

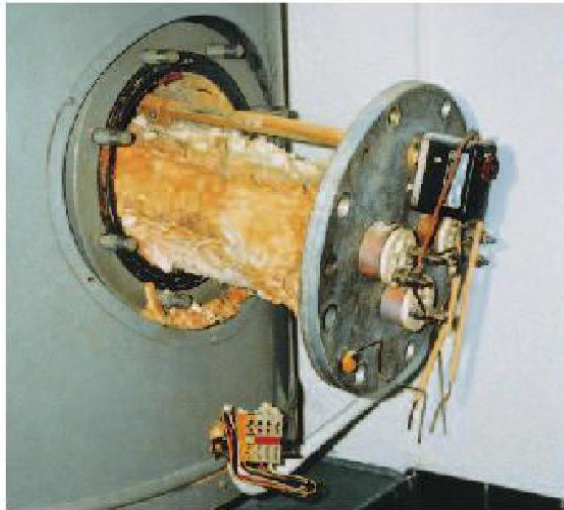
Limestone problems



*Protect your plants ...
... Before it's too late !*



MEDIAGON®
Made in Switzerland



Limestone opposes the transfer of energy. the heating time is extended this fact. The boiler efficiency thus decreases progressively. A limestone overlay of 3mm thickness induces consumption additional 15% energy.



The problem

Depending on the position of the balance between formation of carbonic acid (H_2CO_3) and the calcium carbonate (CaCO_3), water has more or less the tendency to precipitate limestone. This precipitation is favored by raising the temperature.

The formation of a crust CaCO_3 dure appears on solid surfaces pre-existing aunts, who favor an expansion of precipitate layer (heterogeneous growth).

In the absence of solid surfaces, the CaCO_3 remain in supersaturated solution in a homogeneous solution to a level of oversaturation of 10.

If calcium deposits resistant form in water pipes, problems will inevitably arise. inlays hard on the heating elements have a insulation and preventing effect, therefore, the optimal heat transfer. The con- tion energy can be increased up to 30%. In addition, overheating resistance involves replacement more frequent. In addition to these additional costs tions, operational security installed tion is no longer guaranteed.

On the other hand, calcium deposits present in pipes reduce the water flow. This is particularly unfortunate in for cooling installations where the water deficit, reducing the ability of heat dissipation, also induces a damaging overheating.

7818<4<K+R*E 2009.10

Physic solution

The operation of the devices is Mediagon based on the fact that any electric charge movement in an electromagnetic field is subjected to the Lorentz force. This force (F) is exerted on the load (q) perpendicular the plane formed by the electromagnetic field (B) and the direction of the initial velocity (v) load.

$$F = q \cdot VLB$$

This results in a deflection of the path of the charged particle. Next door the particle a positive or negative charge, F is the force exerted in an opposite direction. Thus, if a charged particle moves in a speed "v" from east to west and it crosses a magnetic field "B" directed vertically down, it will experience a force "F" facing north if the charge is positive and south if it is negative. The force F is proportional to the intensity of the load, speed and scope.

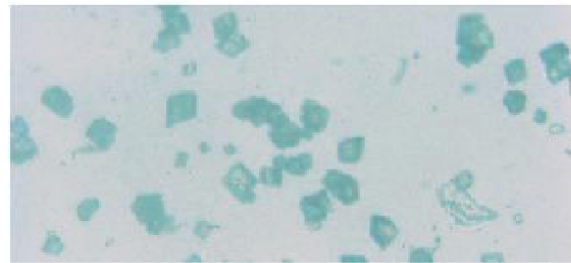
Ions dissolved in water are also subject to the Lorentz force and, thus, the deviation experienced by cation (+ ions) will be opposite that experienced by anions (- ions).

The particular action is not Mediagon not radically separate cations (in the occurrence Ca^{2+}) anions (ie CO_3^{2-}), but keep them in a variety of fields very fine and concentrate locally to allowing the spontaneous appearance of $CaCO_3$ without the intervention of the homogenous solution external germs such as, for example, on-solid surfaces (walls of the pipes). these aggregates local are kept in suspension in a form of colloid type and / or simply as dispersed form.

In this way, these aggregates are in competition with solid surfaces, such as pipe walls, and protect them from a heterogeneous growth $CaCO_3$ grâce to extend their surfaces due to their very small distance broadcast.



Mediagon opposes the formation of new limestone deposits. The very fine distribution of magnetic field prevents the precipitation ions on driving.



Crystalline formations untreated physical-ling on a cleaned glass with fluorine-acid water. 1000x magnification. Such crystals are at the origin of the hard deposits.

