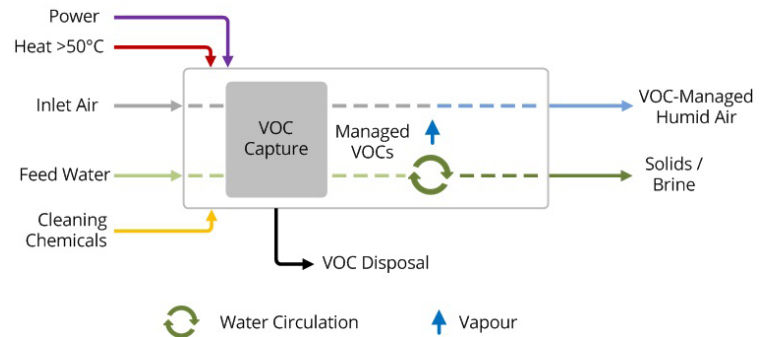


SaltMaker AirBreather Evaporator Crystallizer

Low-grade heat brine concentrator or zero liquid discharge (ZLD) system:

- Zero contact of wastewater to atmosphere
- Guaranteed to meet all emissions targets, including for volatile organic compounds (VOC), methanol and particulates
- Two options: freshwater for surface discharge returned, or volume reduction without freshwater returned
- Cost-effective and rugged
- Smart design for reliability
- Optimized for managing oil & gas brines with lowered costs



Process flow diagram for the AirBreather



AirBreather AB100: Optionally tented (left) and untented (right)

Reliable

High redundancy to perform in harsh, demanding environments. Constructed with durable, non-stick, non-corroding wetted parts.

Volatile Management System

Built-in system to capture and safely dispose of VOCs and meet air emission standards.

Rapid Deployment

Modular design enables rapid transport and assembly at site. Pre-fabricated ISO container blocks for easy transport and installation.

Simple Solids Management

No chemical pre-treatment or softening sludge required. A single-step process discharges solids in bags or bins for easy handling.

Cost-Effective Operations

Intelligent automation maximizes performance with capacity control, self-cleaning, and self-diagnosis.

Total Service and Support Options

Volume reduction service, complete package delivery, and installation options.

Utility Requirements

Thermal Source	Any source (>50 °C, 90 °C preferred); use low-grade heat to treat water: ~4 GJ/m ³ (4x SaltMaker MultiEffect due to single effect)
Electrical Energy Consumption	~30 kWh/m ³ for brine production
Power	Any voltage, 3-phase, 50/60 Hz
Brine Concentrator De-rate	Concentrate to 450,000 mg/L; de-rate by 20%
Crystallizer (Solids) De-rate	Produce solids; de-rate by 40%

Capacity & Size (AB100)

Clean Water Removal Capacity (Evaporator non de-rated)	100 m ³ /d (630 BPD)
Brine Concentrator Size	L70–90' x W40' x H25'
Crystallizer (Solids) Size	L90–100' x W40' x H25'

Primary Features

Differentiation from Other Open Evaporators	<ul style="list-style-type: none"> • Produces a concentrated brine or solids • No combustion by-products • No hot plume (cooling tower, vapour instead) • No corrosion • Volatiles management • Single modular package
Emissions Management	<p>No direct contact of wastewater to atmosphere; only VOC-treated, distilled water contacts atmosphere</p> <p>Proprietary technology — not for public disclosure; contact Saltworks for project assessment</p>
Modularity	Expandable with your needs; ISO blocks movable to new sites
Safety	Low-pressure, low-temperature modules slide in and out for inspection and maintenance; no confined spaces, easy lock-out, and ergonomic design
Reliability	Smart process design for reliable slurry or solids production: Avoids conventional boiling and evaporation on heat transfer surfaces, which causes scale; self cleans while running
Durability	<p>Non-corroding, non-stick, no-pressure vessels (atmospheric pressure):</p> <ul style="list-style-type: none"> • Pipework: UPVC and CPVC • Modules and tanks: gel-coated, fiber-reinforced plastics • Pumps: engineered plastics, no wetted metallic parts • Heat exchangers: titanium, non-boiling (no boiling nuclei scaling)
Automation	<ul style="list-style-type: none"> • Automated self-cleaning, start, stop and capacity control; ramp up from 25% to 100%, or hibernate at 0% while circulating • Programmed to remove scale before it becomes irreversible • High quality instrumentation and sensors package • PLCs with user-friendly graphical interface and controls that offer remote login, data logging, and trend analysis • Variable Frequency Drives (VFD) for energy efficiency

Standard Package & Options

SaltMaker AirBreather Service	Saltworks provides a brine volume reduction and removal service based on actual volumes treated. Saltworks delivers a complete packaged system, from inlet to discharged treated water and solids, installed on your site, along with experienced operators and support staff to ensure highest up-time and reliability.
Training & Support	On-site training and commissioning; ongoing support comes with videos, tutorials, checklists, and remote assistance
Thermal Energy	Waste heat conversion (>50 °C), low-pressure steam, hot water, or gas-fired options
Additional Options	<ul style="list-style-type: none"> • Turnkey package including build, delivery, installation • Operations packages: Saltworks operates the SaltMaker AirBreather on-site