



ECOLOGICAL WELL MAINTNANCE
SBF-AREX® II and SBF-AREX® CO –
*and your well is free of iron and
manganese deposits*

**100%
biological
degradable!**



*For full power
from your well!*



For house
and
garden!

Does your domestic well have the same power as before?

One of the most common causes for the decline in flow from your pump is the iron and manganese dissolved in the groundwater. With the effect of atmospheric oxygen, both elements are oxidised to their solid form and thus block the pump, pipes and wells. With our well regenerator SBF-AREX® II and SBF-AREX® CO deposits are in most cases fully removed, and the full performance of the well is restored. In order to ensure the performance of the well in the future, you should have an annual regeneration with our well regenerator. But how does this problem arise?

HOW DOES OUR GROUNDWATER EMERGE, AND HOW CAN I KNOW MORE ABOUT ITS IRON AND MANGANESE CONTENT?



Our groundwater arises from the infiltration of rainwater into the ground. The rain is rich in oxygen due to the accumulation of air. When this water is in the first layer of soil, the soil bacteria respire oxygen and exhale carbon dioxide from it. If this carbon dioxide comes in contact with the ground water, carbonic acid is formed, whereby our groundwater gets a slightly acidic character.

The elements iron and manganese are natural components of our soil and are dissolved from the soil by the rainwater and washed into the groundwater. Because of the lack of oxygen and low pH in the solution, they therefore acquire a colourless form.

Do iron and manganese appear in groundwater?

The ingredients of groundwater depend heavily on the respective soil composition. To determine whether iron or manganese is in your groundwater, there are several methods available. The easiest for you, but at the same time most expensive variant is to order a drinking water analysis. Another option is commercially available chemicals, which you can comfortably use at home, or you can try conducting a simple bucket test. To do this, fill up a bucket that is light in colour if possible, with water from the well from a distance of 1 meter with the help of your garden hose. The water must rest in the bucket for a day. If it turns brown-yellowish and small black particles have formed, you can assume that iron and manganese are in the well water.



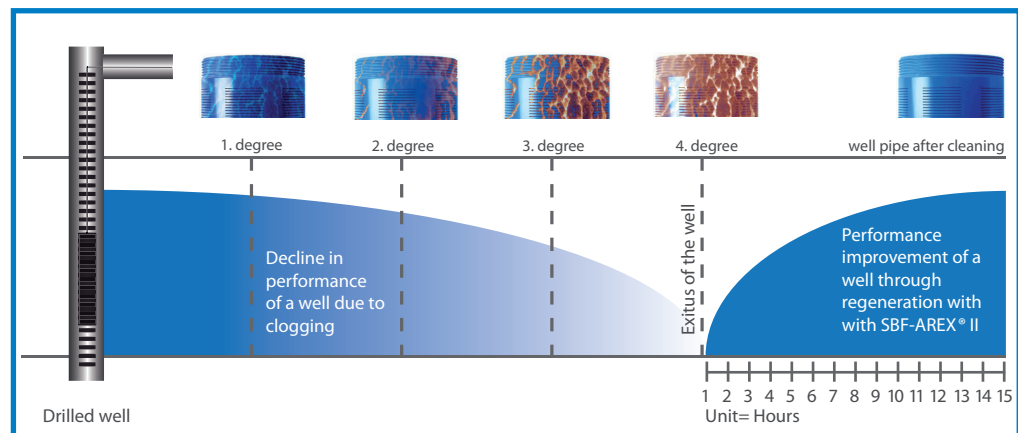


WHAT PROBLEMS ARISE FROM THIS?



What exactly happens to your well with the deposition of iron and manganese?

Iron and manganese or excreted metabolites of soil bacteria attach themselves as "well ochre" (red-brown to dark brown) in the filter slots and the gravel pack from the well. The rate of clogging is significantly influenced by the content of dissolved iron and manganese compounds, the concentration of the pre-existing micro bacteria, as well as the amount of oxygen in the well (e.g. due to well filters that are wrong and/or too small).



WHAT POSSIBLE SOLUTIONS ARE THERE FOR THIS PROBLEM?

High efficiency!

To ensure that your well will recover its original performance, the accrued debris must be removed. For the removal of well ochre, very costly mechanical methods such as ultrasonic cleaning, gravel brush or scrubber, etc., are available. Or you can perform the regeneration using chemical materials such as acids, etc., damaging the flora and fauna in the process.

The best solution is offered by SBF-AREX® II – well regeneration in combination with SBF-AREX® CO.

SBF-AREX® II und SBF-AREX® CO are two perfectly coordinated components designed with the aim of reconciling great effectiveness with the highest ecological compatibility. They are made from 100% biodegradable substances and are therefore harmless to flora and fauna.



Easy
to use!

HOW DOES OUR PRODUCT WORK EXACTLY?

