



## EVAPORATIVE TANK™ SERIES

ATMOSPHERIC EVAPORATORS



### 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.





## HOW THE EVAPORATIVE TANK™ WORKS

The EVAPORATIVE TANK™ is available in four models; The ET-II and the ET-III are designed to recover chemicals (dragout) from rinse water.

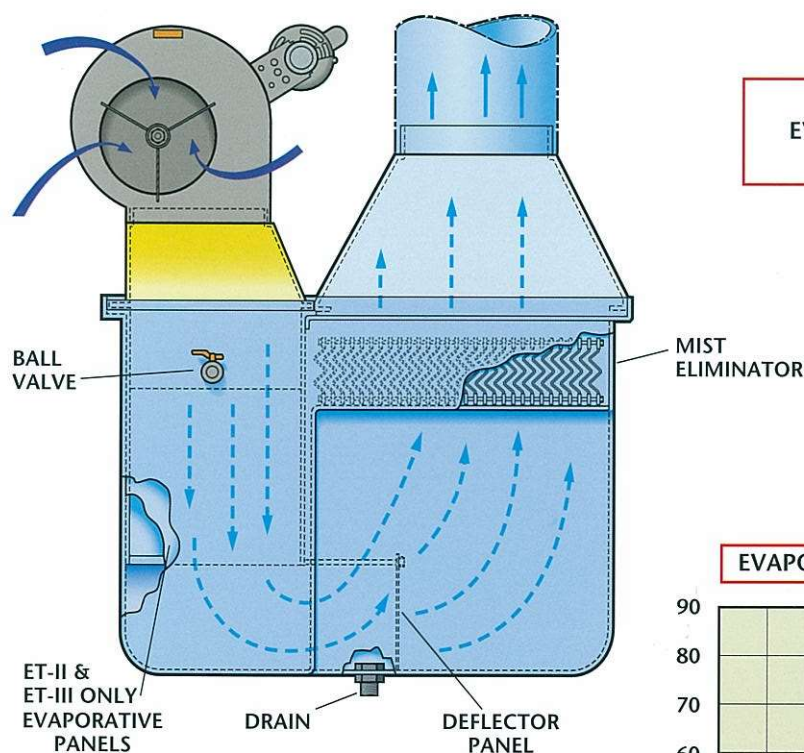
Pumped solution is circulated at a high rate from your process tank or reservoir up to the ET-II or ET-III, and is drained back by gravity to your tank. In the evaporator, the solution is sprayed onto 700 or 1,000 square feet of evaporative panels to humidify the blower air that is forced through these 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.

The ET-II-W and ET-III-W are ideally suited for dewatering spent solutions or wastewaters that may have a high solids content.

An optional AirScrubber™ can be installed inside the EVAPORATIVE TANK™ at any time to further reduce emissions to meet most stringent regulations.

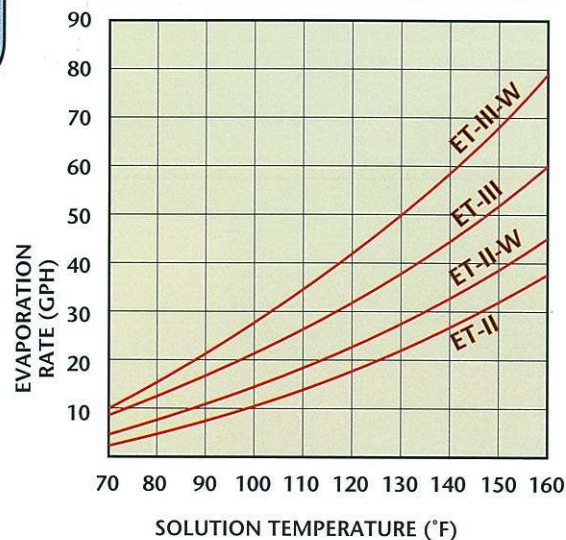
The ET-III-W or the ET-II-W depends on a high flow rate and large solution drops suspended in the air stream for its extensive evaporative surface. The 1/2" passages in the spray nozzles make the ET-III-W ideal for waste minimization. The ET-II-W is a smaller version of the ET-III-W and uses a flow rate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



