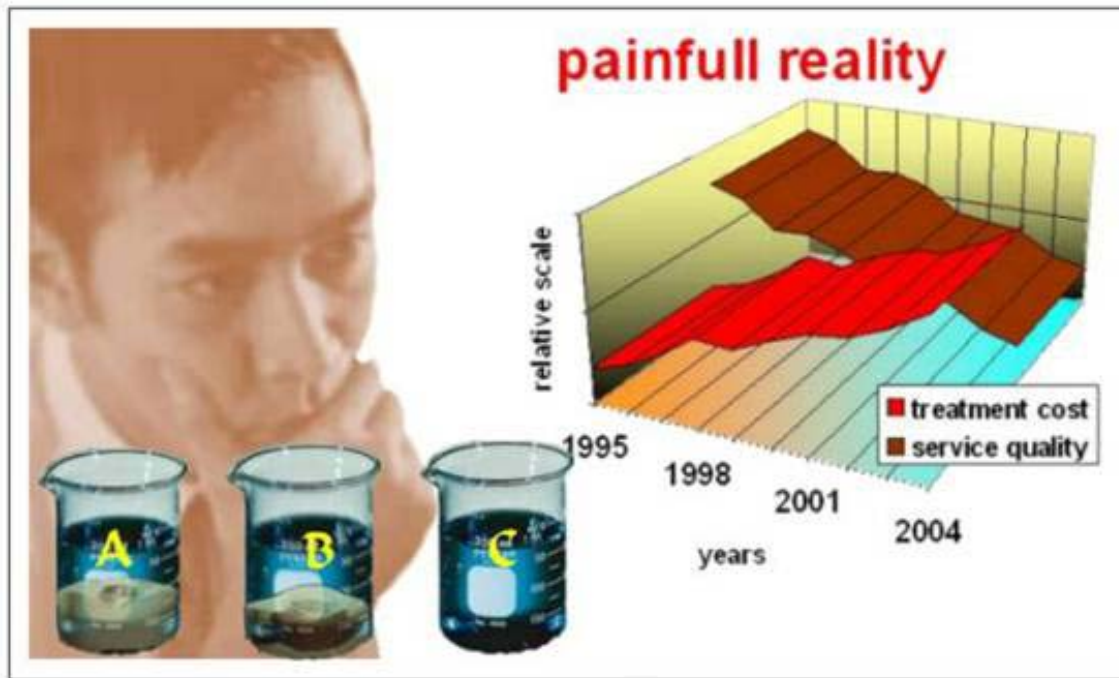


Call for plant engineers

Welcome
to the new millenium



evaluate your
Scale Inhibitor

Cooling Tower - Boiler (up to 45 bar)

Water Services LTD

www.arvanitakis.com www.power-chemicals.com www.refinery-chemicals.com www.paper-specialities.com

16 TROADOS STR 15342 ATHENS GREECE

tel +30 6948 518699 +30 210 6392937
fax +30 210 8084605

e mails dennis@arvanitakis.com
export@power-chemicals.com



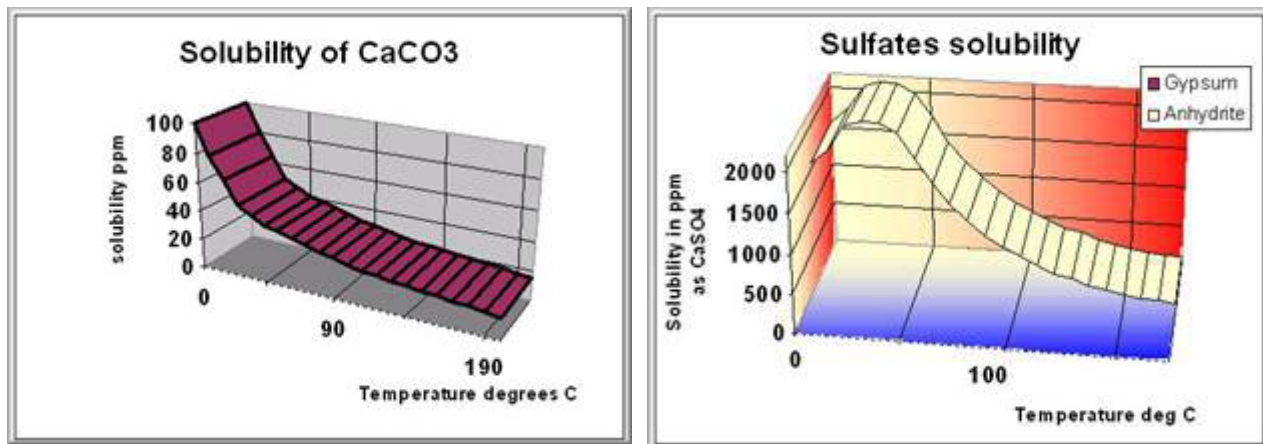
We provide you a very easy procedure to justify the performances of the Scale Inhibitor in use in your plant (for your cooling tower circuit or your boiler protection).

