

## Filters and "Conditioners" for the Water Supply

**Q**UESTIONS are occasionally asked regarding water filters, for which there is a real need in some communities. Promoters and salesmen very commonly make false claims for these devices. Some of the units, for instance, are claimed to remove acid and iron from the drinking water, but a filter does not do that; its sole function is to remove *suspended matter*, which may make the water cloudy or muddy in appearance.

If the filter contains activated carbon, it can have some effect upon taste and odor, but this effect does not last long and, with ordinary usage and customary lack of care, the filter may become a breeding place for bacteria rather than a means for removing them. (Experts say that the removal of bacteria from the public water supply is an academic question in most communities and that the common claim of filter manufacturers that their device removes bacteria will be made to scare consumers into purchasing, rather than being really based on facts.)

One maker offers what is asserted to be a "lifetime supply of pure, sparkling, delicious water," but a new filter unit which is priced at \$3.50 will be required after some 300 gallons of water have been used for drinking, making coffee, tea, etc., which is equivalent to about 1 cent per gallon of filtered water. The initial cost of an average home installation is around \$50. The purchase of a filtering device for home use is not recommended unless it is strictly on a basis of "full refund" in case it turns out not to be effective in providing the degree and type of purification claimed, and if it should prove that replacement of filter elements is too costly.

If a filter manufacturer or salesman claims removal of acid or iron from the water, it will be best not to consider purchase of the appliance. (For control of iron in water [by conversion to a soluble form], see February 1953 CONSUMERS' RESEARCH BULLETIN, top of page 29.)

CR has received many letters in the last few months regarding various methods of "con-

*The best general rule is that when a product is offered to you with persuasive advertising which makes special claims for quality or unusual characteristics, or is sold by interesting and appealing 'demonstrations,' and the product is one where technical questions are involved, it is wise for the consumer who does not have qualified sources of technical information at his disposal to take the position that he is not interested in a product unless and until the promoter's claims are supported by proof, in the form of detailed, signed reports of technical tests conducted by engineers, physicists, or chemists of skill and competence in the field of science or technology in question.*

*If a report is furnished for examination, be sure it proves the points claimed in the advertising; that it is based upon laboratory tests or analyses by qualified professional experts, not any sort of personal approval or testimonial; that it does not deal with irrelevant matters, or does not merely assert that the product lacks certain harmful properties. . . .*

To sum up, the consumer who cannot afford to waste his money should demand proof of all essential points before he buys—whenever there is any reason to doubt the claims, or whenever the item is of an unusual or unprecedented sort or the advertising or the salesman "promises a lot." If the proof is not forthcoming or if it is not satisfactory and thoroughly convincing, it will be the part of wisdom to keep your money.

*Part of an article in CR Bulletin, April 1953, page 27.*

ditioning" or modification for the water supply in the home. One of these calls itself a "non-chemical" method for "treating" hard water. The makers of these appliances, when they are supposed to work without regeneration or other manipulation by the purchaser or a service agency, are never clear about what the so-called

**Advantages Claimed (without Proof or Offer of Proof) for a Typical "Water Treatment" Device**

1. Takes out old scale — no more hard scale in water system.
2. Hot water more cheaply.
3. Thorough cold-water rinsing.
4. No scum in drains.
5. Better odor and taste.
6. Lessening of water stains on glasses.
7. Less upkeep expense.
8. Improves appearance of skin and hair.
9. Less pitting of metal.
10. Garden soil improved in texture.

"conditioning" of the hard water consists of. The devices are sold by sales literature which goes in strongly for pseudo-science in its explanations. Catalytic agents, paramagnetic elements, and the like are discussed in language which *seems* learned, but nevertheless makes no sense to the professional chemist or water supply expert. One device claimed to prevent the scaling of pipes, but when a test was made no difference could be seen, whether the water was treated or untreated. No difference in favor of the device was found in a test carried out to measure the claimed effect in minimizing corrosion. One device was said to prevent the growth of algae in water. This claim was tested and found to be untrue. At least one manufacturer who has figured that a device with no moving parts and no known means of operation might have a certain weakness from the standpoint of sales appeal, embellished his product by furnishing an electrical instrument, a meter connected to a battery; this gives a reading and thereby leads observers to think that something important is going on.

A number of these water conditioning devices have a characteristic in common in that the claims that are made are not *subject to verification* by chemical experts. The sales literature

and sales talk, if the device is pushed by personal salesmanship, deal with the subject in vague pseudo-scientific terms such that one gets an *impression* of performance that cannot be shown in practice. The promoter of one of the devices recognizes this and invites the customer to "feel" the difference in the water (presumably, if the difference cannot be felt, it is the purchaser's fault) or he may boil the water and "feel" the steam by rubbing the fingers together; this steam is asserted to have a different feeling from that produced by water which has not been through the conditioner. Sales literature includes such statements as: Makes water satiny smooth and gentle to clothes, dishes, hands, and hair; Makes water feel and taste beautifully soft. There is even a claim that the "treated" water will heat up faster!

Devices of this sort are even sold for preventing scale and corrosion in automobile radiators. The same basis of judgment applies for these as for those which "treat" the water supply of homes and manufacturing plants, and the claims may be disregarded for the same reasons, unless and until proof based upon careful and responsible work in a scientific testing laboratory, of known integrity, is offered in evidence.

Anyone who wishes to go into technical aspects of the question may refer to the article entitled So-called Electrical and Catalytic Treatment of Water for Boilers, by R. Eliassen and H. H. Uhlig, in the July 1952 issue of the Journal of the American Water Works Association, which will be available in large public libraries and in many university libraries. Reprints of this article were available for a time to members of the Association but are no longer offered. This article does not mention any of the water-treating devices by name, but it does discuss many of the claims in terms of chemical and metallurgical science and the expert knowledge of water works engineers.

The Water Conditioning Research Council at 111 W. Washington St., Chicago 2, an organization sponsored by dealers supplying and servicing soft-water equipment, has recently made available a processed report of six pages (double-spaced typewriting) on the *Evis* water conditioner carried out by a qualified chemical testing laboratory. The test did not support the manufacturer's claim of reduced scale from piping, improved performance of water in washing of hair and cotton clothing, or improved removal of soil with soap. Anyone who has more than a casual interest in the subject or who is considering purchase of an improbable or ques-

tionable water-conditioning appliance will find it worth while to obtain a copy of the full report at \$1, from the Council. The National Better Business Bureau will, upon written request accompanied by a stamped self-addressed envelope, supply a report discussing the claims made for the *Evis* appliance and other matters related to it.

CR is informed that a university research laboratory has tested one of the "water conditioners," using five methods: a soap test, an ion exchange test, a radioactivity test, a physical test, and a spectrographic test. The results of this test program indicated that the conditioner did not affect the water passed through it.

Readers are reminded of the article in the April 1953 issue of CONSUMERS' RESEARCH

BULLETIN, page 27,\* in which persons inclined to buy a device for which technical claims are made are advised *to write the manufacturer for proof of performance*. "Water conditioning" devices are one of many classes of items sold to ultimate consumers regarding which a request to the maker to supply such proof is particularly in order; if proof is offered, submit it to an acquaintance who is an engineer or scientist, or submit it to CR (supplying postage for return if its return is desired). Even though written in highfalutin language with scientific terms duly sprinkled in, the material furnished in the sales literature will in many cases be found to contain no proof of performance at all to a person with technical training in science or engineering.

\*See also page 17 of this issue, column 2.