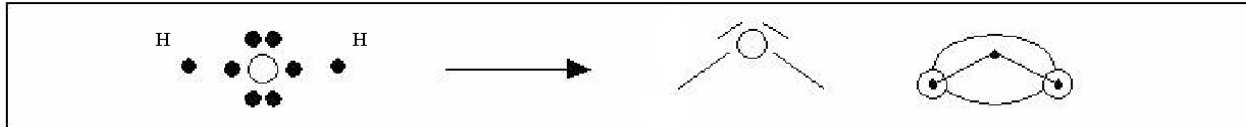


Crystalline formations processed by the apparatus Mediagon on a cleaned glass with fluorine-acid water. 1000x magnification. Such crystals are mostly washed away by the water flow.

Fundamentals of water chemistry

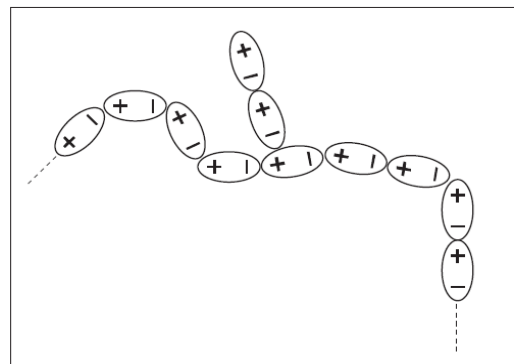
1. Water

Water is a molecular compound formed from chemical elements oxygen and hydrogen. Its formula is H_2O , that is to say each water molecule is formed an atom bonded to two oxygen atoms



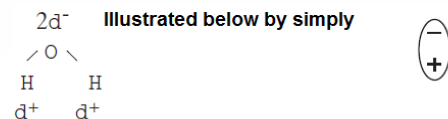
Some basics

1. Electrons are elementary particles carriers of electrical charge negative and insignificant mass.
2. The electrons revolve at high speed around the nucleus of the atom, the latter is trained other elementary particles constitute its core, namely neutrons (electrically neutral) and protons (carry a positive electrical charge). Protons and neutrons each have a mass approximately 1 amu (mass unit atomic), or approximately $1.66 \cdot 10^{-24}g$. any the mass of the atom is concentrated in the nucleus is not yet a fraction of the volume of that.

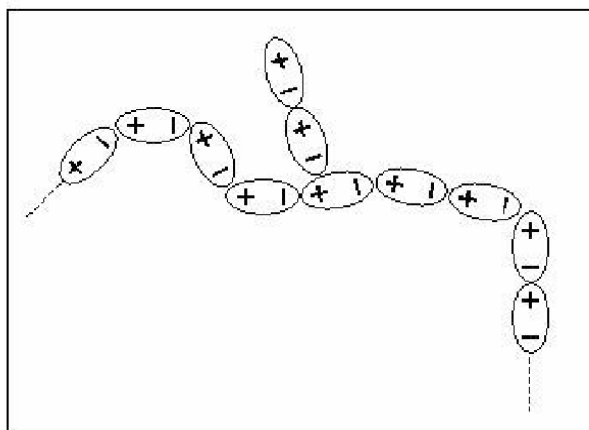


3. Since atoms are electrically neutral, it is understood that the number electron of a given atom is compulsory-SURELY equal to the number of protons.

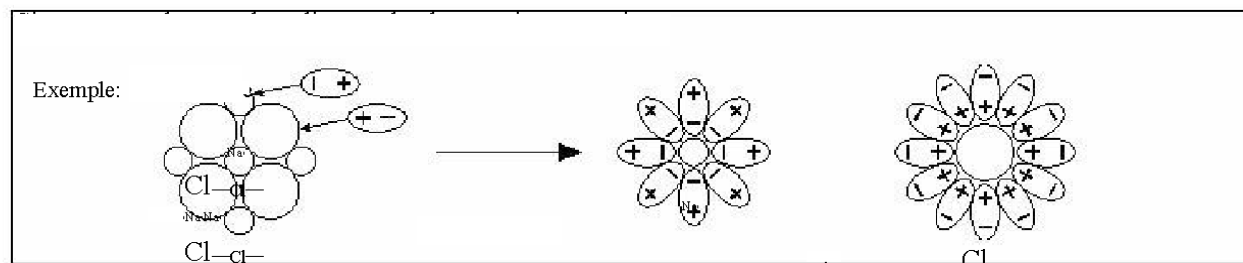
4. When atoms bond together (as H are both O-linked in H_2O), they do through their most electrons away from the nucleus (valence electrons).
5. In all chemical substances, electrons are always present in pairs.



10. La polarization of water molecules allows to them to bind, always by attraction electrostatic, also to other party-charged particles, the ions in particular. the bond, electrostatic nature, which binds the ions to water molecules is called "link ion-dipole." Therefore, when a compound



anions and cations constituting the compound dissociate and hydrate (aq), that is to say they find themselves surrounded by molecules water which now separate them from each other.



2. Limestone and water balances

78184<K+R*f 2009-10