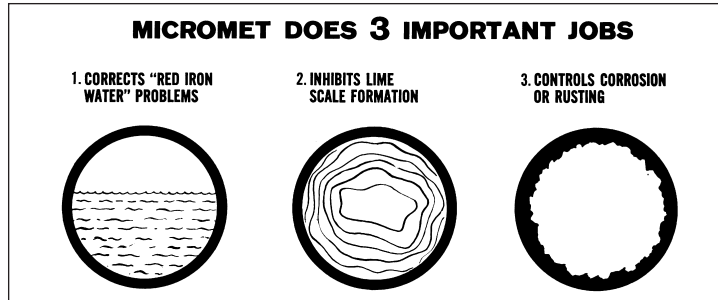


## Facts about MICROMET\* Treatment



### What Micromet Is

Micromet is a slowly soluble food-grade hexametaphosphate product which is perfectly safe to use in the treatment of drinking water supplies. Micromet was developed over 50 years ago and is being used in hundreds of thousands of homes and commercial water systems. Over 3,000 cities and towns throughout the United States are using a rapidly soluble hexametaphosphate for the same type of treatment. Micromet treatment is recommended by many city water chemists and engineers as well as the leading manufacturers of pumps, softeners, water heaters, air conditioning units and other types of water handling equipment.

### How To Correct Iron Water Problems With MICROMET

Water from well supplies often contains dissolved iron which, in amounts greater than 0.3 parts per million can cause red or yellow discoloration of plumbing fixtures and laundry. This is due to the precipitation of the iron when the water is exposed to air. Micromet takes care of iron water problems by holding the dissolved iron in solution, keeping the water clear, thus preventing iron stains. Micromet treatment will effectively prevent staining where the water contains up to 5.0 parts per million of iron.

For most systems having red water trouble, an initial charge of 1 pound of Micromet for each 100 gallons of water used per day will clear up this condition. If large quantities of water are used during short periods, a larger amount of Micromet may be required. To control "red water" trouble due to dissolved iron, the Micromet Feeder must be installed before the pressure tank so that the treatment will tie up the iron before the iron begins to oxidize and precipitate. The pressure tank should hold at least 20 gallons of water to even out the concentration of the treatment.

### How To Inhibit Scale With MICROMET

Lime scale is a mineral deposit which forms when hard, bicarbonate waters are heated. The deposit clogs water heater coils, pipe lines and tanks, and coats heating surfaces to reduce heat transfer and water flow. Micromet prevents lime scale by keeping the hardness particles separated so they do not precipitate and form deposits when the water is heated. It is important to note that micromet is not a water softener and it does not actually remove the hardness minerals from the water. Consequently, Micromet will not prevent the scum and bathtub ring which forms when hardness reacts with soap.

An initial charge of 1 pound of Micromet is usually used for each 200 gallons of water to be treated per day when the Micromet Feeder is installed before a water heater tank or pressure tank. For once-through water-cooled heat exchangers, condensers, and water-sealed vacuum pumps, etc., where the water is used at a constant flow rate, the initial charge of Micromet should be 4 pounds for each 1 gallon per minute of water flow.

A special more slowly soluble product called "6R Micromet" which dissolves at a much slower rate is available for preventing scale in commercial ice makers and coffee brewing equipment.

### How To Control Corrosion With MICROMET

Serious corrosion difficulties are often encountered in household water systems as well as large commercial and industrial systems. There are numerous factors such as dissolved oxygen concentration, pH value, alkalinity, temperature, hardness, conductivity, high chloride, turbulence, electrolytic action, etc., which effect the corrosion that causes discolored water and the "rusting out" of heater tanks, water lines and other water handling equipment.

Micromet treatment effectively controls corrosion by forming a thin protective film on all the metal surfaces of the system. This protective film has to be constantly rebuilt to provide continuing protection. However, the protective film does not build up upon itself and thus, it does not interfere with heat transfer or water flow through the piping system. Generally an initial charge of 1 pound of Micromet for each 100 gallons of water per day is recommended to control corrosion. In cases where corrosion is very severe or where old rust deposits are heavy, it is recommended that an initial charge of 2 pounds of Micromet per 100 gallons of water used per day be added to the Feeder at the start.

