



INSTALLATION AND OPERATION MANUAL

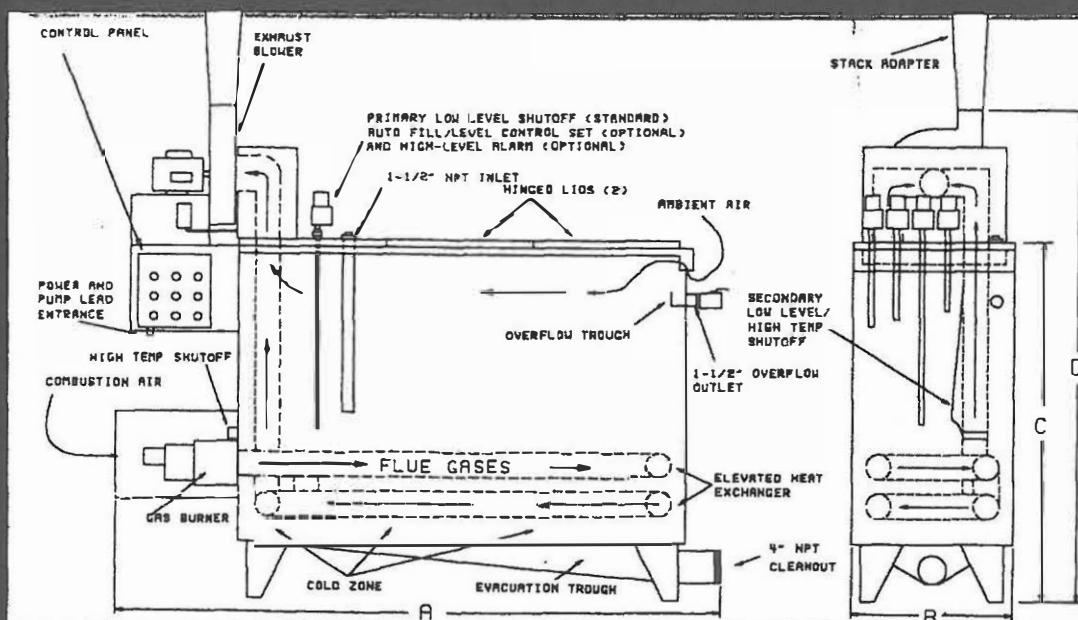
SERIES 800 GAS

*(When you receive your evaporator, please write
your serial number in the space provided above.
Please have your serial number available
when you call technical service.)*

**SAMSCO, Inc.
18 Cote Avenue
Goffstown, NH 03045**

**Tel (603) 668-7111
Fax (603) 647-0537**

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DIM.	SERIES 500	SERIES 600	SERIES 700	SERIES 800
A	85 1/2"	90"	97 1/2"	127 1/2"
B	22 1/2"	42 1/2"	42 1/2"	57 1/2"
C	50"	50"	53"	53"
D	65"	69"	85"	99"

Higher volume units also available. If interested, please contact SAMSCO for information.

MODELS

MS	Mild Steel (12 Gauge) (Series 500 only)
304	Stainless 304L* (14 Gauge)
316	Stainless 316L* (14 Gauge)
Special Alloys Available	
*All Lids and Wetted Parts	

SPECIFICATIONS

	500 Series	600 Series	700 Series	800 Series	Common to Each Series
Heat Input Max.:	195,000 Btu	395,000 Btu	750,000 Btu	1,500,000 Btu	Burner Type: Natural Gas or Propane
Evaporation Rate:	15 gal/hr (Auto) 18 gal/hr (Batch)	33 gal/hr (Auto) 39 gal/hr (Batch)	63 gal/hr (Auto) 68 gal/hr (Batch)	126 gal/hr (Auto) 145 gal/hr (Batch)	Heat Exchanger: Elevated, Layered Serpentine
Heat Exchanger:	3", Schedule 10	4", Schedule 10	4", Schedule 10	6", Schedule 10	Tank Floor: Sloped for sludge collection/removal
Vent Stack:	5" Diameter	6" Diameter	8" Diameter	10" Diameter	Tank Insulation: 6-sides, 1", rated 250°F
Tank Capacity:	174 Gallons	333 Gallons	296 Gallons	537 Gallons	Inlet Port: 1 1/2" Female NPT with fill pipe
Weight (Empty):	600 lbs.	800 lbs.	1,200 lbs.	2,800 lbs.	Cleanout Port: 4" Male NPT
Blower Type:	530 CFM, 1/2 HP	800 CFM, 1 HP	2,000 CFM, 15 HP	2,500 CFM, 25 HP	Oil Overflow Outlet: 1 1/2" Male NPT
Power Supply:	110 VAC, 7A 1-PH.	110 VAC, 15A 1-PH.	230/460 VAC 33/17A 3-PH.	230/460 VAC 57/29A 3-PH.	

