Magnetisasi Air Sadah untuk pencegahan Pembentukan Kerak

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Abstrak

Anti scale magnetic treatment is a hard water treatment method using magnetic field to prevent (CaCO3) scale formation. This method has along and controversial history due to its unclear result of its mechanism and effectiveness. The results of researches, hypothesis, or explanations given by researchers were still partial and didn't satistfy yet in answering the magnetic phenomenon. There were three mechanisms which were suggested: ion mechanism. particle mechanism and Lorentz force eject. Hard water contain Ca2+ cations , CO3 anions, and CaCO3, particles. Magnetic field eject on CO3 (ion mechanism) modified hydration of ions which suppressed CaC03 precipitation, whereas magnetization CaCO; particle (particle mechanism) supported particles to attract to each other and increased nucleation rate. Both ion and particle mechanism are clearly showed by using static magnetization system, system where water were static to magnetic field Lorentz force caused ion shift in solution and known as by the magnetohydroidinamic phenomenon that forced nucleation of CaCO3. Lorentz force acts on every ions in hard water when it 's moving through applied magnetic field therefore dynamic magnetization system was needed to investigate this phenomenon. Particle mechanism and Lorentz force effect could increase CaCO, particle formation so that reduced concentration of Ca" ions in bulk solution, in the other hand ion mechanisms with its memory effect on CO3 could suppress CaCO, formation. Magnetization followed by deposition and filtration could increase effectiveness of AMT process.