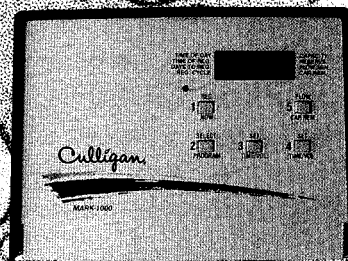


Culligan®



CULLIGAN MARK 1000 AUTOMATIC WATER CONDITIONERS

*How to get the most enjoyment, economy and efficiency
from your new Culligan Water Conditioner.*

OWNER'S GUIDE

Thank you

Congratulations on your purchase of one of the water treatment industry's premier products, the Culligan® Mark 1000 water conditioner.

This exceptional product will soon become part of your everyday life, and like anything that functions on a daily basis, it requires proper maintenance.

This guide will help you become more familiar with the Culligan Mark 1000 water conditioner, its performance requirements and maintenance needs. It will educate you regarding its capabilities and will provide vital information regarding proper use and care. To insure that your Culligan Mark 1000 water conditioner achieves and maintains optimal performance, we urge you to read this guide completely and carefully.



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Specifications: Culligan® Mark 1000 Water Softeners

	30M 9-INCH MODEL	45M 12-INCH MODEL	60M 16-INCH MODEL	90M ⁵ 16-INCH MODEL
Control Valve Type	5-Cycle, Rotary Disk Electronic Meter	5-Cycle, Rotary Disk Electronic Meter	5-Cycle, Rotary Disk Electronic Meter	5-Cycle, Rotary Disk Electronic Meter
Timer	1 inch	1 inch	1 inch	1 inch
Inlet/Outlet Size	52 inches	52 inches	52½ inches	52½ inches
Overall Conditioner Height	9 in. x 45 in.	12 in. x 45 in.	16 in. x 45½ in.	16 in. x 45½ in.
Media Tank Dimensions (Dia. x Ht.)	18 in. x 43 in.	18 in. x 43 in.	18 in. x 43 in.	18 in. x 43 in.
Salt Storage Tank Dimensions (Dia. x Ht.)	Cullix® Resin, 1.0 cu. ft.	Cullix® Resin, 1.5 cu. ft.	Cullix Resin, 2.0 cu. ft.	Cullix Resin, 3.0 cu. ft.
Exchange Media, Type & Quantity	No Underbedding	Cullisan® Media, 30 lbs.	Cullisan Media, 60 lbs.	Cullisan Media, 60 lbs.
Underbedding, Type and Quantity				
High Efficiency Operation ¹				
Exchange Capacity @ Salt Dosage				
Per Recharge	14,200 gr. @ 3 lbs.	21,300 gr. @ 4.5 lbs.	25,900 gr. @ 6 lbs.	37,875 gr. @ 9 lbs.
Salt Efficiency	4 733 gr/lb salt	4 733 gr/lb salt	4 316 gr/lb salt	4 268 gr/lb salt
Water Consumption	21 gal.	35 gal.	47 gal.	50 gal.
Recharge Time	48 min.	50 min.	49 min.	51 min.
Exchange Capacity, @ Salt Dosage				
Per Recharge	22,300 Grains @ 7 lbs.	31,600 Grains @ 8 lbs.	38,890 Grains @ 14 lbs.	62,970 Grains @ 21 lbs.
Freeboard to Resin ²	26,100 Grains @ 10 lbs.	36,100 Grains @ 12 lbs.	48,990 Grains @ 20 lbs.	85,470 Grains @ 30 lbs.
Salt Storage Capacity	15.25 inches	16.25 inches	22.0 inches	13.5 inches
Rated Service Flow @ Pressure Drop	375 lbs.	375 lbs.	375 lbs.	375 lbs.
Peak Service Flow @ Pressure Drop	11 gpm @ 15 psi	12.0 gpm @ 9.5 psi	18 gpm @ 15 psi	18 gpm @ 15 psi
Total Hardness, Maximum	15.8 gpm @ 25 psi	19.5 gpm @ 21.5 psi	24 gpm @ 25 psi	24 gpm @ 25 psi
Total Iron, Maximum	75 gpg	100 gpg	100 gpg	100 gpg
Hardness to Iron Ratio, Minimum	5 ppm	5 ppm	5 ppm	5 ppm
Operating Pressure	8:1	8:1	8:1	8:1
Operating Temperature	20 - 120 psi	20 - 120 psi	20 - 120 psi	20 - 120 psi
Electrical Requirements	33 - 120° F.	33 - 120° F.	33 - 120° F.	33 - 120° F.
Electrical Power Consumption	120 VAC/60 Hertz	120 VAC/60 Hertz	120 VAC/60 Hertz	120 VAC/60 Hertz
Drain Flow, Maximum ³	3 Watts	3 Watts	3 Watts	3 Watts
Recharge Time, Average ⁴	2 gpm	3.5 gpm	6.0 gpm	6.0 gpm
Recharge Water Consumption, Average ⁴	65 minutes	70 minutes	70 minutes	75 minutes
	55 gallons	110 gallons	178 gallons	215 gallons

