RYDLYME®
World's Leading Biodegradable Descaler

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AN OVERVIEW OF THE WORLD'S LEADING BIODEGRADABLE DESCALER

Descale the toughest deposits

Shell & Tube
Heat Exchanger

BEFORE

AFTER

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WHY DESCALE?

Chillers, condensers, heat exchanges, cooling towers and other water operated equipment require maintenance due to the harsh mineral deposits such as calcium, lime, mud, and rust that rob heat transfer efficiency.

Even a small amount of scale, such as 1/36" corresponds to an increase in energy costs of over 30%!

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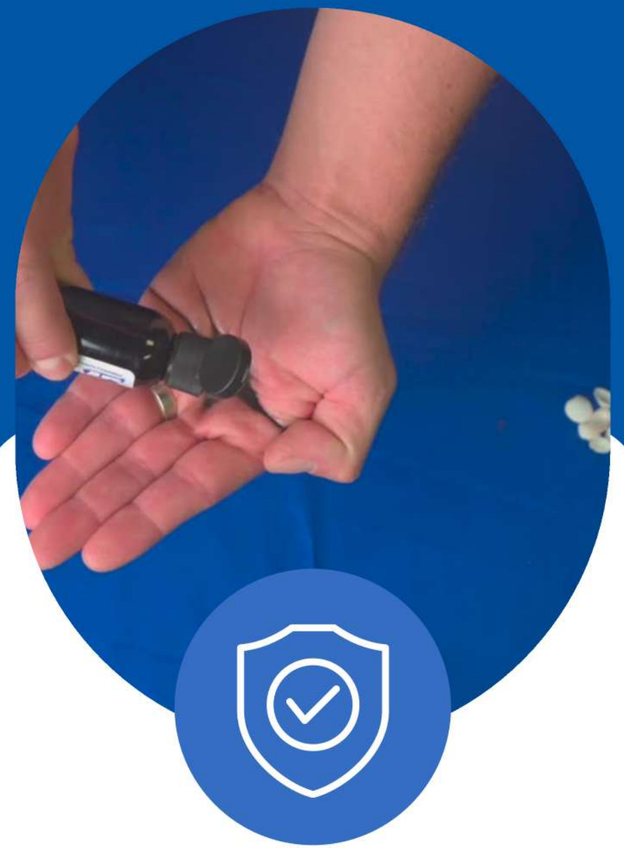
DESCALE WITH THE BEST

The ***RYDLYME*** formula, an aqueous organic salt solution, fortified with wetting, penetrating agents and buffers, has remained the same for over 80 years.

RYDLYME is delivered as a concentrate and will dissolve 2.2 lbs of scale per gallon used.

What size?

Available in 1 gallon, 4X1 gallon cases, 5 gallon jugs, 30 gallon drums, 55 gallon drums, 330 gallon totes and tankers



Safe & effective

Safely dissolve water/lime scale, rust, struvite and other mineral deposits without harm to personnel or equipment

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SAFE & BIODEGRADABLE

RYDLYME is biodegradable, as determined by an EPA-approved testing facility. Easy disposal, unused product has a BOD 16mg/l.

Competitive products claim to be biodegradable, but are not necessarily safe or even “green”.

U.S. Navy

The U.S. Navy and countless OEMs have approved ***RYDLYME*** as a safe & effective product for preventative maintenance

NSF/ANSI 60

RYDLYME is certified for food & beverage, pharmaceutical, as well certified as a cleaner for drinking water systems

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NON CORROSIVE ON EQUIPMENT

RYDLYME will not corrode, pit or oxidize the various metallurgies & other components found in water-based equipment or systems.

Exceptions are some alloys of aluminum, magnesium and zinc, but only at high concentrations and/or specific situations.

Equipment safe

Safe on brass, copper, iron, mild steel, plastic, PVC, rubber, stainless steel, titanium & other water-operated systems materials

Non corrosive

Non corrosive on heat exchangers, cooling towers, chillers & condensers, vacuum pumps & more

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FAST AND EFFECTIVE

Most equipment or systems are cleaned in 4 hours or less with even the largest systems cleaned in less than 12 hours (including set-up time).

Clean in place without added costs of disassembly & removal - some applications can be cleaned without shutdown!

