

FLUORIDES AS AGENTS FOR SOFTENING HARD WATERS.

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A study of the various chemicals that might prove serviceable for softening water was begun as the result of my attention having been directed to the very serious difficulties that are met with in the practical use of lime, soda ash and caustic soda. Early in the work the fluorides, such as sodium fluoride, seemed to offer a fruitful field of investigation and subsequent events proved that not only sodium fluoride, but other fluorine compounds possess admirable qualities for these uses.

Laboratory experiments were first made with sodium fluoride alone and also in conjunction with other chemicals. These were followed by experiments on a large scale, the results of which were very satisfactory. The precipitation of magnesium is especially thorough and noteworthy. These experiments have since been extended and have passed also into a regular employment of the chemical.

The fluorides do not appear to have as yet had any extended commercial use, nor to have been applied heretofore for treating water. Failure to find any mention of such fact in chemical literature has been supplemented by a similar failure on the part of Patent Office officials here and abroad to discover any to cite in interference.

One of the chief difficulties met with in the pursuit of the work was my inability to obtain in open market any fluoride in quantity, or at any but an exorbitant price. This has been so far overcome that sodium fluoride has been manufactured for me in large quantities at a figure which to the consumer will not prove prohibitive.

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