



**READ AND SAVE THESE INSTRUCTIONS**

The logo for PURE CLEAN Descaling Solution Mix, featuring a stylized landscape icon to the left of the text "PURE CLEAN" in a large, bold, sans-serif font, with "Descaling Solution Mix" in a smaller, bold, sans-serif font below it.

# **PURE CLEAN**

## **Descaling Solution Mix**

**Usage Instructions Manual**



*Our results are comforting*

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Form No: PC 8-26-16



## *Safety Information*



GHS07

### **WARNING:**

- Causes serious eye irritation
- Avoid contact with skin and eyes
- May be harmful if swallowed
- Avoid breathing airborne powder
- Adequately ventilate area
- Wash hands, forearms, and face thoroughly after handling

### **First-Aid Measures**

- General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical attention.
- Inhalation: Allow victim to breathe fresh air. Allow victim to rest.
- Skin Contact: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
- Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical attention.
- Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

### **Personal Protective Equipment - Avoid Unnecessary Exposure**

- Hand protection: Rubber gloves
- Eye protection: Chemical goggles or safety glasses
- Respiratory protection: Dust mask
- Other information: Do not eat, drink, or smoke during use

### **Handling**

- Wash hands, forearms and face thoroughly after handling
- Provide good ventilation in the process area to displace the carbon dioxide produced

### **Storage**

- Keep only in original container in a cool, well ventilated place.
- Incompatible with strong acids and strong bases.
- Store away from sources of ignition and direct sunlight.
- Keep container closed when not in use.

**REFER TO SDS FOR MORE INFORMATION  
FOR INDUSTRIAL USE ONLY  
KEEP OUT OF THE REACH OF CHILDREN**

**In no event shall PURE Humidifier Co. be liable for any direct, indirect, punitive, incidental, special consequential damages to property or life whatsoever arising out of, or connected with the use or misuse of this product.**



## *Safety Information*

PURE Clean is an environmentally friendly and easy-to-use descaling product. It is intended to be used to aid in the removal of mineral build-up from PURE Humidifier steam generator tanks, heating elements, and heat exchanger surfaces.

### **Safety Equipment:**

- Rubber gloves
- Safety goggles
- Dust mask

### **Supplies:**

- PURE Clean
- pH Strips
- Sodium carbonate( washing soda) available in 3.5lb boxes in many hardware stores\*  
*\*Baking soda can be used but you must use double the amount listed for washing soda*
- Stir stick
- 1 empty 5 gallon bucket
- Water source
- Measuring cup (1 cup or 2 cup volume)
- Large funnel

### **INSTRUCTIONS FOR ES, GX, AND SX HUMIDIFIERS**

1. Review the Safety Data Sheet for PURE Clean and the safety information at the beginning of this document.
2. Humidifiers supplied with softened makeup water can likely skip steps 6 and 7.
3. Shut off power to the humidifier.
4. Verify that the tank drain valve and drain line are not clogged by visually observing water flow while manually opening the drain valve.
5. If the tank drain valve or line is clogged, remove obstructions before proceeding.
6. For humidifiers that are supplied by non-softened tap makeup water it is very likely that there will be significant mineral accumulation that is loosely piled on the bottom of the tank. These tanks should be cleaned manually from the side-entry plate or top cover. Remove all loose solids with a wet vacuum or putty knife and bucket. Loose mineral build-up on the heating elements/heat exchanger(s) should also be removed by hand (if applicable). The heaters/heat exchanger(s) may have to be removed to access the build-up underneath.
7. After removal of solids, replace the heaters/heat exchanger. Do not install heat exchanger upside-down: there is a break (crease) on the bottom side of the GX heat exchanger.
8. Pre-mix the powdered PURE Clean in a 5 gallon bucket prior to adding to the tank.
9. Fill an empty 5 gallon bucket halfway with water.  
*\* Purified water such as deionized, reverse osmosis and distilled water will make PURE Clean more effective and efficient at dissolving mineral deposits but tap water will be sufficient.*
10. Add up to 10 lbs of PURE Clean to the bucket while stirring with stir stick. 10 lbs of PURE Clean is approximately 19-20 cups.