¹High efficiency operation may not be suitable on your water supply. Consult the dealer for further information.

²Measured from top of underbedding to top edge of tank opening.

³Backwash at 120 psi.

⁴10 minute backwash, 10 lb. salt dosage (30M, 9-inch model), 15 lb. salt dosage (45M, 12-inch model), 20 lb. salt dosage (60M, 16-inch model) or 30 lb. salt dosage (90M, 16-inch model).

⁵Optional Dealer Upgrade.

Invest in Your Home; Improve the Quality of Your Water

For over 50 years people have looked to the Culligan Man for help in treating their water quality problems. Culligan conditioned water is kind to your skin, clothes, and household fixtures. And, it can improve the efficiency of your water-using appliances, as well as cleaning agents.

- No hard water curd means no residue to irritate skin and cling to hair.
- Conditioned water facilitates cleansing, meaning less soap is needed to get clothing, dishes and other household fixtures their cleanest.
- And, because hardness minerals are not present in conditioned water, they cannot build-up or cling to your pipes, water heater and other water using devices in your home.

WATER FOR LAWNS AND HOUSEHOLD PLANTS

If possible, lawn sprinkling faucets should be supplied with hard water primarily because it is uneconomical to soften so much water.

Household plants are much more sensitive than lawns with respect to the kind of water which is best. First, because they receive no rainfall, and second, there is little or no drainage of the soil. Preferably they should be watered with rainwater or water which is low in mineral content such as distilled or demineralized water. Softened water is not recommended for house plants because a build-up of sodium in the soil may interfere with efficient absorption of water by the plant root system. Additional information may be obtained from your Culligan dealer.



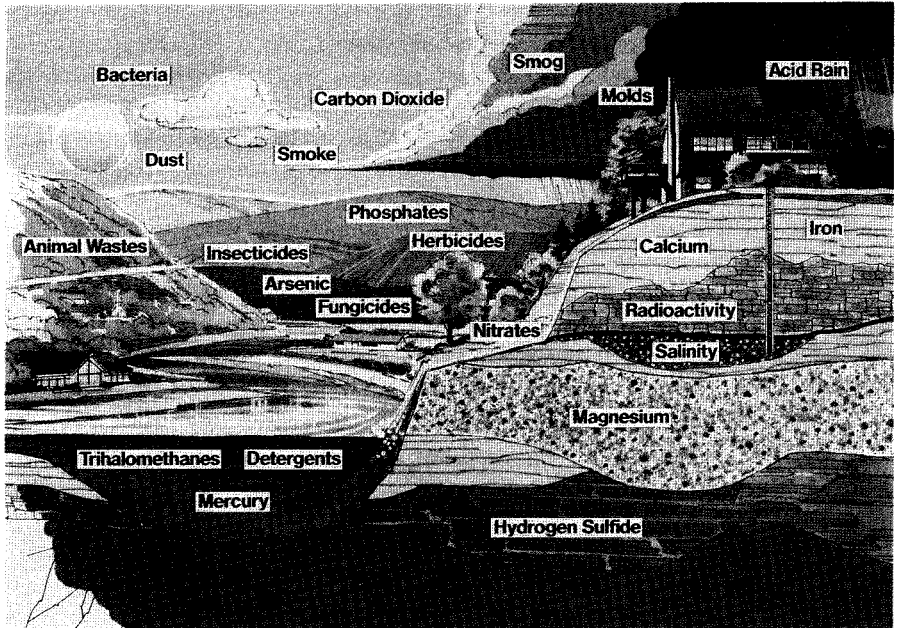
The Culligan® Mark 1000: How It Works

HOW DOES WATER GET HARD?

All of the fresh water in the world originates as rain, snow or sleet. Surface water is drawn upward by the sun, forms clouds, then, nearly pure, it starts to fall, and collects impurities as it passes through smog and a dust-laden atmosphere. And, as it seeps through soil and rocks it gathers hardness, rust, acid and adverse tastes and odors. Water hardness is caused primarily by limestone dissolved from the earth by rainwater.

