Date Issued	May 24
Replaces	

Performance Through
Technology and Service

INFO SHEET

Calcium Sulfate

Does your pool have a layer of calcium sulfate at the water line?
You can check by looking carefully and you may see small, sharp white crystals there. And to differentiate them from the more normal calcium carbonate, ***Calcium Sulfate is NOT reactive to pool acid, (Hydrochloric Acid).***

What is it?
Calcium Sulfate (CaSo4) is an insoluble calcium compound. It forms what is known "scale". There are several forms of this and the one we refer to is calcium sulfate dihydrate aka gypsum.

Where can it come from?
For your swimming pool it can be tap water but more often in the pool water chemicals you are using. Examples are sulfuric acid and dry acid (sodium bisulfate) and non chlorine shock treatment.
(potassium monopersulfate) and copper sulfate (algaecide).

What problems does it create?
Within your pool, it has 2 impacts: corrosion and Calcium Sulfate scale. Ideally in your pool sulfate concentration should not be greater than 300 ppm. Higher levels than this means it can react with and erode materials containing Portland cement. This 300ppm is a very low threshold and if you are using either sulfuric acid or sodium bisulfate, it's possible you may need to dilute your pool water to prevent the formation of Calcium Sulfate.

How does it form?
Like any other scale, Calcium Sulfate scale occurs when the water is oversaturated with it. Oversaturation drives the calcium out of solution, and it lands on any submerged surface. Though calcium carbonate tends to form in higher pH times, the Calcium Sulfate usually forms a lower pH. High evaporation and not refilling your pool can also increase the likely hood of Calcium Sulfate formation.

What's the difference between Calcium Carbonate Scale and Calcium Sulfate Scale?
Pool water craves equilibrium with calcium carbonate, (hence the LSI is so critically important in understanding pool water saturation) whereas pool water does not need saturation of Calcium Sulfate. And depending on the water condition. Calcium Sulfate can take over the pool water very quickly. So, we do not want ANY Calcium Sulfate in our pool water, if we can help it.

HITCHINS TECHNOLOGIES PTY LTD ACN 119 448 501, **Postal:** PO Box 3186, Bonnells Bay NSW 2264, Australia
Phone: 1300 8879 20 Fax: 1300 8879 21 web: www.poolpaint.com.au Email: info@poolpaint.com.au

How to remove Calcium Sulfate in your pool.

Unfortunately, if you have Calcium Sulfate in your pool, there's not a lot you can do to remove it, chemically.
You can try a higher pH to soften it and by using sodium hydroxide. With a higher pH. and after a few days, it can soften the, harder Calcium Sulfate crystals into a gel.
However, even with this treatment the material still needs to be removed mechanically.
You maybe be better to just grind/sand off the original hard crystals. This is time and labour intensive and there is so far no other effective means to remove it, as far as we know.

So, prevention seems the best course.

Firstly, limit the addition of sulfates in your water. Filter incoming water if need be.
It's also possible to chelate calcium to prevent it from binding with sulfates that may be in your water. And don't over correct the pH with acid as this will lower the pH and then it tends to drive Calcium Sulfate out of solution.

If need be, ask your pool water supplier for records of sulfates in the water supply and also include these as well so you know: combined chlorine, nitrates and metals etc.

And also minimise the use of the following chemicals in your pool; sulfuric acid, sodium bisulfate, potassium monopersulfate , copper sulfate algaecide. (Check with the pool shop etc).

If sulfates are unavoidable, dilution or reverse osmosis filtration may be necessary to reduce the sulfate levels.

We suggest being Pro - Active , is the best method to keep this obnoxious mineral away.

HITCHINS TECHNOLOGIES PTY LTD ACN 119 448 501, **Postal:** PO Box 3186, Bonnells Bay NSW 2264, Australia
Phone: 1300 8879 20 Fax: 1300 8879 21 web: www.poolpaint.com.au Email: info@poolpaint.com.au