



Minievaporator

A **simple** and **effective** method to treat liquid hazardous waste in remote locations

Do you have
problems getting
rid of your liquid
hazardous
waste?

Is it difficult
to transport
the waste to
a recycling
center?

Are you
hesitant to
pour it into
a ditch?



Then the
Minievaporator is
the answer to your
problems!

CleanTech Lund has developed a new, effective, and self-supporting small evaporator (Minievaporator) that can remove hazardous substances from aqueous solutions and convert the water and hazardous waste into a tiny amount of dry waste. The Minievaporator can treat around 70 liters of contaminated water per day. The heat for the evaporation comes from a heat pump, which saves energy. Power requirement: 1300 Watts

Background

Treating industrial hazardous waste with an evaporator is a common and highly effective method for removing dangerous substances from wastewater.

The evaporator boils the wastewater, causing most of the water to evaporate, leaving the hazardous waste in a smaller amount of water. Usually, evaporators leave 5–10% of the original volume as residual waste (condensate). These evaporators are typically large and require a great deal of space and energy, as well as a significant effort to change, store, and transport the waste barrels.

Traditional evaporators are, therefore, unsuitable in remote locations, where there are limited resources.

Minievaporator

A double-walled vessel is heated with circulating hot water. A vacuum fixes an inserted bag to the inner wall, and the bag is filled with contaminated water.

When vacuum is applied also to the inside of the bag, the contaminated water starts to boil. Steam is formed and will escape to a tube connecting the vacuum source. A condenser converts steam into water, which is pumped to a tank.

The volume decreases during evaporation, and the Minievaporator is automatically refilled with more contaminated water from a storage tank.

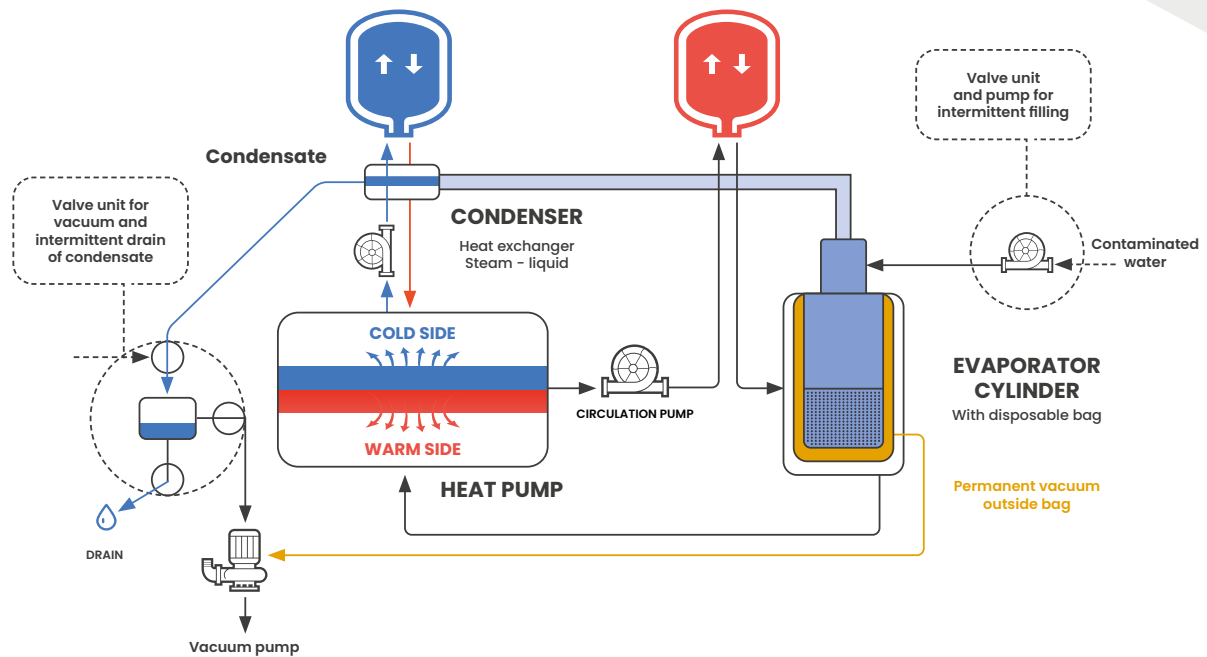
When the bag is full of solids, the process is paused. The inserted bag is removed from the vessel and disposed of for subsequent destruction of the contaminants. A new bag is inserted, and the process may continue.



HEAT PUMP

A heat pump provides heat for the Minievaporator with low energy consumption.

Schematic drawing



Features

- Fully automatic evaporation and filling.
- Manual change of disposable bag.



Minievaporator

Technical data:

Electric supply:
230 VAC, 0.3 kW

Dimensions:
WxDxH = 775 x 710 x 1660 mm

Weight:
75 kg (during operation 100 kg)



Heat pump

Technical data:

Dimensions of the heating unit:
800 x 1500 x 2000 mm

Power requirement:
1 kW.

CleanTech Lund

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