Returns to OEM

Cleans down to the original surface without leaving a residue, which can rob efficiency or having any adverse effects

Easy disposal

Dissolves mineral deposits into solution and then flushed safely down normal plant sewers for an easy clean up

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COST EFFECTIVE & EFFICIENT

- Cleaning requires no additional chemicals (e.g. neutralizers, pacifiers).
- Reduce additional disposal costs and/or hazmat procedures.
- Does not require heat or elevated temperatures.
- Extends the life of equipment & systems.

Low Labor Cost

Labor costs are kept to an absolute minimum due to fast cleaning time, easy disposal & ease of use of ***RYDLYME*** descaling

ROI

RYDLYME costs are recouped quickly through gains in production, increased efficiency & energy conservation

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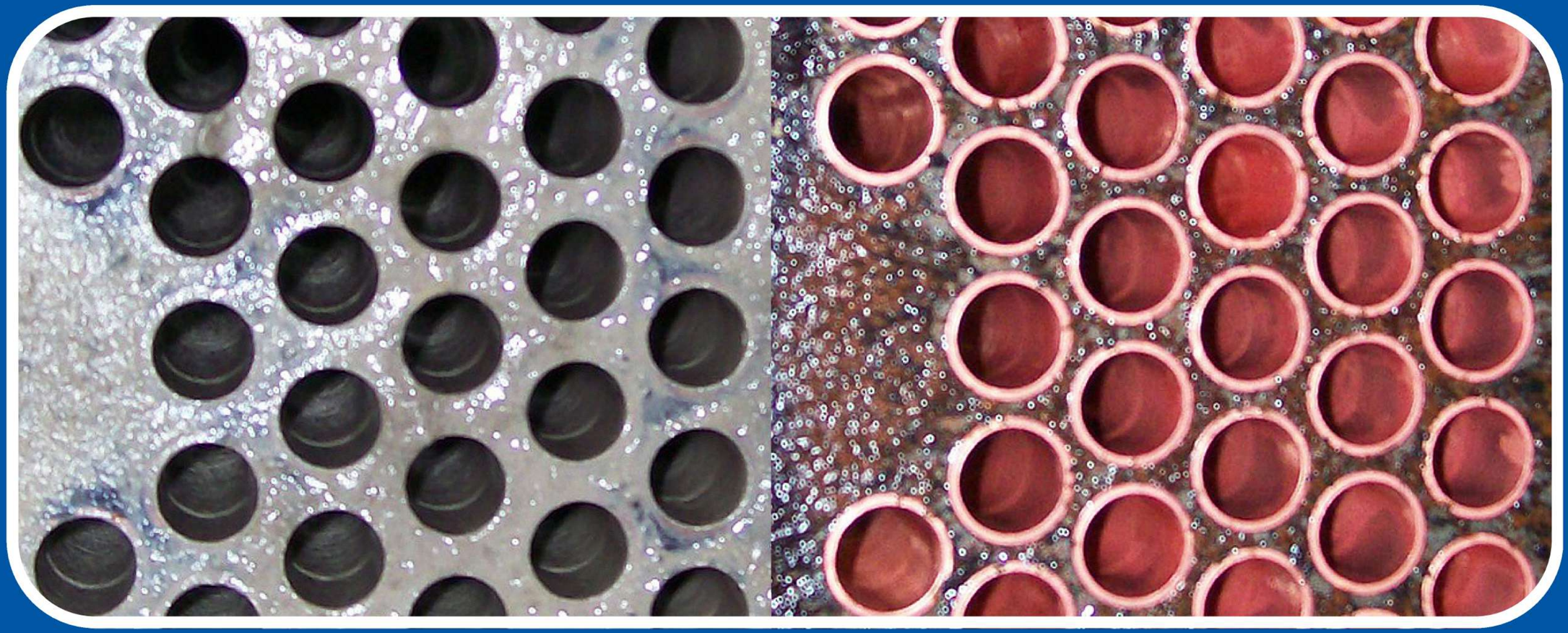
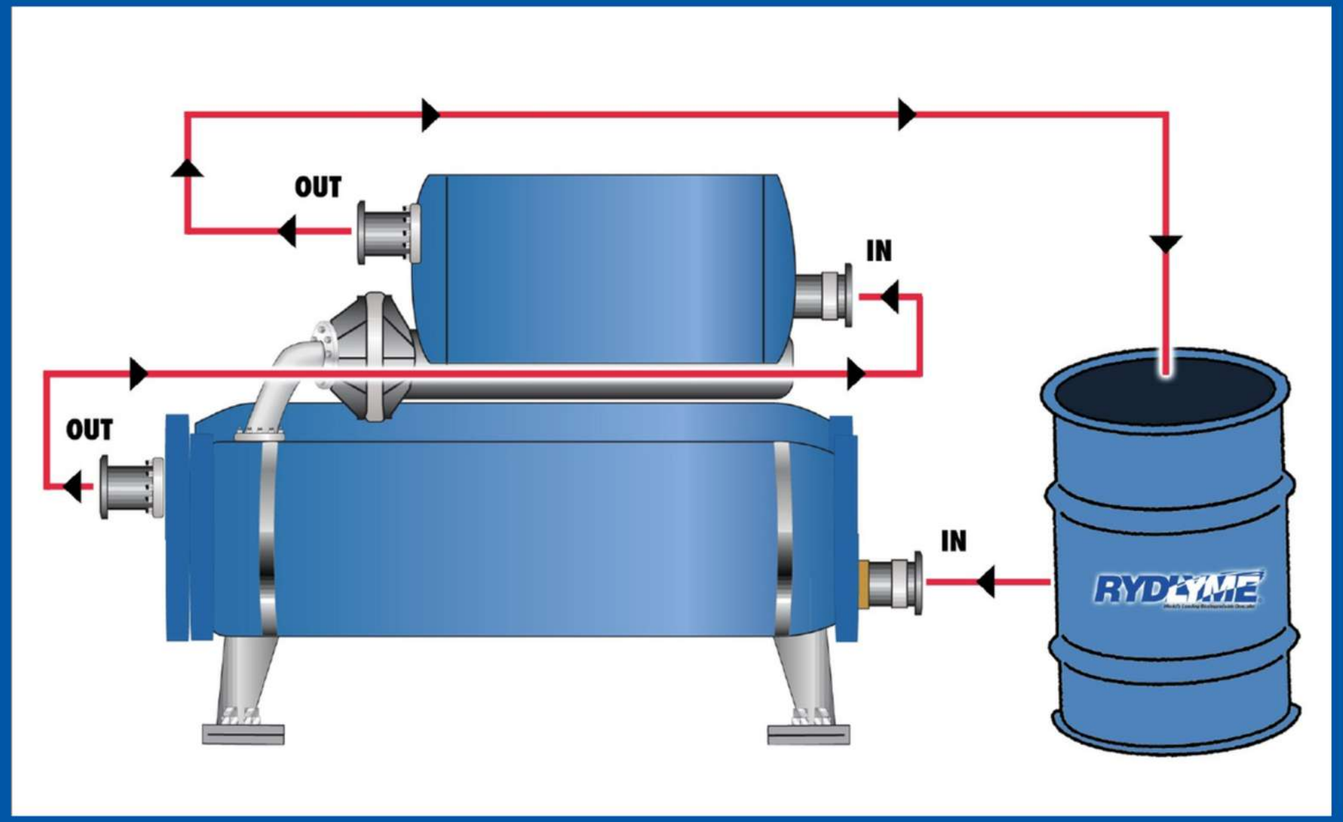
WHAT EQUIPMENT CAN IT BE USED ON?

