

GUIDELINES FOR THE USE OF SODA ASH AS A REGENERANT IN CRYSTAL – RIGHT INSTALLATIONS

Crystal Right is a well proven iron and manganese reduction media. Provided that the guidelines are followed with regard to the water analysis and selecting the correct grade and volume of media, then problems are rare. However there can be certain ground conditions where dissolved gases and organic contamination in the raw water may lead to a reduction in operating capacity. During the normal service run gases and tannins present in ground water will be absorbed by the Crystal Right, and most of these are released during the standard brine regeneration. However some gases [especially CO₂] and tannins may not be and stay retained in the crystals. This leads to a small reduction in Crystal-Right's exchange capacity per cycle which after a while can lead to a significant decrease in the exchange capacity of the unit. To reverse the loss of capacity we have to carry out a regeneration that will release the remaining elements retained by the crystals that have not been removed by the standard brine regenerations. The way we can achieve this is to do a regeneration with Sodium Carbonate [Na₂CO₃] which is also known as Soda Ash. To reverse capacity loss we would suggest a 'shock treatment' regeneration with Soda Ash followed by further routine regenerations at set intervals to prevent a further build up of problem elements on the crystals. It can also be beneficial to periodically regenerate Crystal-Right units that are working satisfactorily with Soda Ash purely as a preventative measure, it will be beneficial to the crystals.

Soda Ash Regeneration Procedure As Routine Maintenance

Soda Ash is a powder which needs to be dissolved in water to make a liquid that can be drawn into the unit during a regeneration cycle, warm water will dissolve the Soda Ash faster, stirring the mixture also helps to dissolve it. Once the measured amount has been dissolved it is added to the brine solution in the brine tank and a regeneration is initiated, during the injection cycle the mixture of brine and liquid soda ash will be drawn into the Crystal-Right bed in the normal way. If the brine tank is fitted with a brine well you can ensure the liquid soda ash makes direct contact with the brine by introducing it via the top of the brine well.

Soda Ash Shock Treatment

The Soda Ash is prepared in the same way and to the same strength as the routine procedure, the difference being during the shock procedure it is drawn direct from the container it is prepared in. The easiest way to do this is to disconnect the regular brine draw tube from the brine elbow, re-connect a piece of flexible tube to the elbow the other end of which is put into the Soda Ash solution.

1. The first stage of the shock treatment is to backwash the unit for the standard length of time.
2. After the backwash the liquid soda ash is drawn into the bed as per the above guidelines, **immediately** all the soda ash solution has been drawn into the valve the original brine line is re-attached to the brine elbow and the brine draw initiated and the standard regeneration cycle allowed to run its course.
3. **Important:** When using the shock method monitor the pH of the rinse water going to drain, if CO₂ is being released from the Crystal-Right the pH of the rinse water will drop, the lower the pH the more gas is being released from the crystals.

What Concentration and how much Soda Ash?

The correct solution strength is made by dissolving 200 grams of Soda Ash in 1 litre of water. Each cubic foot of Crystal Right will require 2 Litres of Soda Ash solution for a regeneration.