BoilerWater TestKit

Chloride, P-Alkalinity and pH Test

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HEALTH & SAFETY

Some reagents required for tests shown in this booklet are classed as hazardous and as such, a minimum protection of gloves (rubber or plastic) and safety goggles/ spectacles or facemask **MUST BE WORN**.

In addition please note and observe the Risk and Safety phrases on each reagent container and follow handling guidelines as instructed.

GENERAL NOTES

⇒ Avoid contact with skin or eyes

⇒ In case of contact with skin or eyes rinse immediately with plenty of running tap water, and seek medical attention

⇒ Seek attention if irritation persists

⇒ In case of ingestion, wash the mouth out thoroughly with water, try to vomit and seek medical attention

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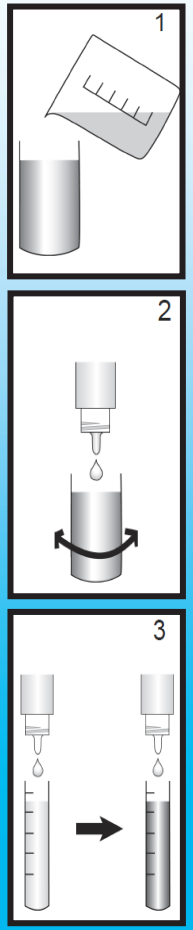
P-Alkalinity

1. Take 20 ml of cold coolingwater sample with the 20 ml syringe.
   Spray the 20 ml in the clean test jar.

2. Add 4 drops of Reagent PA1. The sample will turn pink. In case the sample does not colour pink, the reading is zero.

3. Add drop by drop Reagent PA2, until the sample decolours.
   Count the numbers of drops used.
4. Each drop is equivalent to 40 mg/l or ppm P-Alkalinity expressed as $CaCO_3$

5. **Retain the sample after the alkalinity test, as this sample can be used for the Chloride test.**



Drops of PA2 Reagent	P-Alkalinity as mg/l $CaCO_3$
1	40
2	80
3	120
4	160
5	200
6	240
7	280
8	320
9	360
10	400

Notes:

Low P-Alkalinity, increase product dosage to achieve 200 mg/l P-Alkalinity

Correct P-Alkalinity

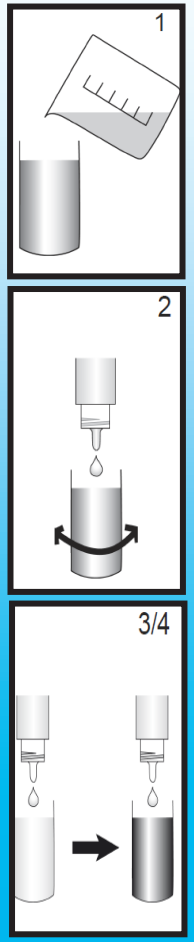
Reduce P-Alkalinity by increased Top and Bottom blowdown

Chloride Test

1. Take the sample that is first used for the P-alkalinity test.

2. Add 12 drops of Reagent BC1. The sample will turn pale blue/green.

3. Add drop by drop Reagent BC2, until a grey orange/brown colour appears. Count the numbers of drops used.
4. Each drop is equivalent to 20 mg/l or ppm Chlorides



Drops of BC2 Reagent	Chloride as mg/l Cl^-
1	20
2	40
3	60
4	80
5	100
6	120
7	140
8	160
9	180
10	200
11	220
12	240
13	260
14	280
15	300
16	320
17	340
18	360
19	380
20	400

Notes:

Maximum Chloride levels:

⇒ Low pressure boilers : 300 mg/l

⇒ Medium pressure boilers : 100 mg/l

In case the chloride level is too high, reduce the amount of chlorides by blowdown.

⇒ 1 mg/l is 1 ppm

Condensate pH Test (7,0 - 14,0)

1. Take 50 ml of cold coolingwater sample in the clean test jar.
2. Dip test strip for 1 second in the sample.
3. Shake off excess sample solution.
4. Compare with colour scale and read off the corresponding pH value.

pH value		
7,0	Corrosive	See fault finding chart
7,5		
8,0	Slightly corrosive	
8,5		
9,0	Non corrosive	Well treated
9,5		
10,0		
10,5	Corrosive on Copper	See fault finding chart
11,0		
11,5		
12,0		
12,5	Corrosive on Copper and Iron	
13,0		
13,5		
14,0		

Fault Finding Chart	Cause(s)	Solution(s)
Chlorides too low	Boiler newly filled with de-mineralized or evaporated water	Boilerwater has to concentrate, will take several days
	High blowdown	Check blowdown valves for leakages
Chlorides far too high	Low quality feed water	Only use demineralized or evaporated water
		Check evaporator
	Sea coolingwater leakage	Search for leakage(s), for example at the condenser
P-Alkalinity too low	Boiler newly filled with de-mineralized or evaporated water	Boilerwater has to concentrate, will take several days
	Low Caretreat 3 Boiler dosage	Check dosingpump / increase dosage
P-Alkalinity too high	Low quality feed water	Only use demineralized or evaporated water
		Do NOT use shorewater
	High Caretreat 3 Boiler dosage	Check dosingpump / decrease dosage
	Low blowdown	Increase blowdown, check for blocked blowdown valves

pH Condensate too low	Low hotwell temperature	Increase hotwell temperature to 80˚C
	Low Caretreat 4 Boiler dosage	Check dosingpump / increase dosage
pH condensate too high	High chloride level in boiler	see: chlorides far too high
	P-Alkalinity too high	see: P-Alkalinity too high
	Carry over, causing wet steam	Increase blowdown, check for blocked blowdown valves

Partslist Boilerwater Testkit		11911
Description	Amount	Article number
Syringe, 20 ml	1	11980
Test jar, 50 ml	1	11982
pH strips (100 ea.) 7,0 - 14,0	1	11932
Reagent BC1	2	11934
Reagent BC2	1	11935
Reagent PA1	1	11938
Reagent PA2	1	11939

WHEN IN DOUBT

- ⇒ Read the boilers manual regarding the boilerwater systems treatment
- ⇒ Contact us for advise
- ⇒ E-mail us all test figures over a period of at least 3 months
- ⇒ Send us a Boilerwater and Feedwater sample
  - ⇒ Take a sample in a clean bottle at least 0,5 liter per sample
    Fill the bottle(s) to the top

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