For Dragout Recovery & Wastewater Reduction

The EVAPORATIVE TANK™, free of complicated machinery and chemistry, was developed as a cost-saving means of recovering valuable dragout. Our plating customers have doubled their benefits by using the EVAPORATIVE TANK™ for E.P.A. compliance and discovering dramatic savings in their waste treatment costs. The EVAPORATIVE TANK™ has also found new uses in the anodizing, painting, photographic, machining, chemical and other fields. This proven, simple and inexpensive system of recovery and reduction can pay for itself in as little as 30 days.

POLY PRODUCTS INC.
The EVAPORATIVE TANK™ is available in four models; the ET-II and the ET-III are designed to recover chemicals (dragout) from rinse water. The ET-II-W and ET-III-W are ideally suited for dewatering spent solutions or wastewaters that may have a high solids content.

Pumped solution is circulated at a high rate from your process tank or reservoir up to the ET-II or ET-III, and is drained back by gravity to your tank. In the evaporator, the solution is sprayed onto 700 or 1,000 square feet of evaporative panels to humidify the blower air that is forced through these panels. The humid air is then ducted to the outdoors. Heat for evaporation is taken from the solution pumped through the evaporator (about 9,000 BTU per gallon of evaporation).

A "triple-effect", proprietary mist eliminator reduces any droplet emissions to a very low level. An optional AirScrubber™ can be installed inside the EVAPORATIVE TANK™ at any time to further reduce emissions to meet most stringent regulations.

The ET-III-W or the ET-II-W depends on a high flow rate and large solution drops suspended in the air stream for its extensive evaporative surface. The 1/2" passages in the spray nozzles make the ET-III-W ideal for waste minimization. The ET-II-W is a smaller version of the ET-III-W and uses a flow rate of 20 to 25 gpm.

![Diagram of the evaporative tank](image)

The chart at right is based on evaporating pure water at 0% relative humidity. As the impurities in the water increase, there is less water available to evaporate; your evaporation rate will decrease. As relative humidity increases, the evaporation rate of the solution at ambient temperature decreases. As solution temperature increases, the effect of relative humidity on the evaporation rate decreases. Temperature does not dictate evaporation rate, but the BTU input does (9,000 BTU's or 2.6 KWH per gallon is needed to maintain solution temp.). This graph shows the maximum rates you can expect. Every application is unique, and solutions are not pure water at 0% relative humidity.

Pat. #4790904
Non-Contaminating
Natural evaporation uses no resins, membranes or electrolytic plate-out cells that require high maintenance and replacement costs. Since no chemistry is added or removed, your process remains unchanged.

Low Maintenance
The EVAPORATIVE TANK™ uses only two moving parts—a pump and a low-cost blower. All molded polyethylene components for solution security, the tank thickness is approximately 1/4" to 3/8". Other materials used are high-temp CPVC, polypropylene, PVC and stainless fasteners. The EVAPORATIVE TANK™ is the first atmospheric evaporator with a lifetime no-leak warranty.

Low Cost
Totaling all costs: initial purchase, energy, maintenance – the EVAPORATIVE TANK™ is the most cost effective in recovering 100% of the chemicals (dragout) from your rinse water, or in reducing the volume of spent solution and wastewater. When using natural gas for heat, the cost of evaporation is about 6¢ per gallon.

PLATING
- Recover Dragout
- Reduce Waste Volume

MACHINING
- Remove Water from Lubricants

ANODIZING
- Chemical Recovery
- Spent Solution Reduction

PHOTO PROCESSING
- Dewater Spent Rinse Water

PRINTING
- Dewater Wash Water

GENERAL
- Remove Water from ANY Waste Water Solution

If a bath can be air agitated without causing excessive foam, it should be well suited to this method of recovery. High cyanide baths and still nickels are examples of solutions that should be tested for foaming. A sample can be shaken in a glass jar to see if the foam disappears quickly.

Evaporation eliminates water and leaves all the plating chemicals (and tap water impurities) in the process tank. If your bath is not continuously filtered (as are some bright nickels), you may want to consider using D.I. or R.O. water in the rinsing chain.

