

Daiwa Chemical Industry Co., Ltd.

“GEN” Reduced-Pressure Dewatering/Drying System

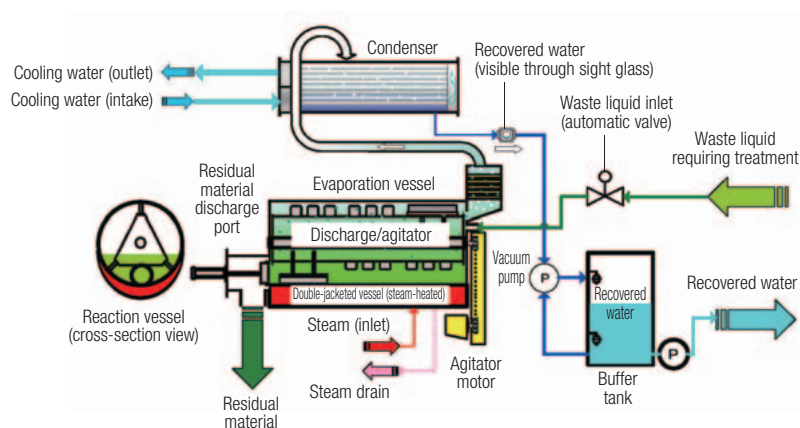
- **Concentration/reduction and recovery/reuse of industrial waste containing a high percentage of water**

Product Description

The “GEN” Reduced-Pressure Dewatering/Drying System uses reduced pressure to eliminate nearly all moisture from concentrates, providing an answer to the problem of zero emissions.

Main Features

- **Reduction in waste volume by evaporation and dewatering under low pressure of all kinds of liquid waste or sludge.**
- **Applicable not only to liquid waste, but also evaporating and recycling of high-boiling-point solvents, etc., is possible.**
- **For a treatment system with a capacity of 500 liters/hour, reduction of approximately 850 tons/year at 90% concentration.**



Summary

Everyone knows that when one climbs to the top of a high mountain (for example, Mt. Fuji), the air is thin, and when one boils water on a mountain high above sea level, the water boils more easily at a temperature lower than when heating water closer to sea level.

This is because the air pressure is lower and the boiling point of water goes down, and thus, water boils more easily. In a similar manner, when one reduces the pressure to near vacuum (approx -0.1 MPa) in certain kinds of vessels, water will reach the boiling state at around 50°C . By applying this universal principle, this reduced-pressure dewatering/drying system evaporates and removes water, concentrates, and dries or solidifies the residue.

Ordinary wastewater treatment entails major expenses and requires large amounts of space, and the equipment is extremely complex. Waste liquid and concentrates are often processed as industrial waste. Also, whatever the treatment equipment, in the majority of cases, dehydrators and the like are used to process the sludge into cake form.

Systems to remove water using pressure and heat such as filter presses, screw presses, centrifugal extractors, etc., have limitations, and the moisture content is around 60%. Further, when the equipment is old, this figure can drop to as low as 70% to 80%. The need to replace filter cloth also increases costs.

Compared to existing dewatering and concentrating methods, this system is simple and can be run at low cost. The residual material in the vessel can be dried to a moisture content of around 10%.

Installation Examples

Customer	Location	Application	Treatment Volume (liters/hour)	Units Installed
Company M	Singapore	Regenerate/recycle solvents	25	1
Company S	Philippines	Treatment of waste liquid concentrate	300	1
Company N	Korea	Treatment of waste cleaning fluid	100	1
Company N	Taiwan	Treatment of waste cleaning fluid	150	1
Company U	Korea	Recycling of waste liquid from silicon wafer fabrication	600	1

The examples cited above are for deliveries in East and South Asia. We also have approximately 100 customers in Japan.

Benefits

At present, the norm for treating wastewater and waste liquid with a high moisture content is to discharge them after specific chemical treatments or activated sludge treatments under regulatory control. The residue is subjected to mechanical force such as filter presses, etc., to achieve a moisture content of 60% to 80% and then disposed of as industrial waste. The "GEN" system is based on a treatment approach centered on evaporation under reduced pressure. This system is designed for closed-loop operation: it reduces the volume of industrial waste, can lower the moisture content of residual material to just a few percent, and recycle the water recovered.

Automatic batch or continuous operation

Maintenance free; the pump is the only moving part.

Completely automatic operation using a mechanism to automatically discharge the residual material.

Moisture content of cake as low as 1% to 5% after treatment

Moisture level can be adjusted under batch operation.

Reduces industrial treatment costs. Expands the range of reusing waste liquid.

Careful consideration given to controlling odors and reducing noise

Sealed construction eliminates escaping odors.

Quiet design. The sound of the pump in operation is the only audible noise.

Also treats mixed organic/inorganic waste liquids

Mixed waste liquids such as spent acid and alkali wastewater can also be treated using a neutralizing treatment process.

Inquiries

Daiwa Chemical Industry Co., Ltd.

<http://www.daiwakagaku.com>

E-mail daiwa@daiwakagaku.com

5-8-6 Minami-Okajima, Taisho-ku, Osaka 551-0021, Japan

TEL +81-6-6553-5673 FAX +81-6-6552-5618