

8 – 650

Gallons Per
Hour



THERMAL EVAPORATORS



Industrial Wastewater Minimization
Reduce Hauling & Disposal Costs
Process Stream Concentration

ENCON
EVAPORATORS

www.evaporator.com

Why Choose Evaporation?

Evaporation is a time-tested & cost-effective method for reducing the volume of water-based waste



Hauling is Costly

Industrial and commercial facilities that generate wastewater spend too much money paying for hauling & disposal of waste streams that are mostly comprised of water.



Evaporation is Cost Effective

ENCON Thermal Evaporators are utilized by 1600+ facilities worldwide to evaporate the water portion of water-based wastes, reducing hauling/disposal volumes and cost by up to or even exceeding 99%.



Reduce a holding tank of
wastewater



Advantages of Evaporation

- ✓ Can handle different waste streams simultaneously
- ✓ Can handle very challenging and complex waste streams
- ✓ Dramatically reduces disposal volume & cost
- ✓ Eliminates sewer discharge accountability
- ✓ Achieve ZLD
- ✓ Safe to operate 24/7
- ✓ Low operating costs
- ✓ Requires less operator intervention than most wastewater treatment technologies
- ✓ Very effective for process stream concentration



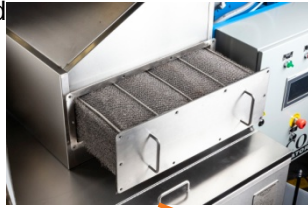
to a barrel of
residue!*

*example is based on a 98% reduction; reducing a 2,600 gallon tank of wastewater to 52 gallons of residue. Actual reduction percentage will vary based on chemistry and characteristics of the wastewater

Superior Design

Mist Eliminator System

ENCON Thermal Evaporators utilize a 316 stainless steel mesh mist eliminator pad compression fit into a stainless housing. The mist pad is interfaced with the the control panel to allow HMI monitoring. Designed for easy removal and cleaning. Standard mist pad is rated to 10-microns or less to capture even the smallest droplets. 5-micron mist pads also available.



Forced Draft Industrial Burner



ENCON fuel heated Thermal Evaporators use a forced draft combustion burner system for heating. Forced draft offers a more consistent & efficient burn, less flame impingement, longer equipment life, quieter operation and is less affected by atmospheric conditions than draft induced burners.

Robust Heat Exchanger

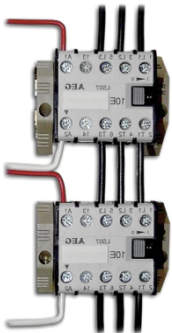
Each ENCON fuel heated Thermal Evaporator utilizes our unique heat exchanger design which provides extremely efficient heat transfer, resulting in reduced fuel costs. All ENCON heat exchangers are elevated in the evaporator tank which creates a void space for any solids to settle below the heat exchanger for easy cleanout.



Redundant Burner Contactors

All ENCON Thermal Evaporators contain this critically important safety feature.

If the duty contactor becomes stuck or fails, the redundant contactor will open in an alarm condition. This prevents a permanent "burner on" condition in the event of a failed duty contactor..



Blower System

Low RPM (1725 RPM), TEFC motor with class F insulation rated for high temperatures. Heavy gauge cast aluminum blower for durability and longevity. Extremely quiet with 3x the average life expectancy of 3450 RPM motors.

V4 Control & Monitoring System

NEMA 4 rated control panel with large 7" touchscreen provides continuous level probe diagnostics and monitoring of flue gas, chimney and liquid temperatures.

Level Sensing

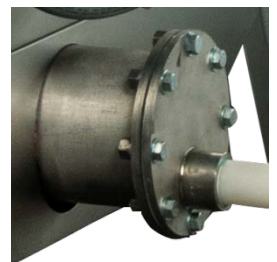
Durable tuning fork level probes provide reliable level detection to facilitate evaporator auto-fill and fail safe shut down for low and high liquid level conditions.