CONDENSERS



CHILLERS & CONDENSERS



1. Drain the chiller.
2. Close the drain valves.
3. Isolate the chiller for circulation.
4. Pump in the recommended quantity of ***RYDLYME*** and make up the remaining volume with water until you achieve a return flow.
5. Circulate the solution for 4-6 hours. Circulation time will be dependent on the chiller capacity and the severity of scaling.
6. Test the circulating solution and if the solution expends, more ***RYDLYME*** will be required.
7. The chiller can now be drained, flushed thoroughly with water and returned to service.

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CHILLERS & CONDENSERS

Length of Chiller Barrel

Diameter Inches	4′	5′	6′	8′	10′	12′	16′	18′	20′	24′	30′
10″	4	5	6	8	10	12	16	18	20	25	30
12″	6	7	9	12	15	18	24	27	30	35	45
16″	10	13	16	21	25	30	42	50	55	60	80
20″	16	20	25	32	40	50	65	75	80	100	120
24″	25	30	35	50	60	70	95	110	120	140	180
30″	35	45	55	75	90	110	150	165	180	220	280
36″	55	65	80	110	130	160	220	250	275	330	400
40″	65	80	100	130	160	200	260	300	330	400	500
44″	80	100	120	160	200	240	320	360	400	475	600
48″	100	120	140	190	240	280	380	425	480	560	710
50″	105	130	160	210	260	315	415	470	520	625	780
54″	120	150	180	240	300	360	480	540	600	715	895
60″	150	185	220	295	370	445	590	665	740	885	1105