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 ... 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

**EVAPORATION AND TEMPERATURE**





### 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.

## BENEFITS OF THE EVAPORATIVE TANK™

## APPLICATIONS

#### PLATING

- ☐ Recover Dragout
- ☐ Reduce Waste Volume

#### ANODIZING

- ☐ Chemical Recovery
- ☐ Spent Solution Reduction

#### MACHINING

- ☐ Remove Water from Lubricants

#### PHOTO PROCESSING

- ☐ Dewater Spent Rinse Water

#### PRINTING

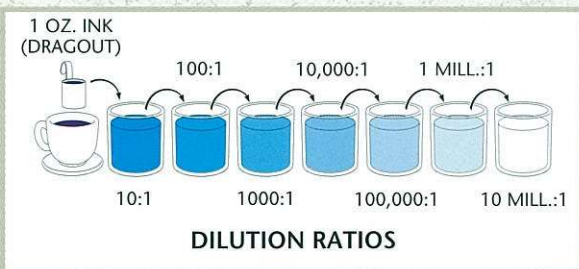
- ☐ Dewater Wash Water

#### 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.

## THE "MAGIC" OF COUNTERFLOW RINSING

### 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.

DRAGOUT CONCENTRATION	GPH OF RINSE WATER NEEDED FOR EACH GALLON OF DRAGOUT*				
	ONE RINSE	COUNTERFLOWING RINSES			
		2	3	4	5
MOST PLATING SOLUTIONS	5,000	71	17	8	5
CHROME, 40 oz./gal.	20,000	141	27	12	7

\*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 Turns for  
Smooth Air Flow

Strong, One-Piece, Molded "Tank". \*No Welded  
Pieces to Crack or Leak. Lifetime Warranty.



Up to 1-1/2 HP, All Ball Bearing Motor,  
1.25 Service Factor, 1Ø or 3Ø Available

Up-Facing Exhaust, No Elbows Needed

Custom Designed, Stay-Wet Mist  
Eliminator for Maximum Droplet  
Retention. Optional "AirScrubber™"  
Available for Near-Zero Discharge

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.
- ☐ LLCST™ (Liquid Level Control System, complete with solenoid valve).

## SPECIFICATIONS

Model	ET-II	ET-II-W	ET-III	ET-III-W
Crated Weight:	340 lbs.	290 lbs.	400 lbs.	330 lbs.
Dimensions:	56" Long, 69" High, 29" Wide		56" Long, 69" High, 38" Wide	
Blower:	1 hp (2500 CFM) 1hp*		1-1/2 hp (3300 CFM) 1-1/2 hp*	
Pump Requirements: <small>10 psi (23 feet of head) Required at Evaporator</small>	16 gpm	21 gpm	24 gmp	45 gpm
Evaporative Area:	700 Sq. Ft.	Variable	1,000 Sq. Ft.	Variable
Bottom Drain:	2" FPT, Gravity Return			
Temperature Limits:	Ambient Air: 40-104°F, Solution: 40-160°F			
Vent Ducting:	16" Diameter, Available from POLY PRODUCTS INC.			
Floor Space:	(48" x 25")	(48" x 25")	(48" x 34")	(48" x 34")

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



**POLY PRODUCTS INC.**

*Distributed by:*

### KAD Industrial Services

95 Newton Crescent

Garson, ON, P3L 1K3

E: huntington @kadgroup.ca T: +1.705.988.3399

E: joly@kadgroup.ca T: +1.705.690.5374

### 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.



# ET-COMPANION™

## Condenser

### What It Does:

When installed with an **EVAPORATIVE TANK™**, the **ET-Companion Condenser™** removes water from the evaporator's air exhaust. The dry air is returned to the **EVAPORATIVE TANK™** to work again.