FEATURES

- 1 Finely Tuned for Maximum Burner Efficiency
- 2 Burner/Heat Exchanger Design Yields Consistent Efficiency
- 3 Simple Full-Function Control Panel
 - Shutdown Indicators**
 - Burner
 - Low Liquid Level
 - High Temperature
 - Fan
 - Normal Function Indicators**
 - Power, Burner, Fan
 - Manual Fill/Overflow Switch
 - Power Circuit Breaker
 - High Temperature Reset
- 4 Tank has a DRY End and a WET End, for Evacuation, Convenience and Safety
- 5 Skimmer Trough for Easy Oil Removal
 - At Proper Height for 55 gal Drum or Holding Tank
 - Simple Push Button Removal
- 6 Accessibility for Sludge/Solids Removal
 - Hinged Lids for Handy Access to 1/3 of Tank Interior
 - Accessible Sloped-Bottom Evacuation Trough (Wide Center Area, Free of Heat Exchanger)
 - Convenient 4" Cleanout Port
- 7 Batch Operation or Automatic Feed
- 8 Heat Exchanger's bottom "Cold Zone" and Liquid-Level Controls Minimize any Potential Tube-Fouling

- **Solids fall past** elevated Heat Exchanger (unlike bottom heating designs, where **solids fall directly onto** Heat Transfer surface)
 - Avoids inevitable solids buildup/insulation of heat transfer surfaces
 - Ensures consistent heat transfer and protects heat exchanger
- 100% Tank/Lid Insulation for Maximum Safety and Efficiency
- "Off-the-Shelf" Replacement Parts, Readily Available
- **NOT SUITABLE FOR COMBUSTIBLE MATERIALS**
- **AVAILABLE OPTIONS:** (Factory Installed)
 - Automatic Fill/Level Control - High Level Alarm - Custom Bottoms
 - Tank Stands - Transfer Pumps - Holding/Evacuation Tanks
 - Remote Status Panel
- Energy Sources: Electrical or Steam

SAFETY: BURNER SHUT-OFF

- Intermittent Pilot, Electronically Timed Proving System, Flame Rectification, Dual Safety Valve Shutdown (700 and 800 Series: Direct Spark Ignition)
- Redundant Low Level Shut-Off (Capacitance & Thermocouple)
- Redundant High Temperature Shut-Off (Manual Reset)
- Blower Fan - Lockout of Burner unless Fan Operating
 - Airflow Detection Switch

Evaporates the Water Portion of Water-Based Wastes

ALL INDUSTRIES GENERATING WATER-BASED WASTES HAVE ONE COMMON PROBLEM: How to simply and economically dispose of their aqueous waste streams? There are major regulatory and economic pressures on them to reduce the effluent that they are currently hauling off-site or "putting to drain."

How are generators solving this dilemma? Many are turning to the **SAMSCO WATER EVAPORATOR** and the **SAMSCO Organization** as the answer to their disposal problem.