Gallons of RYDLYME

= 1 Hour
= 2 Hours
= 3 Hours
= 4 Hours
= 5 Hours
= 6 Hours
= 7 Hours
= 8 Hours

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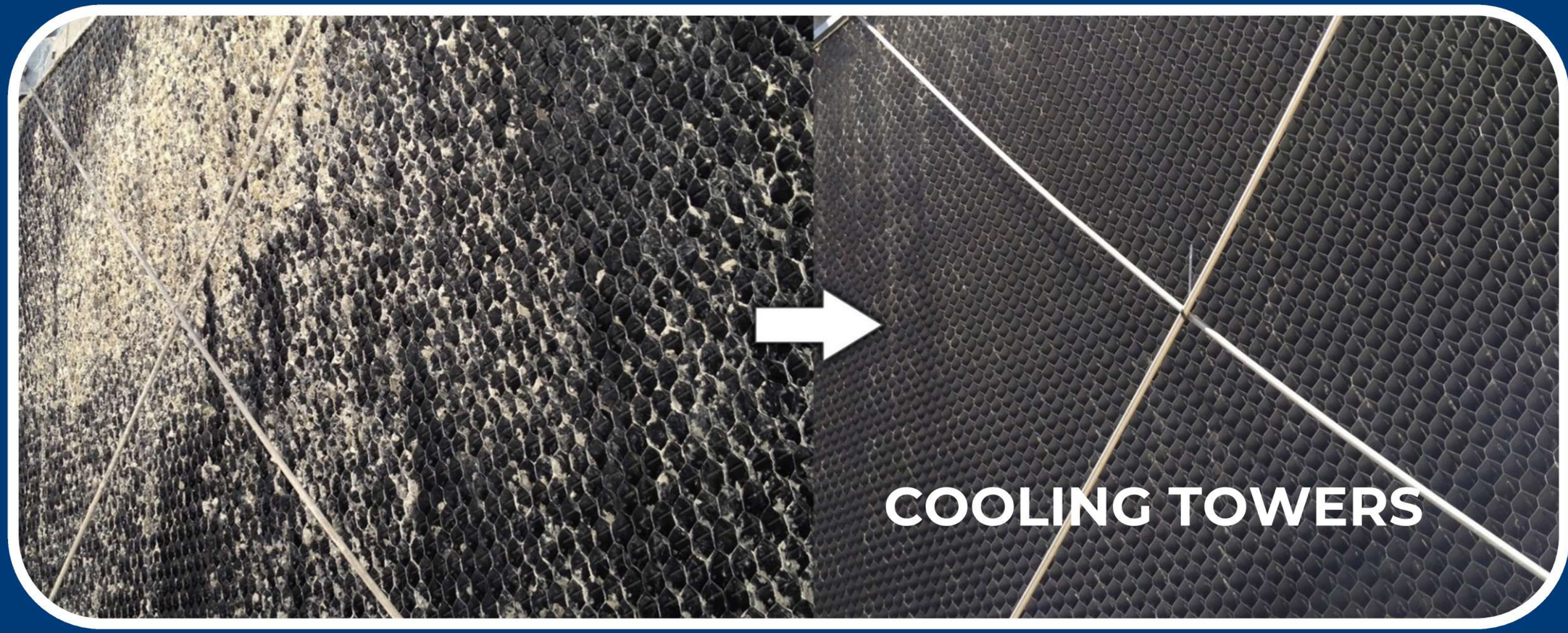
WHAT EQUIPMENTCAN IT BE USED ON?