## Usage Instructions

11. Add the pre-mixed solution to the tank through the removed cover or through the Tri-Probe coupling using a funnel.
12. The total weight of acid needed is directly proportional to the total scale accumulated in the tank. Heavy buildup may require more PURE Clean and light buildup may require less. See Table 1 for recommended amount of acid for a particular model number. Repeat steps 8 and 9 until enough PURE Clean has been added to the tank.
13. Once enough pre-mixed PURE Clean has been added, fill the tank to the overflow level.
14. Let the PURE Clean work at dissolving the hard scales for 12 hours. For heavy scaling, one day or more may be required. Allow for ventilation in confined spaces as the reaction of PURE Clean with the mineral scale will produce a significant amount of carbon dioxide.
15. Monitor the scale removal until the desired results are achieved.
16. Check the pH of the solution and if it is between 6 to 10, drain the tank and proceed to step 20.
17. If the pH is less than 6, slowly add sodium carbonate (washing soda) to neutralize the residual PURE Clean. Table 2 shows an approximate amount of sodium carbonate required to achieve a pH of 6 or higher. This process also releases carbon dioxide so continue to allow for adequate ventilation. You may not need to add the full amount shown in Table 2. If you do not have pH strips or other pH measurement device, the pH is above 6 if the solution no longer bubbles when adding more sodium carbonate.
18. If you find that you require more sodium carbonate than what is listed, use less PURE Clean the next time the tank is descaled with a similar accumulation of mineral buildup.
19. When the pH of the solution reaches between 6 & 10 drain tank down. For heavily scaled units the resulting thick sludge may need to be removed with a wet vacuum.
20. Thoroughly flush tank multiple times, including a complete refill with fresh water and a complete emptying of the tank.
21. If humidifier is not placed back in operation after the descaling process, the humidifier should be turned off and remain empty of water, otherwise refill and place system back into operation.

Model No.	Lbs of PURE Clean for 10% Solution
ES-3 thru ES-19.5	9
ES-22 thru ES-63	12
ES-66 thru ES-102	22
GX-3	18
GX-4	39
GX-8	76
GX-12	117
SX-1	8
SX-2	11
SX-3	20
SX-4	45
SX-8	90
SX-12	135

Model No.	Lbs of Sodium Carbonate
ES-3 thru ES-19.5	2
ES-22 thru ES-63	3
ES-66 thru ES-102	5
GX-3	4
GX-4	8
GX-8	15
GX-12	25
SX-1	2
SX-2	3
SX-3	4
SX-4	9
SX-8	18
SX-12	27



## Usage Instructions

### **INSTRUCTIONS FOR EC HUMIDIFIERS**

1. Review the Safety Data Sheet for PURE Clean and the safety information at the beginning of this document.
2. Shut off power to the humidifier.
3. Shut off water supply to the EC cabinet.
4. Verify that the tank drain valve and drain line are not clogged by visually observing water flow while manually opening the drain valve.
5. If the tank drain valve or line is clogged remove obstructions and/or remove drain hose and let tank drain into the cabinet drain.
6. Once tank is empty disconnect controls by unplugging the molex in the small octagon box, disconnect power wire from contactor and remove conduit connection from cabinet, disconnect all the hose connections from the tank and slide the tank out of the cabinet. A video showing the tank removal process can be found by going to YouTube.com and entering the search terms "Pure Humidifier EC" in the search field.
7. With the tank removed from the cabinet, the tank can be placed in or near a utility sink for easy cleaning.
8. Loosen the four cover clamps and remove the cover.
9. Remove all loose solids from the tank with a putty knife or wet vacuum. Heaters should also be cleaned and loose build-up removed by hand (if applicable).
10. After removal of solids, the over-flow and drain ports should be plugged. You can use the existing hose from the cabinet to connect to the ports, sticking an appropriate size plug into the hose ends and securing with hose clamps. This works to simultaneously descale the hoses.
11. Pre-mix the powdered PURE Clean in a 5 gallon bucket prior to adding to the tank.
12. Fill an empty 5 gallon bucket halfway with water.  
*\* Purified water such as deionized, reverse osmosis and distilled water will make PURE Clean more effective and efficient at dissolving mineral deposits but tap water will be sufficient.*
13. Add up to 10 lbs of PURE Clean to the bucket while stirring with stir stick. 10 lbs of PURE Clean is approximately 19-20 cups.
14. Add the pre-mixed solution to the tank through the removed cover.
15. The total weight of acid needed is directly proportional to the total scale accumulated in the tank. Heavy buildup may require more PURE Clean and light buildup may require less.
16. After adding enough pre-mixed PURE Clean, fill the tank to 2 inches below overflow level.
17. Place the tank cover with the heaters back onto the tank so the heating elements can be descaled simultaneously with the tank.
18. Let the PURE Clean work at dissolving the hard scales for 12 hours. For heavy scaling, one day or more may be required. Allow for ventilation in confined spaces as the reaction of PURE Clean with the mineral scale will produce a significant amount of carbon dioxide.
19. Monitor the scale removal until the desired results are achieved.
20. Check the pH of the solution and if it is between 6 to 10, drain the tank and proceed to step 24.