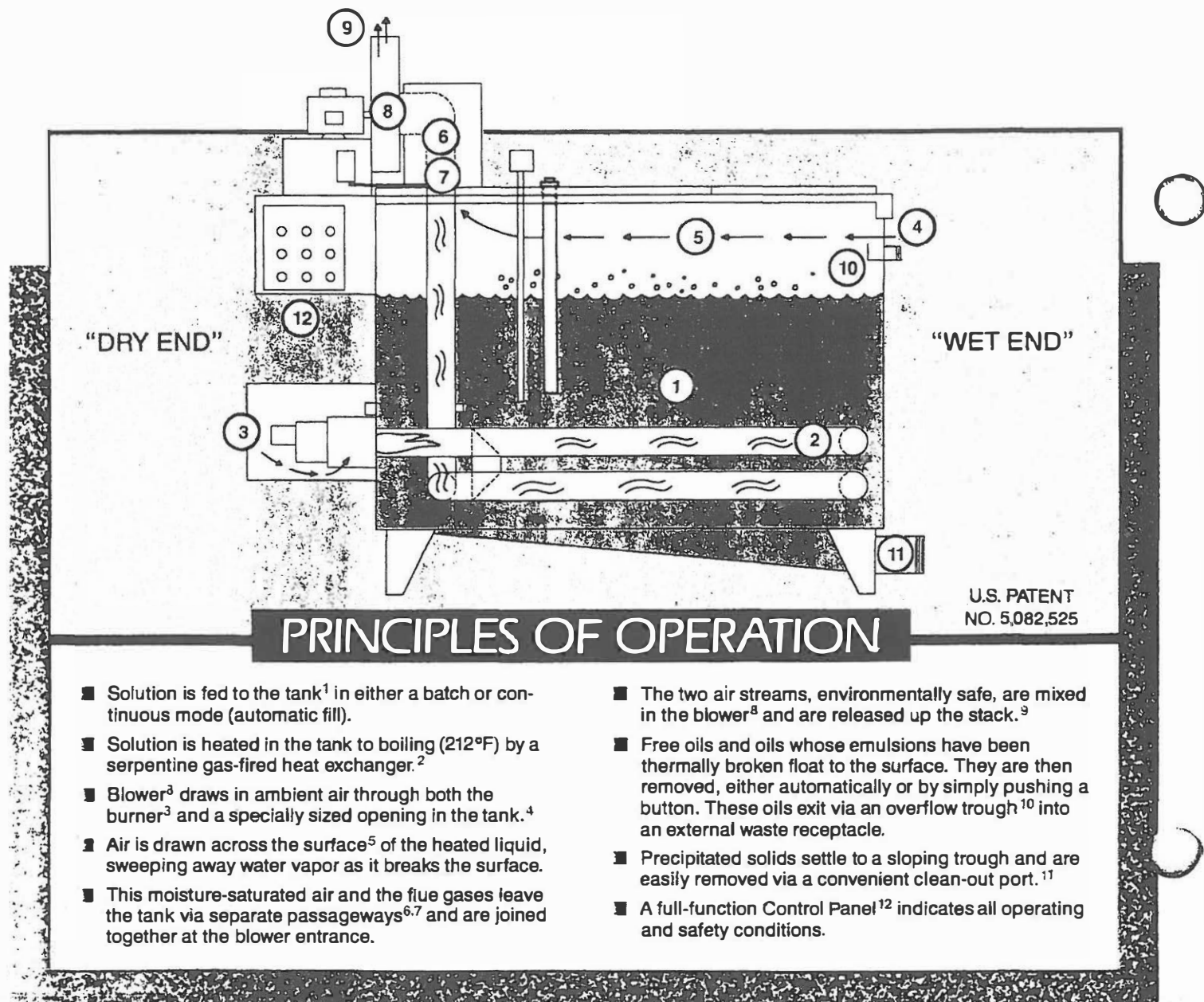
SAMSCO's equipment has been designed to evaporate efficiently and economically the water portion of a water-based waste. By converting the water to environmentally safe vapor and segregating any oils and solids, you can

dramatically reduce the effluent volume and, therefore, the associated costs and liabilities of waste disposal.

Furthermore, SAMSCO, Inc., with its expertise and proven track record, stands today as the leader in this evaporative methodology. SAMSCO's technical capabilities extend beyond simple equipment know-how, into such critical areas as: regulatory proficiency, assessment of stream composition, facility planning, engineering support, and financial payback considerations.

Equally important, through SAMSCO's efforts, this evaporative technology has been enthusiastically accepted by both environmental consultants and regulatory agencies. It is currently solving clients' waste disposal problems in some of the most stringent compliance states in the country.

ELIMINATE MOST OF THE WATER AND YOU ELIMINATE MOST OF THE PROBLEM!



- Solution is fed to the tank¹ in either a batch or continuous mode (automatic fill).
- Solution is heated in the tank to boiling (212°F) by a serpentine gas-fired heat exchanger.²
- Blower³ draws in ambient air through both the burner³ and a specially sized opening in the tank.⁴
- Air is drawn across the surface⁵ of the heated liquid, sweeping away water vapor as it breaks the surface.
- This moisture-saturated air and the flue gases leave the tank via separate passageways^{6,7} and are joined together at the blower entrance.

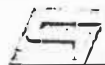
- The two air streams, environmentally safe, are mixed in the blower⁸ and are released up the stack.⁹
- Free oils and oils whose emulsions have been thermally broken float to the surface. They are then removed, either automatically or by simply pushing a button. These oils exit via an overflow trough¹⁰ into an external waste receptacle.
- Precipitated solids settle to a sloping trough and are easily removed via a convenient clean-out port.¹¹
- A full-function Control Panel¹² indicates all operating and safety conditions.

