

GLENCAL TECHNOLOGY

RedoxMaster ionisation solution has been installed at the Snow Brand Megmilk Horonobe plant, one of Japan's big three dairy companies, to dry and convert wastewater sludge into fertilizer and reduce Costs and CO2 emissions.

In August 2024, Snow Brand MegMilk Co Ltd, under the leadership of President Masatoshi Sato, decisively installed a RedoxMaster solution manufactured by Glencal Technology Co., Ltd, headquartered in Chiyoda-ku, Tokyo. This strategic move is part of the company's 'Sustainability Management' initiative to achieve carbon neutrality by 2050.

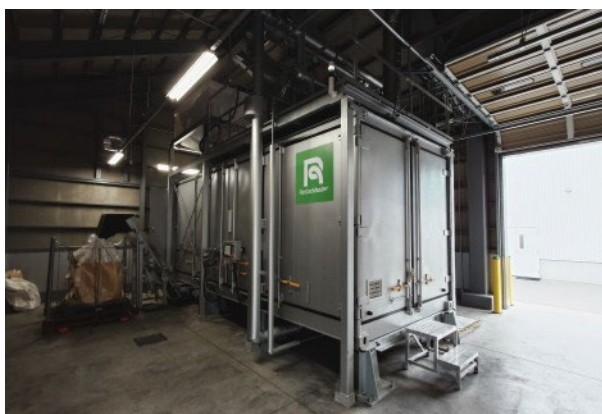
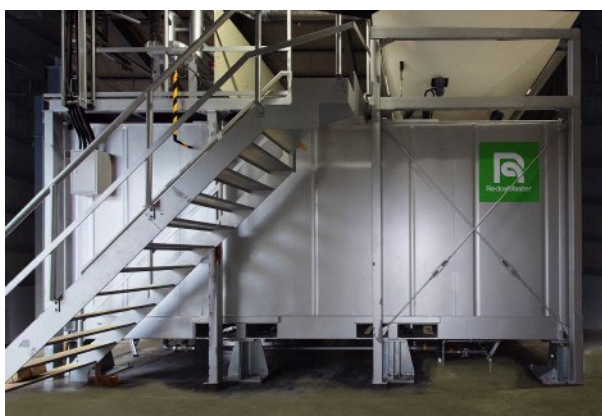
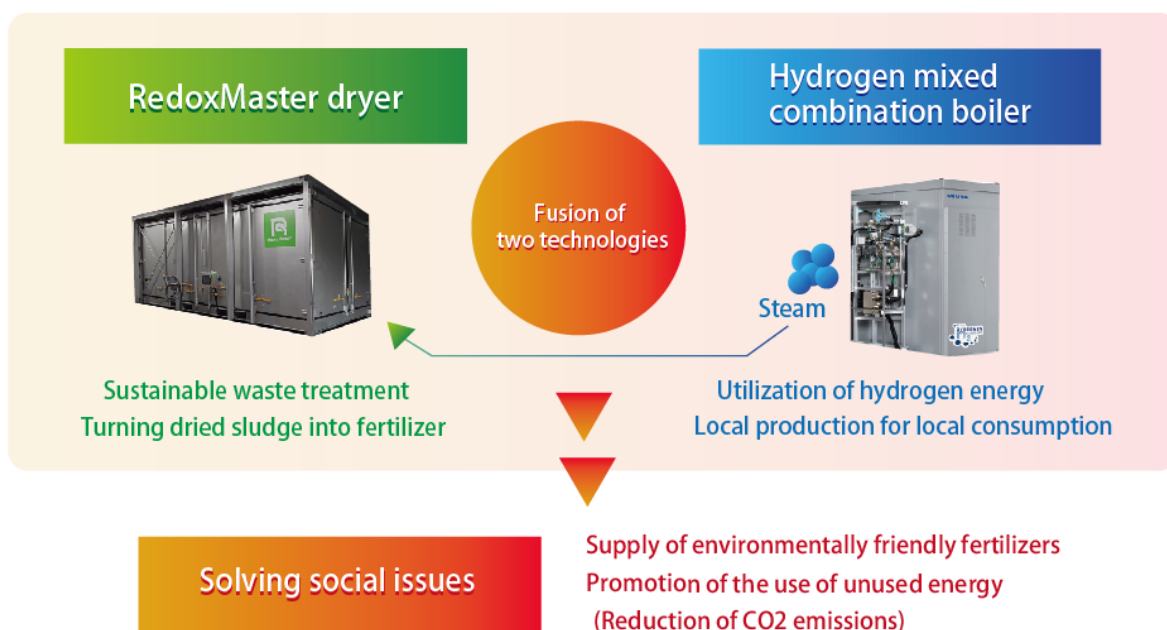