**NO  
MORE  
HOLES...**

### Benefits:

- No more holes in your roof for exhaust ducting. No need for permits from the air quality people; this is a completely closed-loop air system.
- Recovers all water that is evaporated. Today's regulations require recovery of resources wherever possible. It makes economic sense, and removes the need for permits. **Reuse your rinse water.**
- Eliminates the air make-up problem. The same air is used over and over again. No need to heat or air condition replacement air – saving thousands of dollars.



### POLY PRODUCTS INC.

Distributed by: KAD Industrial Services

95 Newton Crescent  
Garson, ON, P3L 1K3

E: [huntington@kadgroup.ca](mailto:huntington@kadgroup.ca) T: +1.705.988.3399  
E: [joly@kadgroup.ca](mailto:joly@kadgroup.ca) T: +1.705.690.5374

# S P E C I F I C A T I O N S

## DIMENSIONS:

Base Unit with Fan .....37" W, 54" L, 55" H  
Height with Connection Ducts .....76"

## WEIGHTS:

Dry with Ducts .....400 lbs.  
Crated with Ducts .....450 lbs.

FAN H.P.: .....1

## FAN CURRENT:

115 V.A.C. ....13 AMPS  
230, 3Ø .....3.75  
460, 3Ø .....1.88

## COOLING TOWER WATER:

Maximum Flow .....58 gpm  
Inlet Temperature .....80° F Preferred  
Pressure Drop .....4.8 ft.  
Water Connections .....2" M.P.T.

## CONDENSER COIL:

Copper coils and aluminum fins have a baked protective coating that is resistant to practically all corrosive atmospheres.

## 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. Fans and 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.





**POLY PRODUCTS, Inc.**

# Heated Tank Evaporator System™



**Heated Tank Evaporator System™ shown  
with ET-Companion™ Condenser**

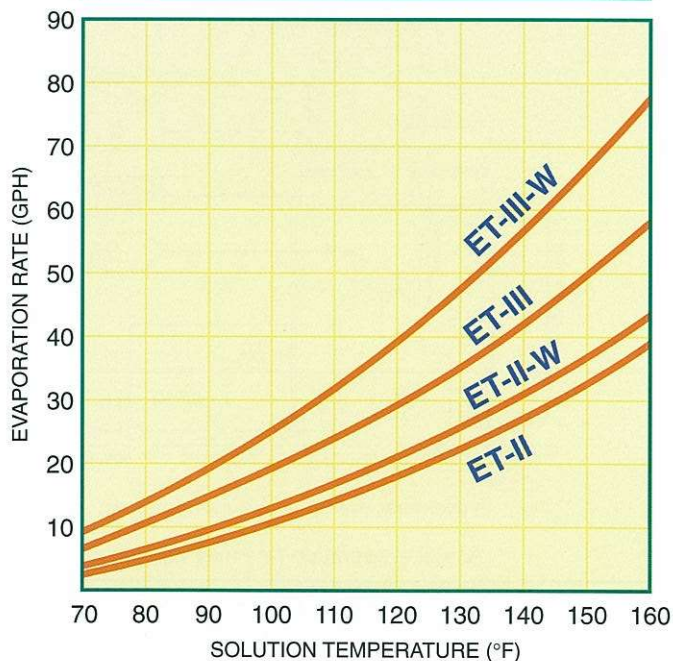
The Poly Products Evaporator System evaporates water from process solutions and waste waters under atmospheric conditions. The highest evaporation rate can be achieved by heating the solution prior to pumping it into the evaporator.

This is accomplished by using our heated tank with either a gas-fired burner, steam coil or electric heater. The patented (#4790904) Evaporative Tank™ is molded out of polyethylene, with no weld seams, for leak-free operation. With over 2,000 products in the field, the Poly Products evaporator has proven to be the leader in atmospheric evaporation of water.