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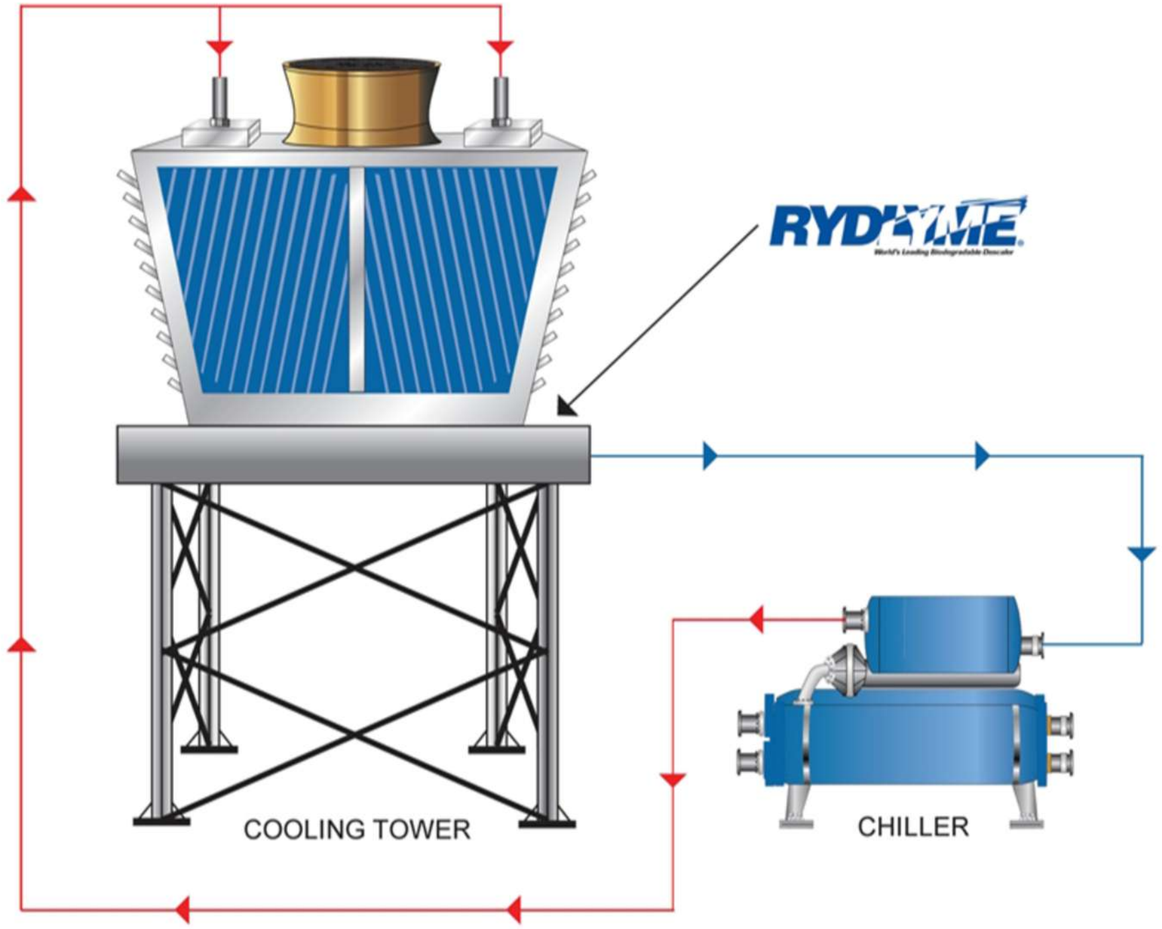

COOLING TOWERS

1. Lower the level in the reservoir or sump to a point where you will not cavitate the pumps.
2. Add enough ***RYDLYME*** to realize a 25% solution.
3. Make sure the make-up water and the fan are off.
4. Test the solution at ½ hour intervals to determine effectiveness. If the solution is expended, add more ***RYDLYME***
5. Upon completion, open the bleed off drain and adjust the make-up to purge the system of the cleaning solution.