Some regions have corrosive water. A water softener cannot correct this problem and so its printed warranty disclaims liability for corrosion of plumbing lines, fixtures or appliances. If you suspect corrosion, your Culligan Man has equipment to control the problem.

⚠ CAUTION: Do not use where the water is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after the unit.



The Culligan® Process

Your Culligan water conditioner consists of three basic components, (A) the Control Valve, (B) the Mineral Tank, and (C) the Brine System.

- A. The exclusive Culligan control valve automatically performs a variety of tasks that are necessary for the proper operation of your water conditioner. These tasks, commonly referred to as cycles or operating positions, are: SERVICE, REGENERATION, AND BRINE REFILL.
1. **SERVICE:** While the control valve is in the "Service cycle", hard water is directed down through the column of Cullex® resin where hardness minerals are removed from the water. The softened water is then directed into your household plumbing lines. The ability of the Cullex resin to remove hardness minerals needs to be periodically replenished; this is referred to as
 2. **REGENERATION:** While the control valve is in the "Regeneration cycle", water is first directed up through the column of Cullex resin to flush accumulated sediment out of the resin and down the drain. Then, the regenerant brine solution is slowly drawn from the bottom of the salt storage tank of the Brine System and is directed down through the column of Cullex resin, restoring the ability of the resin to remove hardness minerals from your water supply. Once completed, the regeneration cycle is followed by
 3. **BRINE REFILL:** While the control valve is in the "Brine Refill cycle", a predetermined amount of water is directed to the salt storage tank of the Brine System so that additional salt can be dissolved to provide the brine solution that will be needed for the next regeneration cycle.
- B. The exclusive Bonded Tripl-Hull™ Mineral Tank contains the Cullex resin column, Cullsan® underbedding, and an outlet manifold. The number of gallons of hard water that can be softened by the Cullex resin column before it needs regeneration is called the "capacity" of the resin column, and depends upon the amount of hardness minerals in each gallon of water (expressed as grains per gallon) and upon the amount of regenerant brine solution (expressed as pounds of salt) passed through the resin column during regeneration.

Your Culligan serviceworker, taking into account the hardness of your water and the amount of softened water your household may reasonably expect to use each day, has carefully established how often the softener will regenerate and how much salt will be used for each regeneration. This will help ensure that all of your soft water needs will be fulfilled without using an excessive amount of salt.

- C. The Brine System consists of a salt storage container and hydraulic Dubl-Safe™ valve. The salt storage container holds the salt that is used to make the regenerant brine solution. The hydraulic Dubl-Safe valve limits the amount of water that is returned to the salt storage tank during the brine refill cycle.

Since a predetermined amount of salt is dissolved with each brine refill cycle, the salt must be periodically replenished in order to maintain efficient operation. Your Culligan serviceworker will be able to tell you about how often salt must be added to the salt storage container.

Salt Supply, Usage and Service

Salt is the mineral used to “recharge” your water conditioner. A brine solution is automatically made up in the bottom of the salt storage container and, as explained on page 6, the Culllex® resin beads in the mineral tank are flushed with the brine solution as a step in the recharging process.

Your Culligan® water conditioner has been carefully designed to get the greatest amount of softening capacity from the salt it uses. Here is some pertinent information about salt usage, types and service.

SALT ECONOMIZER

This control is set at the time of installation, and determines salt usage according to the water hardness, number of persons in the household, and water usage. See page 8 for instructions on adjusting setting.

WHAT KIND OF SALT IS BEST

All Culligan water conditioners are designed to use any water conditioner salt of good quality, including “rock”, “pellet”, “solar”, or “evaporated” types.

All rock salt, regardless of source, contains insoluble material which collects at the bottom of the salt storage tank and requires periodic clean-out.

If purified salt products are used, the salt storage compartment will require less frequent clean-out, but you must check more frequently for “bridging” (see page 13).

Regardless of what type of salt is used, we recommend Culligan brand salt as suggested by your Culligan dealer. He or she is the expert and can provide you with the best product for your Culligan water conditioner.

AUTOMATIC SALT DELIVERY SERVICE

Ask your Culligan Man for details about salt delivery service. You can have your salt supply replenished on a regular basis. Whether you have automatic delivery service, or pick up Culligan brand salt from your Culligan Man, you will be getting quality salt packaged according to rigid Culligan specifications. Using Culligan brand salt will help assure continued efficiency and trouble-free operation of your water conditioner.

