0-20 atm) the ideal range for the pH is approximately 11.5 and as the boiler pressure increases (40-100 atm) the ideal range for the pH is approximately 9.0.

**pH CONDENSATE LINE (STEAM LINE):** In the tests performed it is required that the ideal pH is within 8.0-9.0. This pH range is the range which the system (steam lines) works in the ideal and good condition.

**CONDUCTIVITY:** As the conductivity value is smaller, the quality and purity of the steam and life of the condensate stops get longer. It is important that this value to be below 50  $\mu\text{S}/\text{cm}$  as much as possible for the system to have a long life (durable) and for better steam quality. Conductivity can be kept under control by means of a conductivity meter.