## Usage Instructions

21. If the pH is less than 6, slowly add sodium carbonate (washing soda) to neutralize the residual PURE Clean. It should take 3 lbs or less of sodium carbonate to achieve a pH of 6 or higher. This process also releases carbon dioxide, so continue to allow for adequate ventilation. If you do not have pH strips or other pH measurement device, the pH is above 6 if the solution no longer bubbles when adding more sodium carbonate.
22. If you find that you require more sodium carbonate than what is listed, use less PURE Clean the next time the tank is descaled with a similar accumulation of mineral buildup.
23. When the pH of the solution reaches between 6 & 10 drain tank down. For heavily scaled units the resulting thick sludge may need to be removed with a wet vacuum.
24. Thoroughly flush tank multiple times, including a complete refill with fresh water and a complete emptying of the tank.
25. If humidifier is not placed back in operation after the descaling process, the humidifier should be turned off and remain empty of water, otherwise refill and place system back into operation

### **INSTRUCTIONS FOR ER HUMIDIFIERS**

1. Review the Safety Data Sheet for PURE Clean and the safety information at the beginning of this document.
2. Shut off power to the humidifier.
3. Shut off water supply to the ER .
4. Verify that the tank drain valve and drain line are not clogged by visually observing water flow while manually opening the drain valve.
5. If the tank drain valve or line is clogged, remove obstructions and/or remove drain assembly and let tank drain into a bucket or remove cover and scoop out water to empty.
6. Once tank is empty disconnect the fill piping, fill valve coil, drain valve coil, and steam outlet hose. Remove the cover and disconnect the drain pipe if it is permanently attached to a drain line.  
*\*You may wish to add a union here for future ease of maintenance.*
7. With the tank removed from its installation location, the tank can be placed in or near a utility sink for easy cleaning. If desired, the tank can also be cleaned in place if there is ample surrounding space and it will be comfortable to do so.
8. Remove all loose solids from the tank with a putty knife or wet vacuum. Heaters should also be cleaned and loose build-up removed by hand (if applicable).
9. After removal of solids, the over-flow and drain ports should be plugged.
10. If you have removed the tank from its installed location, place the ER tank into or next to a utility sink.
11. Pre-mix the powdered PURE Clean in a 5 gallon bucket prior to adding to the tank.
12. Fill an empty 5 gallon bucket halfway with water.  
*\* Purified water such as deionized, reverse osmosis and distilled water will make PURE Clean more effective and efficient at dissolving mineral deposits but tap water will be sufficient.*
13. Add up to 3 lbs of PURE Clean to the bucket while stirring with stir stick. 3 lbs of PURE Clean is approximately 6 cups.
14. Add the pre-mixed solution to the tank through the removed cover.