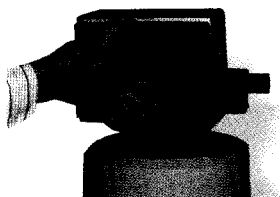
SODIUM INFORMATION: *“Water softeners using sodium chloride for regeneration add sodium to the water. Persons who are on sodium restricted diets should consider the added sodium as part of their overall sodium intake.”*

How To Make Adjustments To The Timer Mechanism

Your Culligan® Mark 1000 water conditioner has been programmed by your Culligan dealer to provide you with clean, conditioned water under the most economical conditions for your water supply.

An Adjustment Is Needed When:

1. you must reset the clocks around your home due to a power failure, time change, or other reason. Remember also to reset time-of-day on your water conditioner.
2. you want recharge to occur at a different time than was set at installation. NOTE: recharge should be set for a time when water use is at a minimum. Usually this is in the wee hours of the morning, such as 2:00 a.m.
3. more softening capacity is needed on a continuous basis than was originally set, because of a change in water characteristics. (As the Culligan Mark 1000 water conditioner monitors your water usage, an increase in the daily water consumption should not effect performance. But, you can always initiate a manual regeneration if you feel more soft water is needed.)



ACCESS TO TIMER MECHANISM

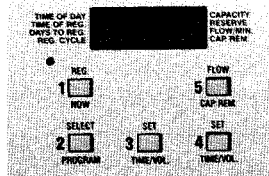
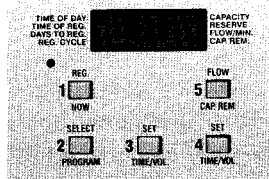
Push downward and towards yourself on the center tab of the front panel. The panel will swing down.

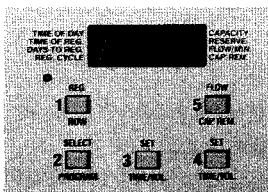
FAMILIARIZATION

The Culligan Mark 1000 timer mechanism uses five buttons to access various programming parameters. Button 1 initiates an immediate regeneration. Buttons 2-4 adjust the program cycles such as: time-of-day, time of regeneration, salt dosage, capacity, etc. Button 5 provides the diagnostic display of capacity remaining, time-of-day and water flow rate (if water is being used).

TIME-OF-DAY

Press button 2. The display will momentarily go blank and then the time-of-day will appear. A chevron will appear next to "TIME OF DAY". Press button 3 to increase hours by 1 unit increments. Minutes can be adjusted by pressing button 4.



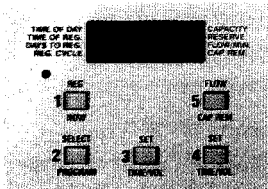


TIME OF RECHARGE

Press button 2 until the chevron shifts to "TIME OF REG". Just as with the time-of-day adjustment, button 3 will shift the hours while button 4 shifts the minutes.

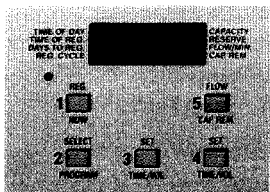
SALT DOSAGE

The salt dosage is determined based upon your water characteristics and usage. It is regulated by the length of the third regeneration cycle. Before making any adjustments, contact your Culligan dealer for advice on the proper setting. Refer to the Installation and Operating Instructions for the instructions.



MANUAL RECHARGE

The Culligan® Mark 1000 water conditioner will regenerate based on water usage. Under normal operating conditions, a manual regeneration will not be necessary. But if you feel the need for more softening capacity, you can initiate a manual regeneration by pressing button 1. A chevron will appear next to "REG CYCLE". The regeneration will begin within 1 minute. If you accidentally pressed button 1, press it again within 30 seconds. This will cancel the regeneration.



Proper Maintenance of the Culligan® Mark 1000 Water Conditioner

Following these simple precautions will help assure continued trouble-free service and keep your Culligan water conditioner looking like new for years.

