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Why Be a Gadget Sucker?

Hope seems to spring eternal in some people's breasts that the good genies will come up with a magical solution to their corrosion problems any day. This expectation that practical problems can be solved by recourse to the occult arts, or to some magical formula, apparently is the reason industry is afflicted with a constant stream of "gadgets," whose asserted functions are manifestly impossible under any known physical laws.

Most of these gadgets propose to control corrosion by water. This happens because it is easy to make a gadget of common, cheap materials, which will last when exposed to water at ambient or moderately hot temperatures. Also, because water is universally used and because its corrosion and scaling behavior is variable and difficult to predict without close technical study, it is a popular medium for the gadget makers to exploit.

Most of the gadgets profess to operate in one or more of the following ways:

1. A mysterious force changes the characteristics of a water stream so that the scale forming solids remain in suspension.
2. Magnetic force alters the water so that scale forming solids do not precipitate. Sometimes a claim is made that this force affects the ability of the water to corrode metals.
3. Electrical energy is applied to the water stream passing between electrodes powered either by a sacrificial anode or by an external source. Apparently direct current is favored over alternating, but this is not invariably the case.

Some of the super deluxe models may have both a sacrificial anode, a mysterious box or some other combination, the effect of which is said to prevent the water from being corrosive.

These devices have some common characteristics:

1. All of them are simple to install and require no maintenance.
2. There are no limitations on the volume of fluid that can be treated.
3. No adjustments and no supervision are required.

Generally, purveyors of these devices base their sales arguments on a stack of testimonial letters. Some of these testimonials, if not all, are legitimate. Some of the men selling the gadgets apparently are not willfully misrepresenting the devices they sell, nor do they realize they don't work.

Those who buy the devices must equate testimonial with test to be convinced. Careful reading of testimonials often shows the claims of good results are generalizations. No examples of failure are exposed. The assumption is that the gadgets are universally applicable and successful, no matter what the conditions.

Sales arguments are very carefully worded. This comes about because of actions that have been taken by the Federal Trade Commission against manufacturers who inadvertently made claims which could be measured against performance and were found wanting. Close reading of the sales arguments shows that claims are so general that it would be very hard indeed for the buyer to maintain later that specific measurable benefits are promised.

Sober reflection should cause any man, whether or not technically trained, to realize that the inferred benefits of these devices are wholly unrealistic (even if the theory of their operation is accepted) when weighed against the amount of energy that can be expected from the systems. In the case of some of the mysterious "boxes" whose function usually is stated in alchemic terms, there is no reason to expect any results, because no energy that can be measured is produced or even claimed to be produced.

Don't be beguiled by a hypnotic spiel that promises you a solution of your corrosion problems without any effort or supervision. If it was that easy there would be no corrosion engineers and probably no corrosion.

Watch Out for Wondrous Water Treatment Witchcraft

It seems to be that time again! Time to caution unwary plant engineers and purchasing agents against buying water treating or water conditioning devices whose operation cannot be explained by understandable scientific principles. They are like the mythical 200 mile per gallon carburetor—they simply don't work! Quite aside from their being a complete waste of money, their installation delays the introduction of sound scale and corrosion preventive treatments which in turn leads to more costly maintenance later when their inadequacy becomes apparent.

Many of us thought that these questionable devices had been laid to rest in the fifties, but old devices, long discredited, have reappeared under new names. One of my advisors has a nine inch thick file on almost a dozen devices being promoted today! Hence this renewed word of warning.

You should become wary if the promotional literature for a device claims that it operates by a mysterious force, or even a magnetic force, that changes the characteristics of a water stream (for example, its ionic or molecular structure) so that scale forming solids remain in suspension, and/or corrosion is prevented. Watch also for devices that operate by miniscule electric currents (e.g., a 1.5 volt penlight battery). Become doubly cautious if: (1) the device is simple to install and requires no maintenance or

supervision, and (2) if there are no limitations on the volume of water that can be treated.

Usually the promotional literature will include what at first glance may appear to be a scientific explanation of the principles of operation. It will probably use many familiar and well understood terms such as ions, ionization, crystallization, colloids, electrons, magnetic fields, radiation, ultrasonic vibration, polarization, etc., but they will be woven into an "explanation" that you can't quite understand. The principles of scale formation and corrosion are well established and can be explained in familiar terms that can be understood by anyone with an elementary knowledge of chemistry and physics.

The pseudo-scientific gobbledegook will probably be accompanied by a number of testimonial letters. A careful reading of them often shows that the claims of good results are pretty vague generalizations, and the length of time over which they were obtained may not be given. This is significant because damaging scale formation and/or corrosion may take some time to reveal itself, and in the meantime all is well.

The old adage is still true: "You can't get something for nothing!" And Barnum is still right: "There's a sucker born every minute." Don't you be one when it comes to water treatment. . .