

The invention relates to the processes for reducing the water hardness, caused by the calcium and magnesium salts and may be used for preventing the scale formation.

Summary of the invention consists in that the process includes the water flow treatment with low-frequency electromagnetic waves in variable electromagnetic field, with the induction value of 0,05...0,08 Tl and treatment by magnetic liquefaction carried out at the vibratory random motion of the spherical barium hexaferrite particles, magnetized to saturation, with subsequent passage of the water through a charge of inert materials and separation of the finely disperse phase, the treatment being carried out at the frequency of 50...70 kHz and the water flow speed of 2...4 m/min.

The proposed process is realized by a device including a heating boiler 1, equipped with an outlet pipe-line 2, connected to a unit 5 for water electromagnetic treatment, the pipe-line 2 being provided with a water inlet branch pipe 3, with a valve 4, the unit 5 is connected through a radiator system 12 and a pipe-line 13 to the bottom of a vertical cylinder 17, which is partially coaxial introduced into a reservoir 14; the lower part of the cylinder 17 is filled with spherical magnetic charge 20, and onto the corresponding outer part there is placed a solenoid 18, connected by the voltage regulator 19 to an alternating-current source; the reservoir 14 is separated by a net 15 into the lower and, respectively, upper part, onto which it is placed a filler 16. The upper part of the cylinder 17 is provided with a distribution system 22 for irrigation of the filler 16, the reservoir 14 is provided in the upper part with an outlet branch pipe 23, connected to a separator 24, containing a tap 25 and a valve 26, inside the separator being contained a number of shelves 27, placed at an angle of 60°, and the outlet is connected by a pipe-line 28 to the boiler 1, the unit 5 consisting of a pipe 6, inside which it is placed an emitter 7 made of dielectric foil 8 in the form of cylinder, consisting of closed spiral and zigzag conductors 9 with dielectric water-insulating strap 10 onto the inner diameter of the pipe-line 6, connected to a generator 11 with low-frequency electromagnetic radiation microprocessor.

Claims: 4

Fig.: 2