## *Usage Instructions*

15. The total weight of acid needed is directly proportional to the total scale accumulated in the tank. Heavy buildup may require more PURE Clean and light buildup may require less.
16. After adding enough pre-mixed PURE Clean, fill the tank to the overflow level.
17. Place the tank cover with the heaters back onto the tank so that the heating elements can be descaled simultaneously with the tank.
18. Let the PURE Clean work at dissolving the hard scales for 12 hours. For heavy scaling, one day or more may be required. Allow for ventilation in confined spaces as the reaction of PURE Clean with the mineral scale will produce a significant amount of carbon dioxide.
19. Monitor the scale removal until the desired results are achieved.
20. Check the pH of the solution and if it is between 6 to 10, drain the tank and proceed to step 24.
21. If the pH is less than 6, slowly add sodium carbonate (washing soda) to neutralize the residual PURE Clean. It should take 1-2 lbs or less of sodium carbonate to achieve a pH of 6 or higher. This process also releases carbon dioxide, so continue to allow for adequate ventilation. If you do not have pH strips or other pH measurement device, the pH is above 6 if the solution no longer bubbles when adding more sodium carbonate.
22. If you find that you require more sodium carbonate than what is listed, use less PURE Clean the next time the tank is descaled with a similar accumulation of mineral buildup.
23. When the pH of the solution reaches between 6 & 10 drain tank down. For heavily scaled units the resulting thick sludge may need to be removed with a wet vacuum or dumped and washed down the sink drain while thinning with running water.
24. Thoroughly flush tank multiple times, including a complete refill with fresh water and a complete emptying of the tank.
25. If humidifier is not placed back in operation after the descaling process then the humidifier should be reinstalled in place and remain empty of water, otherwise refill and place system back into operation.

### **INSTRUCTIONS FOR ESDDR, GXDDR, AND SXDDR HUMIDIFIERS**

Humidifiers supplied with deionized makeup water with a conductivity less than 1 microsiemen (resistivity greater than 1 megohm) likely do not have any appreciable mineral scale buildup and should not need to be descaled. Humidifiers supplied with make-up water conductivities higher than 1 microsiemen (e.g. a single pass reverse osmosis water supply), may have a slight accumulation of minerals in the tank after one season of operation. These instructions are for humidifiers with a slight accumulation.

1. Review the Safety Data Sheet for PURE Clean and the safety information at the beginning of this document.
2. Shut off power to the humidifier.
3. Verify that the tank drain valve and drain line are not clogged by visually observing water flow while manually opening the drain valve.
4. If the tank drain valve or line is clogged remove obstructions before proceeding.
5. Pre-mix the powdered PURE Clean in a 5 gallon bucket prior to adding to the tank.
6. Fill an empty 5 gallon bucket halfway with water.

*\* Purified water such as deionized, reverse osmosis and distilled water will make PURE Clean more effective and efficient at dissolving mineral deposits but tap water will be sufficient.*



## Usage Instructions

7. Add the pre-mixed solution to the tank through the removed cover or steam outlet with the steam connection removed.
8. The total weight of acid needed is directly proportional to the total scale accumulated in the tank. Light buildup may require less PURE Clean. See Table 3 for recommended lbs of acid for a particular model number. Repeat steps 6 and 7 until enough PURE Clean has been added to the tank.
9. After adding enough pre-mixed PURE Clean, fill the tank to the overflow level.
10. Let the PURE Clean work at dissolving the hard scale for 12 hours. Allow for ventilation in confined spaces, as the reaction of PURE Clean with the mineral scale will produce a significant amount of carbon dioxide.
11. Monitor the scale removal until the desired results are achieved.
12. Check the pH of the solution and if it is between 6 to 10, drain the tank and proceed to step 16.
13. If the pH is less than 6, slowly add sodium carbonate (washing soda) to neutralize the residual PURE Clean. Table 4 shows an approximate amount of sodium carbonate required to achieve a pH of 6 or higher. This process also releases carbon dioxide, so continue to allow for adequate ventilation. You may not need to add the full amount shown in Table 2. If you do not have pH strips or other pH measurement device, the pH is above 6 if the solution no longer bubbles when adding more sodium carbonate.
14. If you find that you require more sodium carbonate than what is listed, use less PURE Clean the next time the tank is descaled with a similar accumulation of mineral buildup.
15. When the pH of the solution reaches between 6 & 10 drain tank down.
16. Thoroughly flush tank multiple times, including a complete refill with fresh water and a complete emptying of the tank.
17. If humidifier is not placed back in operation after the descaling process, the humidifier should be turned off and remain empty of water, otherwise refill and place system back into operation.

