DESCRIPTION

EK-1 is an additive for the Steam Boilers and Hot Water Boilers. It prevents furring, sludge and corrosion which may occur in the boiler by dosing certain amounts to the boiler water. It is a complete product. While controlling Oxygen Corrosion, Furring in the boiler, it balances Alkalinity as well.

Chemical Name : Water conditioning (Chemical Mixture)

Document No : SP-KS-001

Trade Name : **EK-1 (BOILER WATER TREATMENT)**

Usage : Anti corrosive and anti-scab in boiler and steam lines.

A. ORGANIC PROPERTIES

Appearance

Physical State (20°C) : Liquid

Color : Transparent liquid

Odor : Amine odor

B. PHYSICAL PROPERTIES

pH : 10.0 – 12.0

Molecular weight : -

Explosion Limit : None

Flash point : None

Relative Density : 1.10 – 1.20 g/cm^3

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 boiler.
- ✓ In regular use, ensures maximum physical life for steam lines.
- ✓ In regular use, it prevents abrupt stops, explosion, perforation, blocking and provides both time and money saving 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 system. First dosage for EK-1 is 250 g/ 1 ton water. The following dosages will be calibrated to 30-100 grams / ton(water). Ideal place to dosage EK-1 is make up water inlet line, water tank of the degasser or condensate (hotwell) tank.

TEST METHOD

PHOSPHATE TEST: It is performed in order to test the presence of EK-1 in the boiler. 20-40 ppm phosphate is sufficient in boiler water. If phosphate is higher than 40 ppm the system has to partially bluffed till it is between 20-40 ppm. If phosphate is lower than 20 ppm dosage of EK-1 should be increased. 50 g EK-1 dosage increases 2 ppm phosphate in 1 ton water. If the concentration in boiler water is 10, this reflects to the boiler 20 ppm.

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

For 40-60 atm 20-30 ppm phosphate is sufficient.

For >60 atm boilers 5-10 ppm of phosphate is sufficient and provides efficient protection.

HYDRAZINE TEST: Hydrazine is used in the boiler as oxygen scavenger and corrosion inhibitor.

In low pressure boilers (0-20 atm), 0.1-0.3 ppm hydrazine is sufficient.

In medium pressure boilers (20-40 atm), 0.1-0.2 ppm hydrazine is sufficient.

In high pressure boilers (40-100 atm), 0.05-0.1 ppm hydrazine is sufficient.

When values below or over these values are observed, dosing can be stopped and partial bluffing can be made or the dosage can be increased respectively.

NOTE: Since both phosphate and hydrazine is present in EK-1, it is enough to perform one of these (Phosphate Test, Hydrazine Test) tests. If one of the test result is in ideal range, the other will be also in ideal range.

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.

In high pressure boilers (40-100 atm), , 50 ppm p.Alkalinity, must be the maximum limit.

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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.

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

In medium pressure boilers (20-40 atm), 200 ppm p.Alkalinity must be the maximum limit.

In high pressure boilers (40-100 atm), 100 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 $CaCO_3$. 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: 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.