Because has to be proved the real effectiveness.

We proud we had convinced scales not to be formed at your heating surfaces.

Now we have to convince you also.

It is based upon the decrease of the solubility of Calcium Sulfates and Calcium Carbonates as the temperature increases (following graphs).



The first test is proposed to be based on Calcium Sulfate inhibition (but you can use it also against Calcium Carbonate), because:

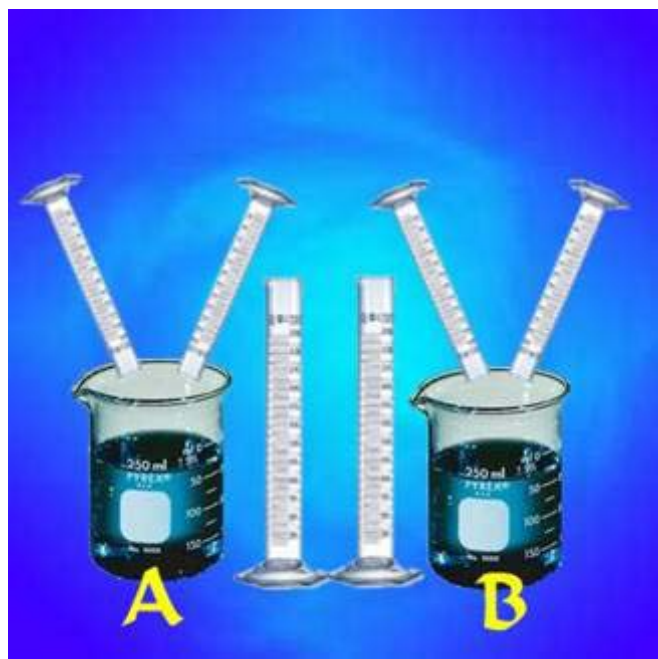
1. If your product fail against Calcium Sulfate, *has no chance at all* to perform against Calcium Carbonate, so you have a fast screening performance.
2. Calcium Sulfate has over than 100 times higher solubility under cold conditions. When over-concentration is reached due to temperature increase, the solid needs a couple of minutes to be created and precipitates in large flocs. Calcium Carbonate will precipitate in milliseconds as micro crystals. So you have the time to setup the test and have visible results.
3. In most cases you are also using pH control through Sulfuric acid to convert the tendencies from Calcium Carbonate to Calcium Sulfate as to improve the scale inhibition.

Procedure of the test.