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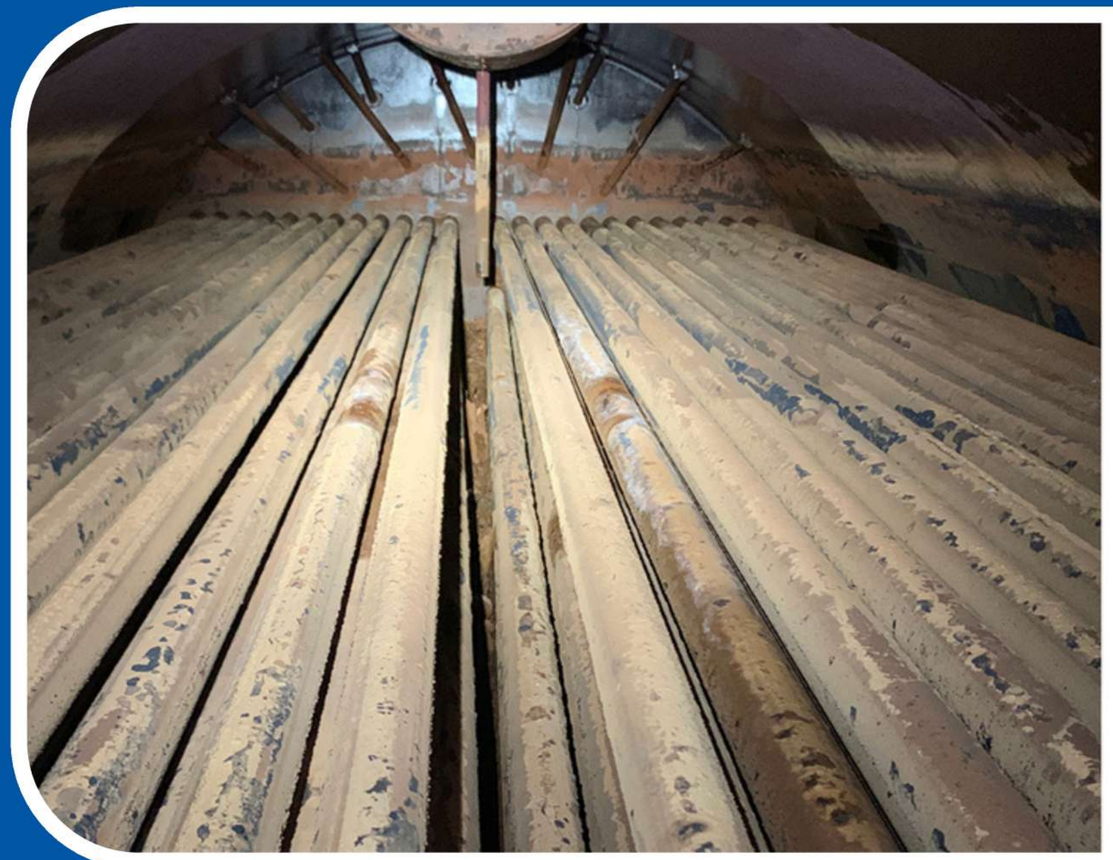
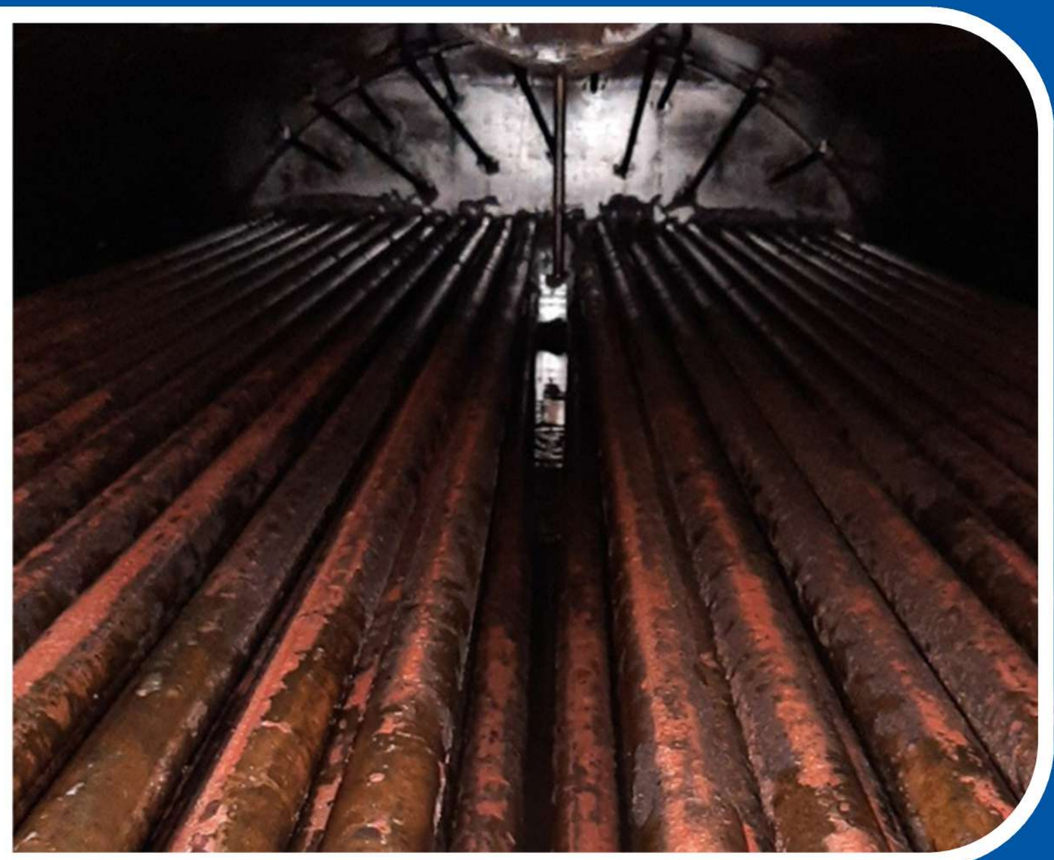
WHAT EQUIPMENT CAN IT BE USED ON?