- 1 Do not place heavy objects on top of the salt storage tank or timer cover.
- 2 Use only mild soap and warm water when cleaning the exterior of the conditioner. Never use harsh, abrasive cleaning compounds or those which contain acid, such as vinegar, bleach and similar products.
- 3 **Important: Protect your water conditioner and the entire drainline from freezing temperatures. DANGER: If your unit should freeze, do not attempt to disassemble it. Call your Culligan dealer.**
- 4 The timer is very accurate. Keep time-of-day setting correct to assure recharging at the proper time.
- 5 **Important: Culligan water softeners are sold for use on potable water only. If at any time the water supply becomes contaminated, such as during a "boil water" situation, the operation of the water softener should be discontinued until it is verified that the water is again potable. To do this, please refer to page 14 of this manual. Then call your Culligan dealer to have your system sanitized before it is placed back into service.**
- 6 Should service, adjustment or troubleshooting information be needed which is not covered in the Use and Care Guide, call your Culligan dealer.

NOTE: Following the manufacturer's instructions regarding operation, maintenance and replacement requirements, including replacement of filters if applicable, is essential for Culligan products to perform as advertised.



If you have further questions, please call your local independently operated Culligan dealer. He or she will be glad to be of assistance to you.

Salt Storage Tank Maintenance

Periodic cleansing of the salt storage tank is necessary to keep your Culligan® Mark 1000 operating at peak efficiency. We recommend a thorough cleaning every two years. The following steps will guide you through this simple procedure.

Tools needed:

- Scoop
- Clean, bucket-size container
- Phillips-head screwdriver
- Garden hose
- Household scrub brush or sponge

1. Remove the salt storage tank cover and the cap from the brine valve chamber.
2. Lift the brine valve out of the brine valve chamber and set aside in an upright position.
3. If you'd like to save any clean, dry salt remaining in the tank, remove it and place it in a clean container.
4. Using the scoop, dig out and discard as much remaining salt, water and debris as possible.
5. Remove the brine valve chamber by removing the screws on either side of the salt tank.
6. Remove the salt plate at the bottom of the brine tank.
7. Lay the salt tank on its side and direct a brisk stream of water from your garden hose to its inside to rinse out all residue.
8. Using a household scrub brush and a mild soapy solution, clean the salt plate. This will complete the tank cleaning.
9. Stand the salt tank upright. Replace the salt plate. Place the brine valve chamber in position and affix with screws.
10. Insert the brine valve into the chamber and replace the brine valve chamber cap.
11. Fill the salt storage tank with 4 to 6 inches of water.
12. Fill the tank with salt to within a few inches from the top.
13. Replace the salt storage tank cover.

Troubleshooting

If you unexpectedly experience hard water, make these simple checks before calling your Culligan dealer. One of the following conditions may be the reason for your interruption of service.

IMPORTANT

If any of the following conditions is found, the water conditioner should be manually recharged according to instructions on page 8 after you have corrected the problem.

POWER SUPPLY

Check your power supply cord. Is it plugged fully into the electric outlet? Be certain that the outlet is not controlled by a wall switch which has been turned off. Reset conditioner to proper time of day and then plug it in.

BLOWN FUSE

Check the house fuse or circuit breaker panel. Replace a blown-out fuse or reset an open circuit breaker.

POWER FAILURE

Any interruption in your power supply or time changes - such as daylight savings - will disrupt your conditioner's recharge schedule by causing the timer to run off-schedule. Reset timer to the proper time of day.

BYPASS VALVES

Check to see if they are in the proper position. The bypass valve should be in the Soft Water position. If hand valves are used, see that inlet and outlet valves are opened and that the bypass valve is closed.

NO WATER

If you aren't getting any water flow at all, make sure your water supply is working. Open a tap ahead of the conditioner (outside tap) to see if you have any water pressure. If you have water pressure, check the bypass valve. If it is in the Service (soft water) position, put it into the bypass and call your Culligan dealer for service.

CONTINUOUS FLOW TO DRAIN

If water runs to drain continuously, check to make sure the unit is not in recharge. If it is recharging, allow the unit to finish the cycle, then reset the time of day. If the unit is not in recharge, unplug the electrical cord, place the bypass valve in the bypass position, and contact your Culligan dealer for service.

INCREASED USAGE

Guests, family additions, new water-using appliances, etc., will all result in more water usage and will require more capacity from your conditioner. You can reprogram your recharging schedule by following the directions on pages 7 and 8. Call your Culligan dealer for advice and save a service call.

SALT SUPPLY

Check it. Refill if necessary and wait approximately 4 hours for salt to dissolve before initiating a recharge cycle.

SALT BRIDGING

Salt bridging occurs when a space is formed between the salt and the water underneath, preventing the salt from dissolving to make brine. No brine, no soft, conditioned water!

High humidity and/or use of some brands of purified salt products may cause a salt bridge to form.