Cleanout Flange

Large four-inch flanged cleanout cover with a 1 1/2" NPT fitting for discharge pump connection and ease of residue removal.

8 & 10 gal/hr units have a four-inch flanged cleanout cover with 1" NPT fitting.



Fabrication

All ENCON Thermal Evaporators are clad with a polished 304 stainless steel exterior which provides greater corrosion resistance versus painted surfaces. Insulation on all six sides of the evaporator is rated to 450F with an R-value of 4.3. The evaporator tank and heat exchanger come standard in 316L stainless steel. When applicable, ENCON utilizes higher alloys for corrosive applications.





ENCON-link REMOTE MONITORING

The optional ENCON-link service allows you to monitor the evaporator remotely, minimizing operator walk-by's. Proactive alarm notification allows you to quickly address alarms and minimize downtime. Take advantage of maintenance alerts to help prevent component failures. Monthly performance reports and data driven diagnostics highlight opportunities for process improvement.

INTUITIVE OPERATION

ENCON Thermal Evaporators come standard with the V4 integrated control and monitoring system, the most advanced system of its type in the industry. Provides continuous level probe diagnostics as well as continuous monitoring of flue gas, chimney and liquid temperatures. Large 7" color touchscreen offers control of every aspect of the evaporation process.



V4 CONTROL STANDARD FEATURES

7" touch screen HMI panel

Continuous monitoring of flue gas, chimney and liquid temperatures

Continuous level probe diagnostics

Alarm Management and multi-year datalogging

Scheduled preventative maintenance alarms

Control system integration through Modbus TCP/IP

Remote access through browser or mobile app

Reliable safety monitoring and shutdown via certified safety relay

NEMA 4 Rated

www.evaporator.com

Process Description

1

WASTEWATER COLLECTION

Wastewater is collected in a holding tank upstream of the evaporator.

AUTO-FILL

Wastewater is automatically pumped or gravity fed into the evaporator through a 1" NPT fitting on the lid.

Once the evaporator is filled to the operating level, the heat source energizes, and water begins to boil.

2

EVAPORATION

As water is boiled off, the liquid level in the evaporator tank drops and is automatically replenished with water from the feed tank.

The evaporator continues in this cycle of boiling down a few inches and replenishing with feed water until the end-point concentration is reached.

3

END SEQUENCE

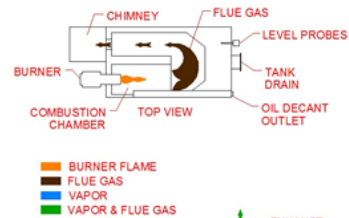
The end-point concentration is automatically detected via a high fluid temperature or cycle timer setpoint, whichever is reached first.

Upon reaching the end-point concentration, the super concentrated residue is pumped out of the evaporator to a disposal drum or tank.

4

Exhaust Scenarios

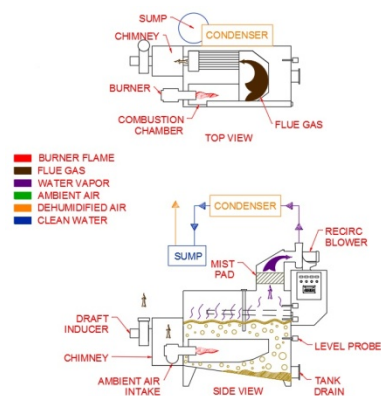
Evaporation



The flue gases are pulled back into the evaporator, mixed with the ambient air and drawn across the surface of the boiling water. The exhaust blower pulls the combined steam and gases through the mist eliminator and

