# Chemical Cleaning of Water Heat Exchanger

**Applicable models:** Products mounting plate-type water heat exchanger

A case was reported, where a pinhole was made on a plate-type water heat exchanger at the time of chemical cleaning, and gas leakage resulted.

### Applicable models

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<th>Model Code</th>
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</thead>
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<tr>
<td>UWYJ125 to UWYJ750B</td>
<td>UWYC630 to UWYC750B</td>
<td>UWAC630 to UWAC750B</td>
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<tr>
<td>UWAJ75 to UWAJ750B</td>
<td>UWAJ75 to UWAJ750BA</td>
<td>UWJ90 to UWJ900B</td>
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<tr>
<td>UWAJ375 to UWAJ750BK</td>
<td>UWAJ375 to UWAJ750BAK</td>
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<tr>
<td>UWYD1180 to UWYD3550F5/6</td>
<td>UWAD1180 to UWAD3550F5/6</td>
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<tr>
<td>UWAD1180 to UWAD3550F5/6K</td>
<td>UWAD40 to UWAD120F5/6Z</td>
<td>Sister models</td>
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### Cause of defect

The stainless was corroded and resulted in gas leakage because the water heat exchanger was cleaned with a strong-acid chemical (10% solution of Kurita Industrial's Kuri Chemical J-2).

### Prohibited chemicals

Do not use the following chemicals to clean any plate-type heat exchanger.

- Never use strong inorganic acids, such as chloride, nitric acid, and sulfuric acid by any means, chemicals containing ammonia, or other chemicals that will damage stainless or copper.

### Correct cleaning method

1. **Clean the heat exchanger with the following cleaning agent according to the cleaning procedure.**
   - **Cleaning agent to remove scales.** Prepare a solution made from a 5% diluted acid, such as formic acid, citric acid, oxalic acid, acetic acid, or phosphoric acid. Do not use any of them at a dilution of 10% or over. Fill the heat exchanger with the solution at 50°C to 60°C once. Then circulate the solution with a pump for a maximum of approximately two hours. The cleaning period may vary depending on the removal of dirt and cleaning condition of the hydrothermal exchanger.
   - **Cleaning agent to remove oil and organic fouling.** Prepare a solution made from a 3% caustic soda. Do not use any of them at a dilution of 4% or over. Fill the heat exchanger with the solution at 50°C to 60°C once. Then circulate the solution with a pump for a maximum of approximately two hours. The cleaning period may vary depending on the removal of dirt and cleaning condition of the heat exchanger.

2. **Neutralization**
   - After cleaning the heat exchanger, circulate a 1% to 2% sodium hydroxide or bicarbonate of soda for 15 to 20 minutes for neutralization.

3. **Rinsing**
   - Sufficiently rinse the interior of the water heat exchanger with clean water after the above neutralization work.

### Precautions

1. A chemical other than the above ones may be used, provided that the chemical will not corrode stainless or copper. Be sure to consult the chemical manufacturer in advance.
2. Consult the chemical manufacturer about the cleaning method in detail as well.
3. Check the normal operation of the unit after cleaning.
4. Refer to the Handling of Plate-type Water Exchanger for Chilling Units, a publication of the Japan Refrigeration and Air Conditioning Industry Association, for information on the handling of heat exchangers.