## SYSTEM INCLUDES:

- Evaporative Tank™
- Stainless steel heated tank and fire tube (carbon steel and polyethylene are also available)
- Gas fired burner, steam coil, or electric heater
- Control panel with temperature control, over temperature protection and level controls for automatic operation
- CPVC or stainless steel centrifugal pump to feed evaporator
- Skid mounting with piping and wiring installed at the factory.

## EVAPORATION AND TEMPERATURE



The above evaporation rates are based on water. Evaporation rates will vary as the solution thickens and has less water content.



Heated Tank Evaporator System™ Models	Dimensions	Evaporation*	Heater BTU	ET Companion
ET-III-W-1-MINI-.55-40**	4' x 8' x 9'	40 GPH	550,000	No
ET-III-W-1-MINI-.55-40-C**	4'6" x 9'6" x 9'6"	40 GPH	550,000	Yes
ET-III-W-1-HT-.55-40	7' x 9' x 13'9"	40 GPH	550,000	No
ET-III-W-1-HT-.55-40-C	7' x 9' x 13'9"	40 GPH	550,000	Yes
ET-III-W-2-HT-1.0-80	7' x 10' x 13'9"	80 GPH	1,000,000	No
ET-III-W-2-HT-1.0-80-C	7' x 10' x 13'9"	80 GPH	1,000,000	Yes
ET-III-W-3-HT-2.0-120	8' x 15' x 13'9"	120 GPH	2,000,000	No
ET-III-W-3-HT-2.0-120-C	8' x 15' x 13'9"	120 GPH	2,000,000	Yes
ET-III-W-4-HT-2.5-160	8' x 20' x 13'9"	160 GPH	2,500,000	No
ET-III-W-4-HT-2.5-160-C	8' x 20' x 13'9"	160 GPH	2,500,000	Yes

\* The above evaporation rates are based on water. Evaporation rates will vary as the solution thickens and has less water content.

\*\* MINI series does not include platform and stand.

## OPTIONAL ACCESSORIES:

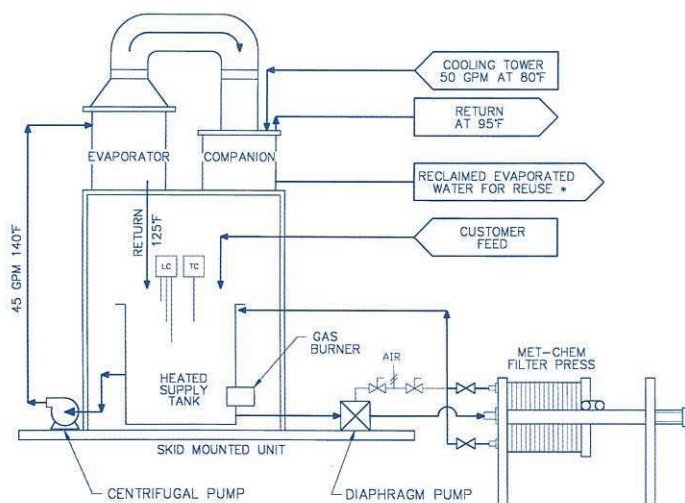
- ET-Companion™ Condenser for recovery of the evaporated water for reuse
- Insulating the heated tank
- Filter press for continual solids removal
- Storage tanks
- Pump stations
- Cooling tower for ET-Companion™ Condenser cooling water
- Above dimensions can be altered to fit special installation requirements



Control panel for heated tank system



ET-Companion™ Condenser for closed loop recovery of water and plant air



\* Actual evaporation rate may vary; consult factory



Filter press with polypro plates for solids removal ranging from .5-100 cu. ft. capacity



Heated tank with gas fire tube



**POLY PRODUCTS, Inc.**

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95 Newton Crescent  
Garson, ON, P3L 1K3

E: [huntington@kadgroup.ca](mailto:huntington@kadgroup.ca) T: +1.705.988.3399

E: [joly@kadgroup.ca](mailto:joly@kadgroup.ca) T: +1.705.690.5374