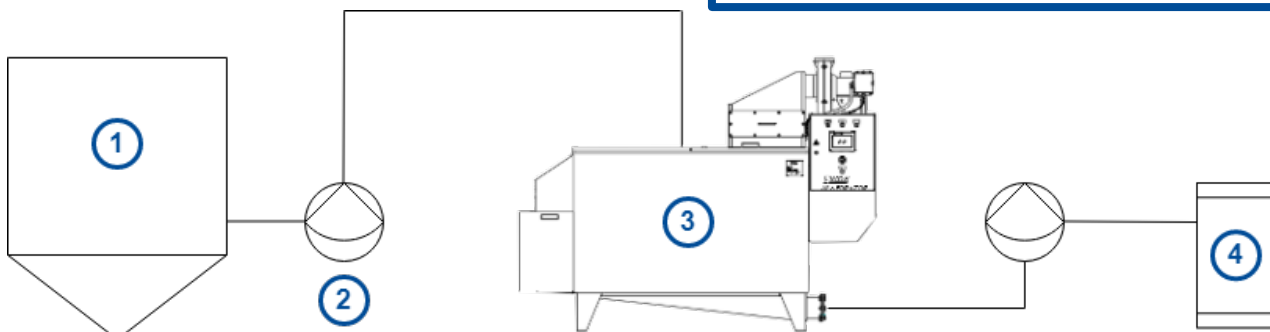
pushes them up through the stack and outside the building.

Distillation



The flue gases are not pulled back into the evaporator. Instead, they are vented separately up their own stack. The recirculation blower pulled the steam through the mist eliminator and pushed it through the condenser. The clean water is

directed to a sump and pumped to a distilled water holding tank.



Why Choose ENCON?

ENCON Evaporators has been in business for over 27 years designing, fabricating, selling and servicing our line of evaporators and related technologies.

FULL RANGE OF UPGRADES, ACCESSORIES AND SERVICES TO UNLOCK YOUR EVAPORATOR'S FULL POTENTIAL



ENCON offers a full range of upgrades, accessories and services to minimize labor and maximize return on investment.

- ✓ Recover your wastewater as clean condensate with our condenser package!
- ✓ Work with our consultative Sales Engineers to spec a turn-key system.
- ✓ Automate with auto-dump or auto-oil-decant.
- ✓ Utilize our air permitting / permit-exemption services.

OVER 1,600 INSTALLATIONS WORLDWIDE

ENCON Evaporators was founded on the principle of design innovation. In 1993 ENCON introduced the world's first thermal evaporator with mist eliminator technology incorporated as part of the standard design. Today that tradition of innovation continues. We are constantly seeking client feedback which drives continuous product improvement. Our mission is to ensure that the ENCON Thermal Evaporator is not only the premier evaporator on the market today, but that it will be even better tomorrow.

We encourage you to speak to our valued clients about ENCON systems and our industry leading service & support. Contact a Sales Engineer at 603-624-5110 for references or view case studies at www.evaporator.com/case-studies.



TRUSTED BY THE WORLD'S MOST RESPECTED COMPANIES



MOST HEAT SOURCE OPTIONS IN THE INDUSTRY

Choose the most cost-effective option for your needs

NATURAL GAS

PROPANE

STEAM

ELECTRIC

LANDFILL GAS

#2 FUEL OIL

THERMAL OIL

WASTE OIL

WASTE HEAT

DIESEL

Industry Leading Service & Support



PROACTIVE STARTUP ASSISTANCE

After your order, a Service Engineer will be assigned to your account. They'll work with you to make sure everything is ready for installation. They will walk you through start up (on-site startup and training is also available).

FREE TECHNICAL SUPPORT FOR THE LIFE OF YOUR EVAPORATOR

Getting help and/or advice shouldn't require a contract!. ENCON has offered free and unlimited remote support for over a quarter century. On-site service is also available ENCON also maintains a complete record of service work and interactions regarding the evaporator.



Free Application Feasibility Report

The centerpiece of our consultative approach is our complimentary bench scale analysis of your waste or process stream. This free analysis determines:

- How appropriate the stream is for evaporation
- Estimated reduction percentage
- Recommended materials of construction
- Recommended operating procedures.