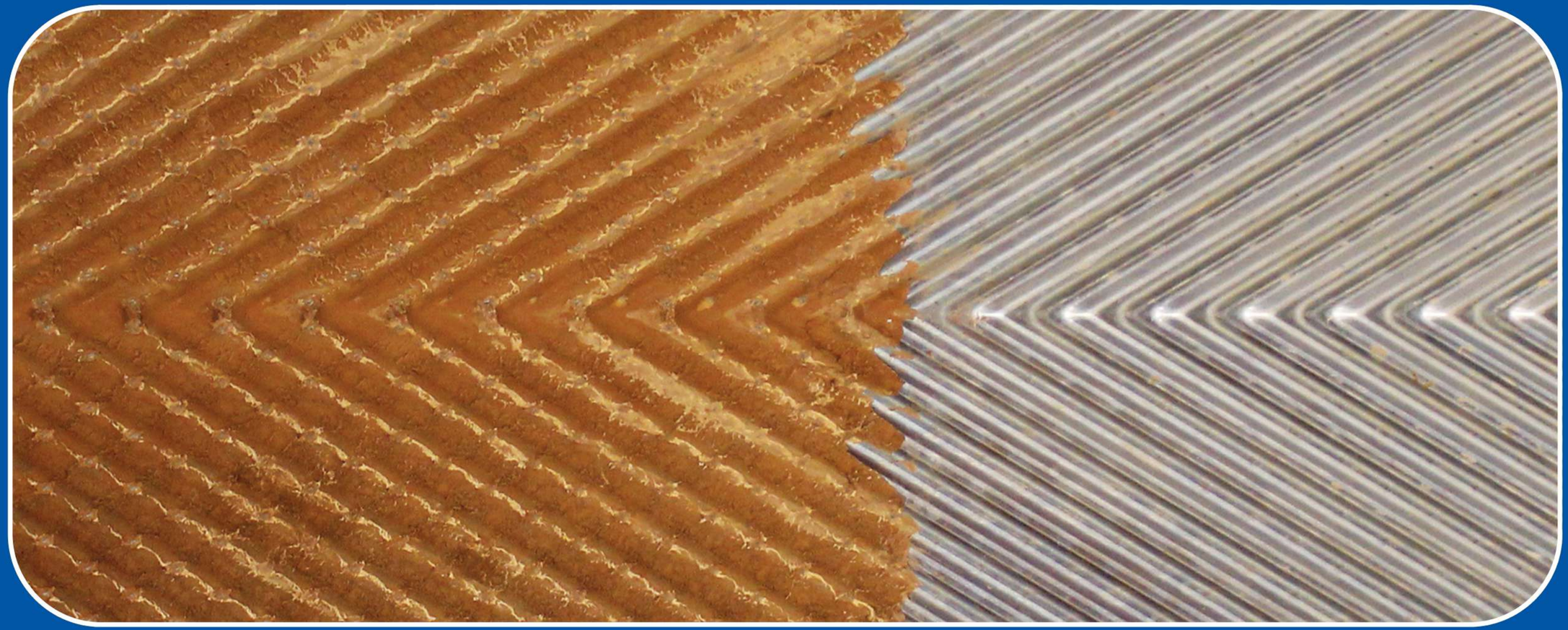




BOILERS

1. Drain the boiler.
2. Close the drain valves.
3. Isolate the boiler for circulation.
4. Pump in the recommended quantity of ***RYDLYME*** and make up the remaining volume with water until you achieve a return flow.
5. Circulate the solution for 4-6 hours. Circulation time will be dependent on the boiler capacity and the severity of scaling.
6. Test the circulating solution and if the solution expends, more ***RTDLYME*** will be required.
7. The boiler can now be drained, flushed thoroughly with water and returned to service.