How much SBF-AREX® II und SBF-AREX® CO do I need?

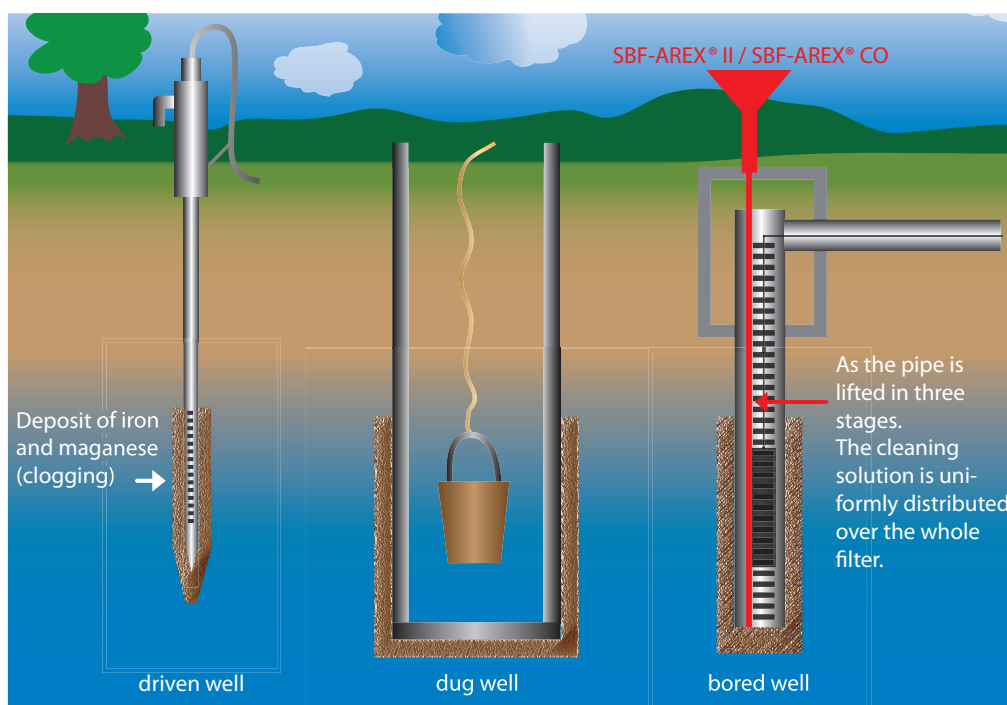
The actual SBF-AREX® II and SBF-AREX® CO requirements are determined depending on the diameter and the length of your well pipe. For this purpose, the samples taken from the table quantities SBF-AREX® II and SBF-AREX® CO are multiplied by the exact number of meters of the filter section.

Nominal diameter of the well	Well hole diameter in millimeters	SBF-AREX® II / SBF-AREX® CO requirement per meter of filter section in grams
DN 50/2"	50	200/50
DN 100/4"	100	400/100
DN 125/5"	125	600/150
DN 150/6"	150	1000/250

Example: Your well has a diameter of DN 100/4", and therefore a drill hole diameter of 100 mm. So you need SBF-AREX® II und 100 g SBF-AREX® CO per meter of filter length. With a filter length of three meters, your total requirement is therefore 1200 g SBF-AREX® II and 300 g SBF-AREX® CO.

How do I apply SBF-AREX® II and SBF-AREX® CO correctly?

The amount of well regenerator needed is dissolved in 10 litres of tap water with stirring. The injection into the well is conducted by means of a tube through a funnel. For this, 1/3 of the solution is poured, the inserted tube is then pulled out into the air (about 1 meter), and





then another 1/3 of the regeneration liquid is poured in. This process is repeated once more until the SBF-AREX® II / SBF-AREX® CO-water mixture has been distributed uniformly over the entire filter section.

After being left to stand for no more than 15 hours, the well is pumped out. If you use your well for domestic water supply, you should direct the pumped water directly into the sewer system. The pH value of the discharged waste water must be between 6.5 and 8.5 (please refer to the local conditions of discharge of waste water).

If the pH value is still below 6.5, the mixture should stay for another 24 hours in the well until the pH is increased further.

But if your well is only used for watering the garden, you can use the pumped solution spread easily over turf and compost heaps. (SBF-AREX® II / SBF-AREX® CO water hazard class 1) Continue to pump water until the water is clear. You can then use the well for normal operations and be delighted with its enormous improvement in performance.

Is there anything else to keep in mind when using SBF-AREX® II and SBF-AREX® CO?

SBF-AREX® II dissolves iron, zinc and galvanized surfaces

In very old wells, it may happen that the actual well tube or well filter are held together only by the debris. When these are removed by the regeneration, the tube or the filter might fall in on itself. In this rare case, a new well would have to be drilled.

If after treatment, the well performance improved but is still not satisfactory, it is likely that there are deposits so massive, that further regeneration might be useful.