To find out more, ask your ENCON Sales Engineer, give us a call at 603-624-5110 or email sales@evaporator.com.



PREMIUM SERVICE OFFERINGS

In addition to our industry leading standard support, ENCON offers a variety of premium offerings such as scheduled visits by ENCON Service Engineers. They will review and tune your evaporator, assess the unit's condition, assess the wastewater process, make suggestions for improving results, and conduct training.

FREE STANDARD LAB ANALYSIS OF YOUR WASTE STREAM FOR THE LIFE OF YOUR EVAPORATOR

Want to consider a new waste or process stream for evaporation? Not sure if your waste stream has changed? ENCON will analyze a sample of your stream, compare it to previous tests and make recommendations on any necessary process changes.



SPECIFICATIONS

The following is a summary of natural gas and propane fueled ENCON Thermal Evaporator specifications. Specifications for other heat sources are available.

Size by Evaporation Rate (gal/hr)	24 Hour Evaporation Capacity (Gallons)	Yearly Evaporation Capacity (24hrs x 250 Days)	Evaporator Tank Volume (Gallons)	System Dimensions (Inches) L x W x H	System Weight (Empty)
10	240	60,000	55	68 x 28 x 72	650lbs
18	432	108,000	113	80 x 28 x 83	800lbs
28	672	168,000	153	100 x 28 x 83	1,100lbs
35	840	210,000	310	100 x 52 x 84	1,500lbs
48	1,152	288,000	310	100 x 52 x 84	1,500lbs
60	1,440	360,000	425	112 x 57 x 86	2,200lbs
72	1,728	432,000	425	112 x 57 x 86	2,200lbs
96	2,304	576,000	578	156 x 52 x 108	4,000lbs
126	3,024	756,000	752	142 x 77 x 110	4,750lbs
165	3,960	990,000	752	142 x 77 x 110	4,750lbs
192	4,608	1,152,000	875	156 x 82 x 110	5,400lbs
260	6,240	1,560,000	875	156 x 82 x 110	5,400lbs
400	9,600	2,400,000	1428	199 x 101 x 130	10,200lbs
438	10,440	2,610,000	1600	199 x 101 x 142	10,600lbs
650*	15,600	3,900,000	2350	234 x 120 x 154	16,000lbs
Materials of Construction		<u>Exterior Skins:</u> 304 Stainless Steel. <u>Wetted Parts:</u> 316L Stainless Steel - Standard. High Nickel Alloys & Chloride Resistant Alloys – Optional. <u>Mist Eliminator Pad:</u> 316L Stainless Steel. <u>Insulation:</u> All 6 Sides, Rated to 450F, R = 4.3.			
Heat Source Options		Natural Gas, Propane, Steam, Waste Heat, #2 Fuel Oil, Diesel, Kerosene, Off-Spec Landfill gas, Thermal Oil, Electric (Available in 8, 15, 24, 40 & 80 gal/hr capacities), Waste Oil (Available in 12, 16, 26, 44, 63 & 88 gal/hr capacities). * available in natural gas, propane & steam.			
Controls		<u>Burner Controller:</u> Honeywell with Spark Ignition, Loss of Airflow Shutdown. <u>Temperature Controls:</u> Type J Thermocouples with 4-20 mA Analog input. Monitoring of Liquid & Heater Temperatures. <u>Controls Inputs:</u> Frequency Shift Level probes & Exhaust Fan Proving Switch. Redundant Low Level Shut-Off. <u>Control Panel:</u> UL listed, NEMA 4, PLC Control Panel. 7" Touchscreen HMI. Main Power Selector Switch and Indicator Lights for Main Power, Heater(s) and Alarms.			



ENCON Evaporators
 1368 Hooksett Road, Unit #9, Hooksett, NH 03106
 P: 603-624-5110
 E: sales@evaporator.com