**TABLE 3**

Model No.	Lbs of PURE Clean for 2% Solution
ESDDR-3 thru ESDDR-19.5	3
ESDDR-22 thru ESDDR-63	4
ESDDR-66 thru ESDDR-102	7
GXDDR-3	6
GXDDR-4	12
GXDDR-8	23
GXDDR-12	35
SXDDR-1	3
SXDDR-2	4
SXDDR-3	6
SXDDR-4	13
SXDDR-8	29
SXDDR-12	51

**TABLE 4**

Model No.	Lbs of Sodium Carbonate
ESDDR-3 thru ESDDR-19.5	2
ESDDR-22 thru ESDDR-63	2
ESDDR-66 thru ESDDR-102	4
GXDDR-3	3
GXDDR-4	6
GXDDR-8	12
GXDDR-12	18
SXDDR-1	2
SXDDR-2	2
SXDDR-3	3
SXDDR-4	7
SXDDR-8	15
SXDDR-12	26





## Usage Instructions

### **INSTRUCTIONS FOR ECDDR HUMIDIFIERS**

Humidifiers supplied with deionized makeup water with a conductivity less than 1 microsiemen (resistivity greater than 1 megohm) likely do not have any appreciable mineral scale buildup and should not need to be descaled. Humidifiers supplied with make-up water conductivities higher than 1 microsiemen, such as a single pass reverse osmosis water supply, may have a slight accumulation of minerals in the tank after one season of operation. These instructions are for humidifiers with a slight accumulation.

1. Review the Safety Data Sheet for PURE Clean and the safety information at the beginning of this document.
2. Shut off power to the humidifier.
3. Shut off water supply to the ECDDR cabinet.
4. Verify that the tank drain valve and drain line are not clogged by visually observing water flow while manually opening the drain valve.
5. If the tank drain valve or line is clogged remove obstructions and/or remove drain hose and let tank drain into the cabinet drain. Keep the drain valve open.
6. If the steam outlet on the humidifier tank can be accessed via removal of the steam line and there is enough room on top to pour buckets of water down a funnel, then the humidifier tank can be cleaned in place. Otherwise the tank will have to be removed for the descaling process. If the tank is to be removed, follow steps 7-10. If you have room to do it in place, skip to step 11.
7. Once the tank is empty of water, disconnect controls by unplugging the moxex in the small octagon box, disconnect power wire from contactor and remove conduit connection from cabinet, disconnect all the hose connections from the tank, and slide the tank out of the cabinet. A video showing the tank removal process of a similar model can be found by going to YouTube.com and entering the search terms "Pure Humidifier EC" in the search field.
8. With the tank removed from the cabinet, the tank can be placed in or near a utility sink.
9. Loosen the four cover clamps and remove the cover.
10. The over-flow and drain ports should be plugged. You can use the existing hose from the cabinet to connect to the ports, sticking an appropriate size plug into the hose ends and securing with hose clamps. This works to simultaneously descale the hoses.
11. Pre-mix the powdered PURE Clean in a 5 gallon bucket prior to adding to the tank.
12. Fill an empty 5 gallon bucket halfway with water.  
*\* Purified water such as deionized, reverse osmosis and distilled water will make PURE Clean more effective and efficient at dissolving mineral deposits but tap water will be sufficient.*
13. Add up to 5 lbs of PURE Clean to the water while stirring with stir stick. 5 lbs of PURE Clean is about 10-11 cups. Heavy buildup may require more PURE Clean.
14. Add the pre-mixed solution to the tank through the removed cover. If cleaning in place, close the drain valve and pour the pre-mixed solution through a funnel into the steam outlet.
15. Fill the tank to 2 inches below overflow level.
16. Place the tank cover with the heaters back onto the tank so that the heating elements can be descaled simultaneously.