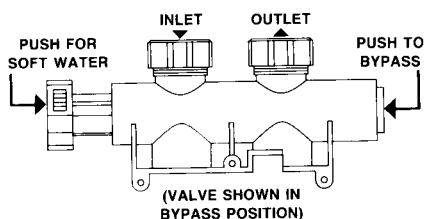
The best way to check and eliminate a salt bridging problem is to take a broom handle or similar instrument and make a mark 3/4 inches from the end. Then carefully begin to probe down through the salt with the instrument. Should an obstruction be found before the mark on your instrument reaches the rim of the salt storage tank, a salt bridge is likely to have formed. Continue to probe and break the salt bridge completely.

 CAUTION! Do not force the implement past the mark as damage to the horizontal salt plate may occur.

When and How To Bypass Your Water Conditioner

Normally, all water, except that supplied by outside lines, passes through the water conditioner. There are times when the water conditioner should be bypassed, using the pushbutton bypass, or a 3-way bypass valve.

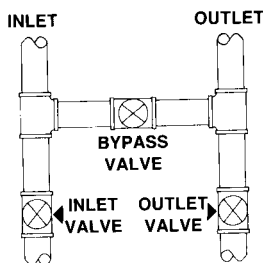
You should bypass if lines to outside faucets do not bypass the water conditioner, and you do not want to waste soft water on lawn sprinkling or other outside uses.



PUSH BUTTON BYPASS

The back of the Culligan® Mark 1000 control valve contains an integrated bypass valve. To bypass the unit, simply twist the knob counter-clockwise and push all the way to your right. The unit is now in bypass. Twisting the knob clockwise locks it in place.

To return to soft water service, reverse the procedure.



HAND VALVE BYPASS

If the mineral tank is to remain connected while the conditioner is in bypass, close the inlet valve and open the center bypass valve.

WARNING: DO NOT close the outlet valve. This will prevent a possible rupture of the mineral tank or the control valve due to pressure build-up in the mineral tank.

To get soft water, close the center bypass valve and open the inlet valve.

NOTE: If you wish to inspect and clean the control valve, or if a water leak from the conditioner is evident, close both the inlet and outlet valves and open the center bypass valve.

NOTE: When the conditioner is bypassed, all water supplied is hard. For example, your water heater may fill with hard water, and the conditioner cannot recharge. Remember to place the pushbutton bypass or hand valves back to the "Soft Water" position as soon as possible.

Records and Data

Important Data on Your Water Conditioner

It is advisable to have the salesperson or installer fill in the information below for your future reference. If this has not been done, please ask for it, as it is necessary if you contact your independently operated Culligan dealer.

IDENTIFICATION

Model Name _____ Catalog No. _____

Control Model No. _____ Control Serial No. _____

Date of Installation _____ Tank Serial No. _____

SETTINGS

Capacity _____ gals. Salt Setting _____ lbs.

Reserve Capacity _____ gals. Time of Recharge: _____ a.m. _____ p.m.

Number of people in the household _____

WATER ANALYSIS

Total Hardness _____ (gpg) Total Iron _____ (ppm) pH (acidity) _____

Other _____

SHOULD YOU NOTICE ANY NEW PROBLEMS WITH YOUR WATER, CULLIGAN HAS THE CAPABILITIES TO SOLVE THEM.

Today we have the technology to substantially reduce many of the impurities listed as undesirable by the U.S. EPA in its Drinking Water Standards. Culligan® products and systems reduce both natural and man-made pollutants and provide the best water for each specific use and application.

Your new Culligan water conditioner can be adjusted to handle a wide range of water problems, but it does have limitations. It has been specified on the basis of your water conditions at the time of sale. It is possible that the chemical makeup of your water will change in time, and thus your needs and uses may also change. Your independently operated Culligan dealer is ready to help you if any problem should arise.

**WITH CULLIGAN,
YOU GET MORE THAN
A QUALITY PRODUCT**

YOU GET YOUR WATER EXPERT, THE CULLIGAN MAN.

For over half a century, people have been turning to the Culligan Man to meet their water treatment needs. As the pioneer in water treatment, we are committed to providing an exceptional product and fast, dependable service. *Trust the experts.*

The Culligan Promise

At Culligan, we understand that a water quality improvement system is an investment in your family. That's why our 1,350 independently operated dealers worldwide don't just sell products: they sell water quality you can count on. We stand behind our products with written limited warranties and unequalled Culligan service. No matter where you live, you can depend on Culligan expertise to work for you — today and tomorrow.



Simply call and say

"HEY CULLIGAN MAN!"