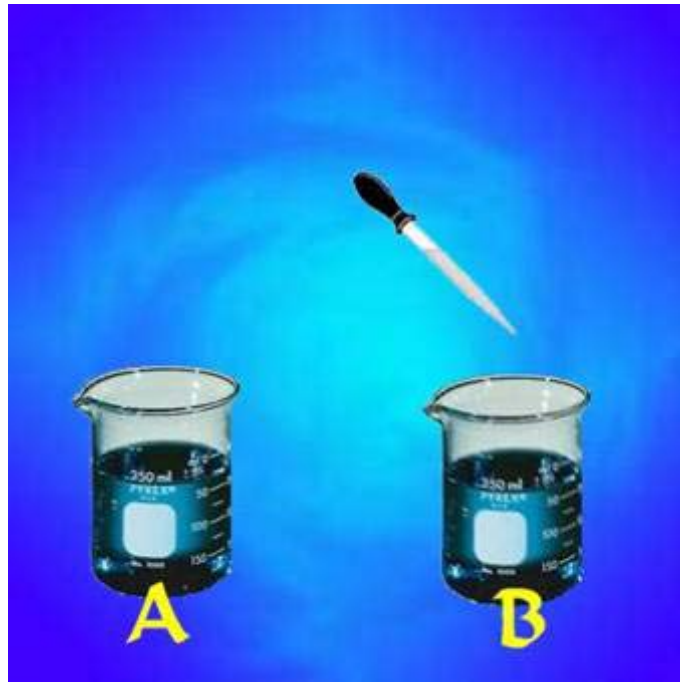
- a. Ask from your laboratory to produce for you solutions of Calcium Chloride 1N and Sodium Sulfate 1N. If we wish to run the test for Calcium Carbonate we have to use 1N Sodium Bicarbonate (NaHCO_3) instead of Sodium Sulfate.



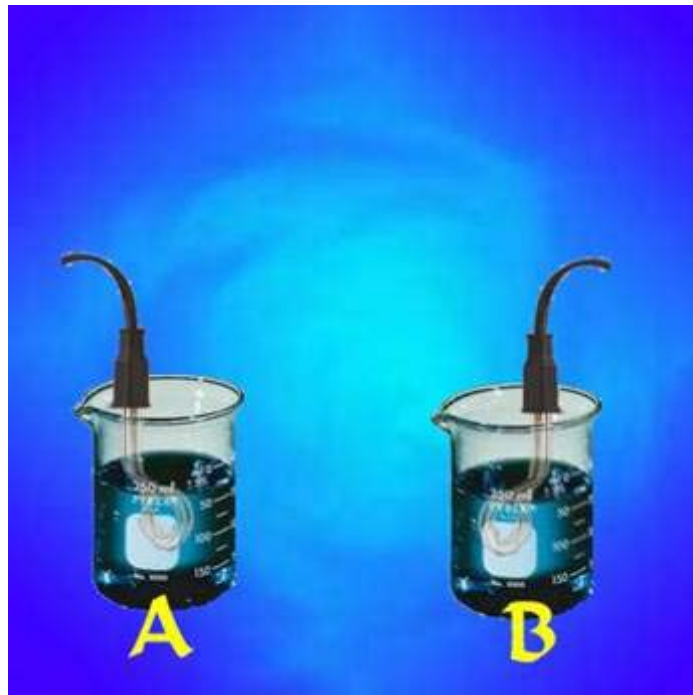
- b. Get two pyrex or jena glass beakers of two liters capacity, and half fill its by water (one liter of water in every beaker). It is not very important the water quality. It can be your make-up, cooling tower or just simple city water.
- c. Using 100 ml graduate cylinders put in every beaker 100 ml of Calcium Chloride 1N and 100 ml of Sodium Sulfate 1 N solutions.



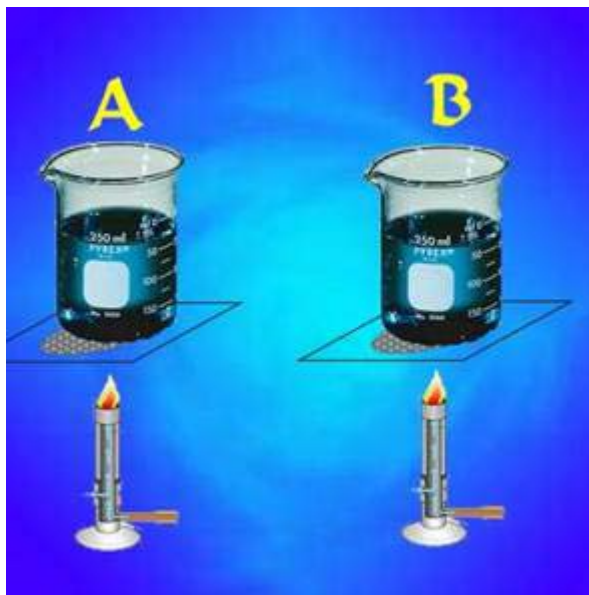
- d. Using an eye-dropper put 20 drops (one milliliter) of the scale inhibitor in use at your plant at the baker B.