## *Usage Instructions*

17. Let the PURE Clean work at dissolving the hard scales for 12 hours. Allow for ventilation in confined spaces, as the reaction of PURE Clean with the mineral scale will produce a significant amount of carbon dioxide.
18. Monitor the scale removal until the desired results are achieved.
19. Check the pH of the solution and if it is between 6 & 10, drain the tank and proceed to step 22.
20. If the pH is less than 6, slowly add sodium carbonate (washing soda) to neutralize the residual PURE Clean. It should take 3 lbs or less of sodium carbonate to achieve a pH of 6 or higher. This process also releases carbon dioxide so continue to allow for adequate ventilation. If you do not have pH strips or other pH measurement device, the pH is above 6 if the solution no longer bubbles when adding more sodium carbonate
21. If you find that you require more sodium carbonate than what is listed, use less PURE Clean the next time the tank is descaled with a similar accumulation of mineral buildup.
21. When the pH of the solution reaches between 6 & 10 drain tank down.
22. Thoroughly flush tank multiple times, including a complete refill with fresh water and a complete emptying of the tank.
23. If humidifier is not placed back in operation after the descaling process, the humidifier should be turned off and remain empty of water, otherwise refill and place system back into operation

### **INSTRUCTIONS FOR ERDDR HUMIDIFIERS**

1. Review the Safety Data Sheet for PURE Clean and the safety information at the beginning of this document.
2. Shut off power to the humidifier.
3. Shut off water supply to the ERDDR.
4. Verify that the tank drain valve and drain line are not clogged by visually observing water flow while manually opening the drain valve.
5. If the tank drain valve or line is clogged, remove obstructions and/or remove drain assembly and let tank drain into a bucket, or remove cover and scoop out water to empty.
6. Once the tank is empty, disconnect the fill piping and steam outlet hose. Remove cover and disconnect the drain pipe if it is permanently attached to a drain line.  
*\*You may wish to add a union here for future ease of maintenance.*
7. With the tank removed from its installation location, the tank can be placed in or near a utility sink for easy cleaning. If desired, the tank can also be cleaned in place if there is ample surrounding space and it will be comfortable to do so.
8. If you have removed the tank from its installed location, place the ERDDR tank into or next to a utility sink. The over-flow and drain ports should be plugged.
9. Pre-mix the powdered PURE Clean in a 5 gallon bucket prior to adding to the tank.
10. Fill an empty 5 gallon bucket halfway with water.  
*\* Purified water such as deionized, reverse osmosis and distilled water will make PURE Clean more effective and efficient at dissolving mineral deposits but tap water will be sufficient.*
11. Add up to 3 lbs of PURE Clean to the water while stirring with stir stick. 3 lbs of PURE Clean is approximately 6 cups.
12. Add the pre-mixed solution to the tank through the removed cover.



## *Usage Instructions*

13. After adding the pre-mixed PURE Clean, fill the tank to the overflow level.
14. Place the tank cover with the heaters back onto the tank so that the heating elements can be descaled simultaneously.
15. Let the PURE Clean work at dissolving the hard scales for 12 hours. Allow for ventilation in confined spaces, as the reaction of PURE Clean with the mineral scale will produce a significant amount of carbon dioxide.
16. Monitor the scale removal until the desired results are achieved.
17. Check the pH of the solution and if it is between 6 & 10, drain the tank and proceed to step 21.
18. If the pH is less than 6, slowly add sodium carbonate (washing soda) to neutralize the residual PURE Clean. It should take 1-2 lbs or less of sodium carbonate to achieve a pH of 6 or higher. This process also releases carbon dioxide, so continue to allow for adequate ventilation. If you do not have pH strips or other pH measurement device, the pH is above 6 if the solution no longer bubbles when adding more sodium carbonate.
19. If you find that you require more sodium carbonate, use less PURE Clean the next time the tank is descaled with a similar accumulation of mineral buildup.
20. When the pH of the solution reaches between 6 & 10 drain tank down.
21. Thoroughly flush tank multiple times, including a complete refill with fresh water and a complete emptying of the tank.
22. If humidifier is not placed back in operation after the descaling process, the humidifier should be reinstalled in place and remain empty of water, otherwise refill and place system back into operation.

## DISCLAIMER

Product Changes: Changes in products may be required from time to time due to factors beyond the Seller's control, or the need for continuing improvement of products. The Seller reserves the right to make reasonable changes in products, specifications and performance of any kind without notice or liability. The Seller also reserves the right to deliver revised designs or models of products against any order, unless this right is specifically waived in writing by the Seller. The Seller shall have no responsibility whatsoever with respect to changes made by the manufacturer in products sold but not manufactured by the Seller.



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