The RedoxMaster® innovative and patented design uses the Mixed Ion Reactive Approach (MIRA.) The MIRA engine incorporates advanced ionization technology to generate reactive oxygen species and ultra-low energy plasma ions. This facilitates the unprecedented rapid drying of wet materials by disrupting the hydrogen bonds in the water molecule to form smaller clusters, enabling swift drying at remarkably low temperatures, thereby delivering significant energy cost savings, reduced CO2 emissions and most importantly, RedoxMaster dries without carbonization or oxidization, therefore preserving the original properties of organic materials.

Sustainable Waste Management

RedoxMaster® is used to dry the excess sludge (dewatered sludge) discharged from wastewater treatment facility and it is dried with minimal energy, resulting in a significant reduction in waste disposal costs. Further promoting sustainability in areas of Japan's agricultural and food processing industry, which up until now has proven very difficult and expensive when using conventional drying methods.

New Initiative at Horonobe Plant



RedoxMaster Photo's

Project Benefits and key outcomes

The RedoxMaster was installed at the company's Horonobe Plant in Hokkaido to process and repurposes excess sludge from the plant's wastewater treatment facility, resulting in a remarkable reduction in waste. According to the company's calculations, waste emissions will be **reduced from 346 tonnes annually** of dewatered sludge, **to 123 tonnes annually** of dried sludge that will be **utilized as fertilizer in local farming**.

Before Introduction (dewatered sludge)

346 tonnes per year

After introduction (Dewatered sludge)

123 tonnes per year

Additionally, the **93 tonnes of CO₂ emissions per year** that were previously emitted due to sludge being processed in a vacuum dryer will be **reduced to 46 tonnes per year** with the introduction of the RedoxMaster Solution

Conventional method (vacuum Dryer)

93 tonnes – CO₂ per year

RedoxMaster (Processing)

46 tonnes – CO₂ per year

The use of hydrogen energy and local production for local consumption

The plant uses hydrogen as boiler fuel for producing butter and powdered milk; by co-firing LNG and hydrogen, the plant contributes to the sustainable use of hydrogen energy and the reduction of CO₂ emissions.

Snow Brand Meg Milk is participating in the 'Construction of a regional CO₂-free hydrogen supply chain using unused natural gas in the town of Toyotomi in Hokkaido'.

This project is a hydrogen society construction technology development project carried out by Air Water Inc. (Head office; Osaka) and Toda Kogyo Inc. (Head office; Hiroshima) under the auspices of the New Energy and Industrial Technology Development Organisation (NEDO).

Through this project, the Group aims to further reduce CO₂ emissions by using it as the main heat source for the RedoxMaster. The Group will continue to work towards achieving carbon neutrality towards the year 2050 and this RedoxMaster project plays a pivotal role in achieving that.

Glencal Technology

Glencal Technology is very excited to be involved in an industry leading, highly technical conservation project that incorporates advanced waste recycling and clean energy production. The new boiler facility will be built to co-fire hydrogen with LNG, the existing boiler fuel, to build up a technical base for hydrogen utilisation and to be used as the main heat source for the RedoxMaster

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