Since Micromet treatment may loosen some of the old rust deposits that have accumulated in the system, periodic slugs of discolored water may be noticed after Micromet treatment is started. It is recommended that any loosened accumulations periodically be flushed out of the hot water storage tank until the flushings are clear. Corrosion is generally more severe in the hot water part of the system than in the cold water. To assure sufficient treatment for control of corrosion in the heater tank, the Micromet Feeder should be installed on the inlet line to the hot water storage tank. Where corrosion is so severe that the cold water lines are affected as well as the hot water lines it is best to install two Micromet Feeders. One Feeder should be installed before the pressure tank or after the water meter to introduce 5 parts per million treatment to all the water. The second Feeder is needed in order to introduce an extra 10 parts per million to the inlet line of the hot water storage tank.

Copper corrosion, which is indicated by green or blue staining of plumbing fixtures, usually occurs in soft, acid waters. It is not possible to tell from an analysis of the water whether the Micromet will effectively control copper corrosion in a particular system. It is effective in about 50% of the cases, at least to the extent of preventing green or blue staining, and the greatest improvement is achieved where a compound like soda ash is also used in order to raise the water's pH.

### General Facts About MICROMET Treatment

#### Solution Rate Controls The Feed

Micromet has a controlled dissolving rate which makes the treatment virtually automatic and may be used with a minimum of supervision. When in contact with an average water having a temperature of 50 to 70°F., it dissolves at a rate of approximately 25% of its weight per month. To obtain a fairly uniform rate of feed, it is only necessary to place the Micromet in a simple pot-type Micromet Feeder installed on the water line. An initial charge of 1 pound of Micromet per 200 gallons per day introduces an average of 5 parts per million of treatment and one pound per 100 gallons per day provides 10 parts per million of treatment. The only attention required is a few minutes once a month to replenish the Micromet that has dissolved. This addition of a small amount of Micromet to the Feeder once each month is necessary to maintain the proper amount of treatment.

#### Hot Water Dissolves MICROMET Rapidly

The temperature of the water in contact with Micromet should be below 100°F., or the Micromet will dissolve much more rapidly than the normal rate of 25% per month. For instance, at 140°F., the rate of solution will be about 10% per day. Therefore, care should be taken not to place the Feeder on a hot water line, nor at any point where it is near heat or where the hot water may back up into the Feeder.

#### Proper Flow Through a MICROMET Feeder

The flow rate through a Micromet bed should be between 1 quart to 3 gallons per minute. At lower flow rates there may be some solidifying or caking trouble experienced in the Feeder because when a bed of Micromet does not get enough water flow through it the Micromet keeps dissolving and diffuses down to the bottom of the Feeder. If this solution of Micromet is not washed away within a few days, it concentrates and tends to solidify. The Micromet bed and inlet line will gradually plug up solid when little or no flow is put through the Feeder.

To prevent plugging in any Micromet Feeder, make sure that a good flow of water is obtained at least once a day through the Feeder. The Micromet will not solidify if the proper flow is maintained through the Feeder. Flow should be adjusted by the customer so the Micromet bed rises when there is a good flow being used.

When no water is to be used for a week or more, the Feeder should be drained. When the system is being returned to service the Micromet bed should be loosened up and some water flushed through it to waste. If the system is to be idle for several months, the Micromet should be removed from the Feeder, dried and stored for reuse. Micromet can be stored indefinitely if the crystals are kept dry.

## Sufficient MICROMET Must Be Used

Too low a concentration simply will not do a good job. If the desired results are not obtained in a week or so it may simply be due to the fact that not enough Micromet has been used and the amount of Micromet in the Feeder should be increased.

## MICROMET Is An Aid To Water Softening Equipment

Dissolved iron is easily oxidized and when the iron concentration is above 1 part per million the iron oxide tends to coat and plug water softening mineral. Since dissolved iron is held in solution by Micromet, the treatment helps prevent clogging of the zeolite or resinous softening mineral. The treatment helps maintain capacity and also reduces the back-washing time required. Where corrosion is the only problem, the best place to install the Feeder is after the water softener.

## Safe To Use In Drinking Water and Harmless To Septic Tanks

Micromet is made from food grade materials and is as harmless as ordinary table salt. Millions of people drink water treated with this type of phosphate every day. The amount of phosphate in a quart of water containing 10 parts per million of Micromet is about 1/500 of the average phosphate requirement for adults. Thus,

while phosphates are utilized in plant and animal growth, it is not claimed that Micromet will benefit growth because of the very small concentrations used in the treatment of water. The use of Micromet treated water has no harmful effect on the performance of septic tanks.