BENEFITS SECTION

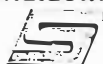
Reduces effluent up to 98% of its original volume
Operates economically — \$.03 to \$.08 per gallon
Available for a low capital investment
Supported technically by the most experienced organization in this evaporative methodology



Handles, simultaneously, a wide variety of aqueous waste streams
Eliminates—entirely—sewer discharge and sewer accountability
Segregates any remaining water-free oils and/or solids for final disposal
Can eliminate the need for large holding tanks and/or drum storage
Compact and flexible, to meet varying installation requirements



Extremely simple for personnel to install, operate and maintain
Protects heat transfer surface with elevated Heat Exchanger/"Cold Zone" design
Engineered for accessibility and convenient oil/sludge removal
Achieves maximum burner efficiency easily and maintains it consistently
Safe operation insured by burner/process Shutdown Controls, with Status Lights



Evaporation rate not dependent upon air humidity nor pre-heating of liquid
Does not direct fire, thus avoiding potential oil fire hazards and minimizing foam problems
Can enhance previously installed disposal/recycling systems, for close-to-zero discharge
Permits the choice of a variety of coolants on the production floor, unlike most recycling systems

APPLICATIONS

SAMSCO's expertise has proven effective and reliable with clients that range from small generators to many Fortune 500 companies. Applications include such waste streams as:

- Machining and grinding coolants
- Water-based cleaners
 - Spraywashers • Dip tanks • Steam cleaners
- Floor-scrubber waters
- Tumbling and vibratory solutions
- Wire-drawing compounds
- Die-casting solutions
- Plating solutions/Rinse waters
- Ion exchange regenerate
- RO/UF concentrate
- Oily compressor waters
- Dye penetrants
- Hydrotesting solutions
- Phosphatizing compounds
- Photographic solutions

EVAPORATIVE RATE

Evaporative rate depends upon selected SAMSCO Model and Btu input.

GALLONS PER YEAR*

	500 Series	600 Series	700 Series	800 Series
1 shift	30,000 gal	66,000 gal	126,000 gal	252,000 gal
2 shifts	60,000 gal	132,000 gal	252,000 gal	504,000 gal
3 shifts	90,000 gal	198,000 gal	378,000 gal	756,000 gal

*NOTE: Calculations based upon automatic feed (60°F water) and 250 days/year.

Clients with higher volumes routinely choose multiple units, utilizing a modular approach. Higher volume units are also available.

INTRODUCTION (CONT'D)

1.6 SPECIFICATIONS - SERIES 800

ELECTRICAL REQUIREMENTS:	230/460V, 3 Phase, 60Hz, 57/29A
BURNER TYPE:	Atmospheric with Induced Draft - Direct Ignition Natural Gas or Liquid Propane Normal Operating Range 750,000 to 1,500,000 BTU/Hr
HEAT EXCHANGER MATERIAL:	Schedule 10, 6-inch (Nominal) Diameter Material to match tank material selected.
HEAT EXCHANGER DESIGN:	Submerged, Elevated, Serpentine Layered, Safety "Cold Zone"
VENT STACK:	10-inch Diameter (single wall, galvanized typical)
BLOWER TYPE:	High Pressure Direct Drive 2,500 CFM 3450 RPM, 25 HP (three phase)
TANK CAPACITY:	537 gallons Normal Operation
TANK INSULATION:	1-inch thick, 250°F, all six sides
WEIGHT:	2,800 lbs empty (shipping = 3,000 lbs)
TANK DESIGN:	Sloped Bottom (for easy sludge removal)
INLET PORT:	1-1/2" NPTF with fill standpipe
CLEANOUT PORT:	4" NPT Pipe
OIL OVERFLOW OUTLET:	1-1/2" NPT

1.7 ACCEPTABLE LIQUID WASTE

Only you can control what types of water-based wastes are placed in the **SAMSCO Water Evaporator**. You should process only those wastes for which the **SAMSCO Water Evaporator** was originally approved and purchased.

Only those liquid wastes that have been approved by **SAMSCO, INC.** and the proper regulatory agencies should be placed in the **SAMSCO** unit.

Do not put acidic (pH less than 7) materials into the evaporator.

WARNING: DO NOT ATTEMPT TO EVAPORATE FLAMMABLE WASTES OF ANY KIND. I.E. DO NOT PROCESS SOLVENTS, PURE OILS, ETC.