- e. Now you have to bring both beakers to boiling and boil hard for 5-10 minutes.
- f. You can use a heating coil (suggested method),



- g. or a Bunsen burner at the laboratory. By using a Bunsen burner you can see the deposition into the bulk water, but you cannot see the deposition onto the heating surfaces (the coil).



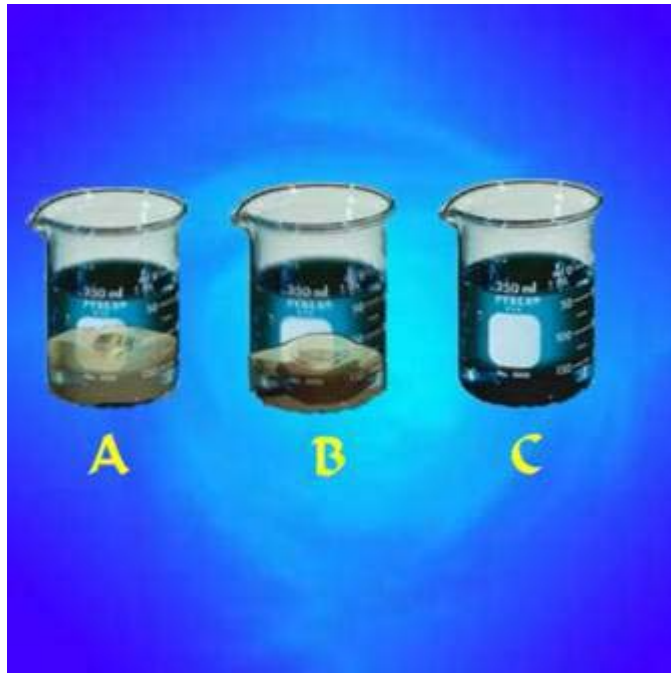
- h. Enjoy the results.



What comes next?

We suggest you to:

1. Disregard the excuses that your supplier will try to create as to overpass his failure and to save his income.
We had heard so many stupidities during the last thirty years, that we have a full gallery on the matter.
2. Take care what you have to tell to your boss about the failure of the treatment.
3. Register yourself with us, by filling and forwarding the details of the following page.
4. You will receive a detailed proposal from us. This proposal will be the most advanced technical proposal you ever seen.
5. Will be also less expensive from the treatment in use, if you are using a multinational company.
6. Into the package will be included also a small sample of the proposed scale inhibitor.
7. You can run again the test using three beakers instead of two, and placing at the third beaker 20 drops from our proposed to you scale inhibitor.
8. After this test, you can contact us as to arrange the start-up of our co-operation



Cooling Water Treatment

Data for opening the file

Plant Name:

Production :

Address

Persons to be reported

For daily reports

	Name	Title	e-mail	telephon
1				
2				
3				
4				

For summary reports

	Name	Title	e-mail	telephon
1				
2				
3				
4				

Cooling water systems

	#1	#2	#3	#4
Name				
Type				
Use				
Type of make up				
Make-up quantity				
System Volume				
max water temperature				
Cycles of Concentration				
Treatment in use				
Corrosion Inhibitor				
Antiscalent				
Dispersant				
Biocides				
Usual Problems				

Boiler Water Treatment (below 45 bar)

Data for opening the file

Plant Name:
Production :
Address

Persons to be reported

For daily reports

	Name	Title	e-mail
1			
2			
3			
4			

For summary reports

	Name	Title	e-mail
1			
2			
3			
4			

Low pressure boilers

No of Boilers
 Make up quality

% condensates

Boilers

ID name				
Design Pressure				
Type of boiler				
Manufacturer				
Design Steam production				
Max COC				
Treatment in use				
Antiscalent				
Oxygen scavenger				
SLCC				
Usual Problems				

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