WHAT EQUIPMENT CAN IT BE USED ON?



SYSTEM VOLUME	CIRCULATING TIME
0 - 25 gallons	1 hour
25 - 50 gallons	2 hours
50 - 150 gallons	3 hours
150 - 300 gallons	4 hours
300 - 500 gallons	6 hours
500 - 800 gallons	8 hours

fig 2.1

No need to disassemble!

Formulation for Determining Volume to Plate & Frame Heat Exchangers

1. Multiply the W x H x the thickness of the plate pack and that number is the total cubic inches.
2. Take the cubic inches and divide by 1728, and it is now converted to cubic feet.
3. Multiply the cubic feet by 7.5 and you now have the total gallons.
4. Divide the total gallons by 2 and you now have the volume inside the plates.
5. Divide the volume inside the plates by 2 and you now have the quantity of ***RYDLYME*** you will need to clean the exchanger.

Please note: Depending on the severity of the build-up, the application may require more RYDLYME or an extended circulation time.

fig 2.2

Quantities of *RYDLYME* to Clean Water Side of Shell & Tube Heat Exchangers

Length in Feet

Diameter in Inches	4'	5'	6'	8'	10'	12'	16'	18'	20'	24'	30'	36'	40'
4"	1	1	1	2	2	2	3	3	3	4	5	6	6
5"	1	1	2	2	3	3	4	5	5	6	8	10	10
6"	2	2	3	3	4	5	6	7	7	9	12	15	16
8"	3	3	4	5	7	8	10	12	13	16	20	25	30
10"	4	5	6	8	10	12	16	18	20	25	30	40	45
12"	6	7	9	12	15	18	24	27	30	35	45	55	60
16"	10	13	16	21	25	30	42	50	55	60	80	95	110
20"	16	20	25	32	40	50	65	75	80	100	120	150	160
24"	25	30	35	50	60	70	95	110	120	140	180	220	240
30"	35	45	55	75	90	110	150	165	180	220	280	330	360
36"	55	65	80	110	130	160	220	250	275	330	400	495	550
40"	65	80	100	130	160	200	260	300	330	400	500	600	660
44"	80	100	120	160	200	240	320	360	400	475	600	720	800
48"	100	120	140	190	240	280	380	425	480	560	710	850	950
50"	105	130	160	210	260	315	415	470	520	625	780	935	1040
54"	120	150	180	240	300	360	480	540	600	715	895	1075	1195
60"	150	185	220	295	370	445	590	665	740	885	1105	1325	1475

Gallons of RYDLYME

fig 1.1

= 1 Hour = 2 Hours = 3 Hours = 4 Hours = 5 Hours = 6 Hours = 7 Hours = 8 Hours

For every gallon of *RYDLYME* recommended above, one gallon of water must be added!

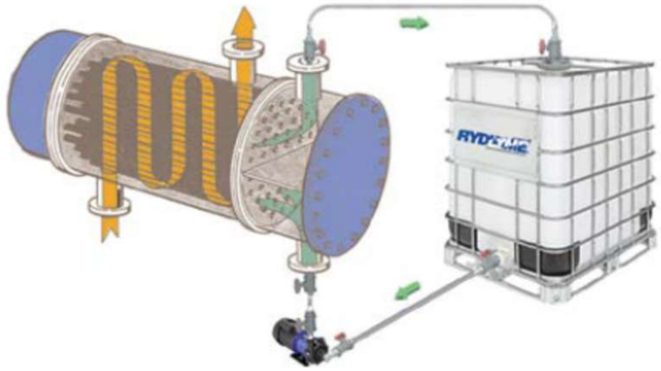


fig 3.1

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SO MUCH MORE!

- Absorption Units
- Air Compressors
- Boilers
- Chillers
- Cooling Towers
- Condensers
  - (ammonia, shell & tube, evaporative etc.)
- Evaporators
- Heat Exchangers
- Plastic Molds
- Refrigeration/Process Equipment
- Vacuum Furnaces
- Vacuum Pumps
- Water/Wastewater Pipes
- AND other water-operated equipment!

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THANK YOU

info@wolgan.qa | info@wolgan.ae | info@wolgan.in