If your well does not recover its full performance after the implementation of a new treatment, you should consult a specialist company for well renovations (see penultimate page).





Low costs!

WHAT ARE THE BENEFITS OF USING SBF-AREX® II AND SBF-AREX® CO?

• High regeneration effect

- Incrustation caused by deposits of iron and manganese are already effectively solved with treatment on the spot.
- SBF-AREX® II and SBF-AREX® CO are highly effective for clogged wells and excel significantly in their dissolution rate of hydrochloric acid with the recommended concentration for application.
- Effective and stable dissolution behaviour in the pH range of 2-4.5.
- Dissolution power up until well ageing.
- The annual regeneration with SBF-AREX® II and SBF-AREX® CO preserves the full power of your well.

• Ecologically safe

- The product is made from renewable raw materials that are used in the food industry.
- SBF-AREX® II and SBF-AREX® CO is not hazardous, its composition allows for the classification of water hazard class 1. The potential risks of using this product are comparable to the danger of lemon juice.
- The solution is completely degraded by existing soil organisms.

• Long life of your well

- Your well is clean of clogging and maintains its full potential.

• Simple and economical handling

- SBF-AREX® II and SBF-AREX® CO dissolve in tap water and use funnel and insert pipe into the well. Leave on for up to 15 hours to pump until clear water comes out – done!
- SBF-AREX® II and SBF-AREX® CO can be stored and transported easily since it is not a hazardous product.
- Beneficial for material-sensitive well installations.
Except for zinc and zinc plating, these are dissolved!
- Cheap alternative to mechanical cleaning by a specialized company or drilling a new well.



SBF-AREX®

Full Power for your well!



*Suitable
for all types
of wells!*

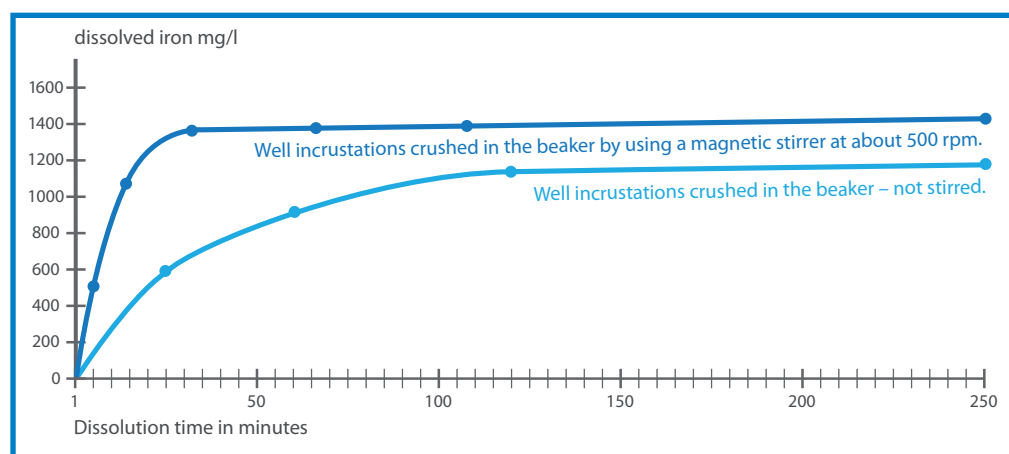
WELL RESTORATION BY A PROFESSIONAL COMPANY?

The application of SBF-AREX® II and SBF-AREX® CO in combination with mechanical cleaning methods?

If repeated cleaning with SBF-AREX® II and SBF-AREX® CO does not provide a satisfactory performance increase from your well, then the encrustations are too big and you should contact a specialist company for well renovation.

It makes sense to pre-clean the well with mechanical methods, such as a grit washer, making very solid deposits in the well pipe and gravel bed dissolve.

After pumping the coarse impurities, you can begin the final purification with the help of SBF-AREX® II and SBF-AREX® CO. With the previous reduction in size of the well ochre, the surface on which the AREX® solution can work clearly increases.



Laboratory studies have shown that the rate of dissolution of SBF-AREX® products is greatly increased with the circulation of the cleaning agent (see chart). The previous iron and manganese is dissolved at approximately one-seventh of the time in comparison to a motionless test arrangement. Regarding the physical conditions present in the soil, the time factor plays a decisive role. Since the regeneration is heavier than water, it sinks quickly down the well and drifts with the ground-water flow from the well.

The faster the SBF-AREX® solution can dissolve the encrustation, the more iron and manganese are removed during the process. Further more, the regeneration solution is inserted deeper and more targeted into the gravel by circulation.

In cases where the system size does not allow the use of a gravel washer, the use of a self-made piston can help. For this purpose, two pipes that are adapted to the diameter of the well plates with sealing rings are connected by a short perforated pipe, by which the liquid in the well pipe can be moved up and down.





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