The diagram at left illustrates the principle of counterflow rinsing. As the ladle representing dragout is moved from tank #1 to tank #2, the dragout is diluted by a ratio of 10 to 1. Each successive tank further increases this dilution ratio by 10 to 1. At tank #7 the dilution ratio is 10 million to 1.

HOW MUCH RINSE WATER DO YOU REALLY NEED?
Counterflow rinsing reduces rinse-flow requirements making dragout recovery practical and inexpensive. The table indicates the water needed to produce a 5,000:1 rinse ratio using most plating solutions, or 20,000:1 using chromic acid.

<table>
<thead>
<tr>
<th>DRAGOUT CONCENTRATION</th>
<th>GPH OF RINSE WATER NEEDED FOR EACH GALLON OF DRAGOUT*</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>DRAGOUT</td>
</tr>
<tr>
<td>MOST PLATING SOLUTIONS</td>
<td></td>
</tr>
<tr>
<td>CHROME, 40 oz./gal.</td>
<td>20,000</td>
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</tbody>
</table>

*For 2 GPH dragout, multiply by two, for 1/2 GPH multiply by .5, etc. (flow rates are rounded to the nearest gallon).
FEATURES

- Straight-Line Air Flow; Blower, Sprays and Evaporative Panels
- Large Volume, Low RPM, Full Width Blower
- Patented One-Piece Molded Wet-Section NO LEAKS!
- Double Union, CPVC Ball Valve, for Evaporation Control
- Maximum Wet Area, IN-LINE* for Easy Air & Solution Flow
- Rounded Tums for Smooth Air Flow
- Up to 1-1/2 HP, All Ball Bearing Motor, 1.25 Service Factor, 1e or 3e Available
- Up-Facing Exhaust, No Elbows Needed
- Choice of Pumps to Fit Your Application

Low Cost Installation Accessories

- Ventilation Components include pipes, elbows and rain caps of molded polyethylene for easy, slip-together installation.
- Pipe fittings of Schedule 80 CPVC
- EL PUMP™, an air-lift pump for counter-flowing, uses low-pressure air.
- LLC5™ (Liquid Level Control System, complete with solenoid valve).

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>ET-II</th>
<th>ET-II-W</th>
<th>ET-III</th>
<th>ET-III-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crated Weight:</td>
<td>340 lbs.</td>
<td>290 lbs.</td>
<td>400 lbs.</td>
<td>330 lbs.</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>56” Long, 69” High, 29” Wide</td>
<td>56” Long, 69” High, 38” Wide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blower:</td>
<td>1 hp (2500 CFM) 1hp*</td>
<td>1-1/2 hp (3300 CFM) 1-1/2 hp*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump Requirements: 10 psi (25 feet of head) Required at Evaporator</td>
<td>16 gpm</td>
<td>21 gpm</td>
<td>24 gmp</td>
<td>45 gpm</td>
</tr>
<tr>
<td>Evaporative Area:</td>
<td>700 Sq. Ft.</td>
<td>Variable</td>
<td>1,000 Sq. Ft.</td>
<td>Variable</td>
</tr>
<tr>
<td>Bottom Drain:</td>
<td>2” FPT, Gravity Return</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Temperature Limits:</td>
<td>Ambient Air: 40–104°F, Solution: 40–160°F</td>
<td></td>
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<tr>
<td>Vent Ducting:</td>
<td>16” Diameter, Available from POLY PRODUCTS INC.</td>
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<tr>
<td>Floor Space:</td>
<td>(48” x 25”)</td>
<td>(48” x 25”)</td>
<td>(48” x 34”)</td>
<td>(48” x 34”)</td>
</tr>
</tbody>
</table>

*available as 110/220V, 1 phase or 230/460V, 3 phase

For More Information, Please Write or Call:

POLY PRODUCTS INC.

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e-mail: info@poly-products.com

Warranty

This equipment is warranted by POLY PRODUCTS INC., to the original user for one year following the date of purchase against defects in materials or workmanship when installed and operated according to our instructions and limitations, and when used with approved solutions. We will, at our option, repair or replace any part or assembly proven to be defective when it is returned prepaid to our plant. Blower and pump metal parts (i.e., motors, etc.) are not warranted against corrosion. This warranty is in lieu of any others. We assume no responsibility for consequential damages.

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