## Effect On Taste and Odor

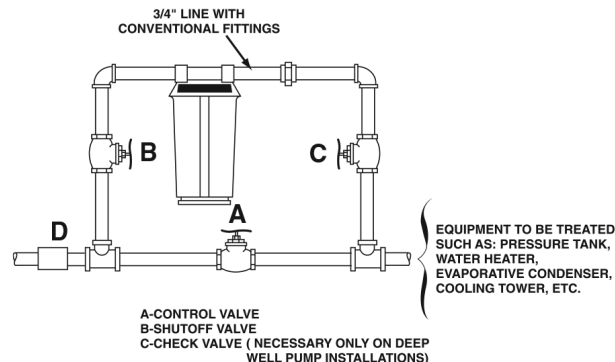
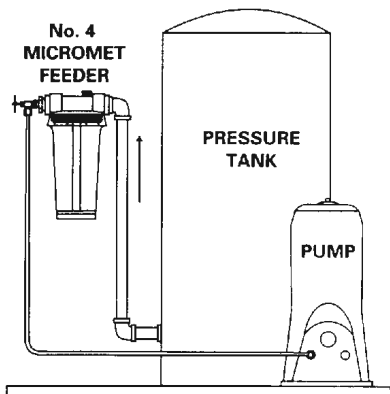
Micromet is tasteless and odorless and will not alter the taste or odor of water. It has no effect on foods when the treated water is used for cooking. If a water has taste or odor, it will still have the same taste or odor after it is treated with Micromet. To correct taste and odor problems an activated carbon filter should be used.

## Treatment of Cooling Water Systems

Micromet Crystals may be used to inhibit scale in systems where the water evaporates, such as evaporative condensers and cooling towers. The Micromet Feeder is installed on the make-up water line to the equipment. The amount of Micromet Crystals used depends on the scale-forming characteristics of the water and the amount of bleed-off used.

## WHEN NOT TO USE MICROMET

1. If the water contains more than 5.0 parts per million of iron, Micromet treatment will not be completely effective and the iron should be removed from the water.
2. Micromet treatment may not work successfully when iron bacteria are present in the water. Iron bacteria are not harmful to humans or animals drinking the water but they do feed on the iron and have the ability to oxidize and precipitate it even when Micromet treatment is present. One can get a rough idea of whether or not iron bacteria are present by looking on the inside of the commode flush tank. If the inside of the tank has a thick red slimy coating, this is an indication of the presence of iron bacteria and there is little chance that Micromet treatment will provide completely satisfactory results. One can also get an idea if iron bacteria are present by collecting a quart of water and examining it in 3 or 4 days. If there are some red fluffy clumps that tend to float around the bottom of the bottle, this generally means iron bacteria are present. Periodic additions of hypochlorite (laundry bleach) to the Micromet Feeder will help, providing the iron bacteria growths are not too heavy, but where there are very many iron bacteria in the water the addition of hypochlorite to the Micromet Feeder will not be completely satisfactory. If the inside of the commode flush tank does not have a slimy coating but is just stained with iron, Micromet treatment should be satisfactory, when the iron content is not over 5.0 ppm.
3. If the water is discolored with precipitated iron as it comes from the well, the iron should be removed by a filter.
4. Micromet is not recommended for preventing "Red Water" where iron is present in a city supply because the iron is usually oxidized and precipitated before it reaches the Micromet Feeder. When iron or rusty sediment is present in municipal water, a filter or softener should be used.
5. Micromet treatment should not be used to correct staining problems where large amounts of water and high flow rates are used such as in lawn sprinkling.
6. If tea, coffee and other beverages turn black when brewed or mixed with iron bearing waters, this is due to a reaction between the tannin in the beverage and the iron in the water. Micromet will not stop this reaction. The best way to correct this problem is to install filtering or softening equipment to remove the iron. To make good tea or coffee when iron removal equipment is not installed, it may be helpful to boil the water for about 5 minutes, let it stand to allow the sediment to settle to the bottom and then use the clear top portion.
7. While Micromet treated water will not harm boilers or closed water systems, this treatment will not provide much protection where the water is held in the system for a long time. Other chemical treatment, such as, Closed System Treatment or Boiler Water Treatment is recommended.
8. While Micromet may be introduced before any water softener which will remove hardness as well as iron by ion exchange, Micromet should not be fed before iron removal units which oxidize the iron and remove it by filtration.
9. Although Micromet treatment is effective in preventing lime scale formation at all temperatures up to the boiling point it is not recommended for use in large volume coil heaters where the water splits into two or more coil sections, in tankless heater coils or furnace coils which are in continuous contact with high temperature. For these types of heaters it is best to remove the hardness from the water with a water softener.



Typical installation of No. 4 Micromet Feeder connected on water line to equipment to be treated.