

CASE STUDY

Equally innovative and sustainable in wastewater treatment as in the valorisation of organic waste streams.

PROJECT



Customer	Rendac, part of Darling Ingredients Inc.
OEM - partner	Pantarein
Location	Denderleeuw, Belgium
Sector	Industrial / animal waste rendering
Project type	Upgrade (addition of membrane section to an existing biological treatment)
Product	Phase 1: IPC® Flex Navy 2W8 (16 modules) – Capacity increase – Discharge effluent Phase 2: IPC® Flex Navy 3W8 (24 modules) – Capacity increase – Discharge effluent Phase 3: IPC® Flex Navy 3W16 (48 modules) – Capacity increase – Reuse effluent
Start-up date	Phase 1: March 2019 Phase 2: October 2019 Phase 3: Q2 - 2022



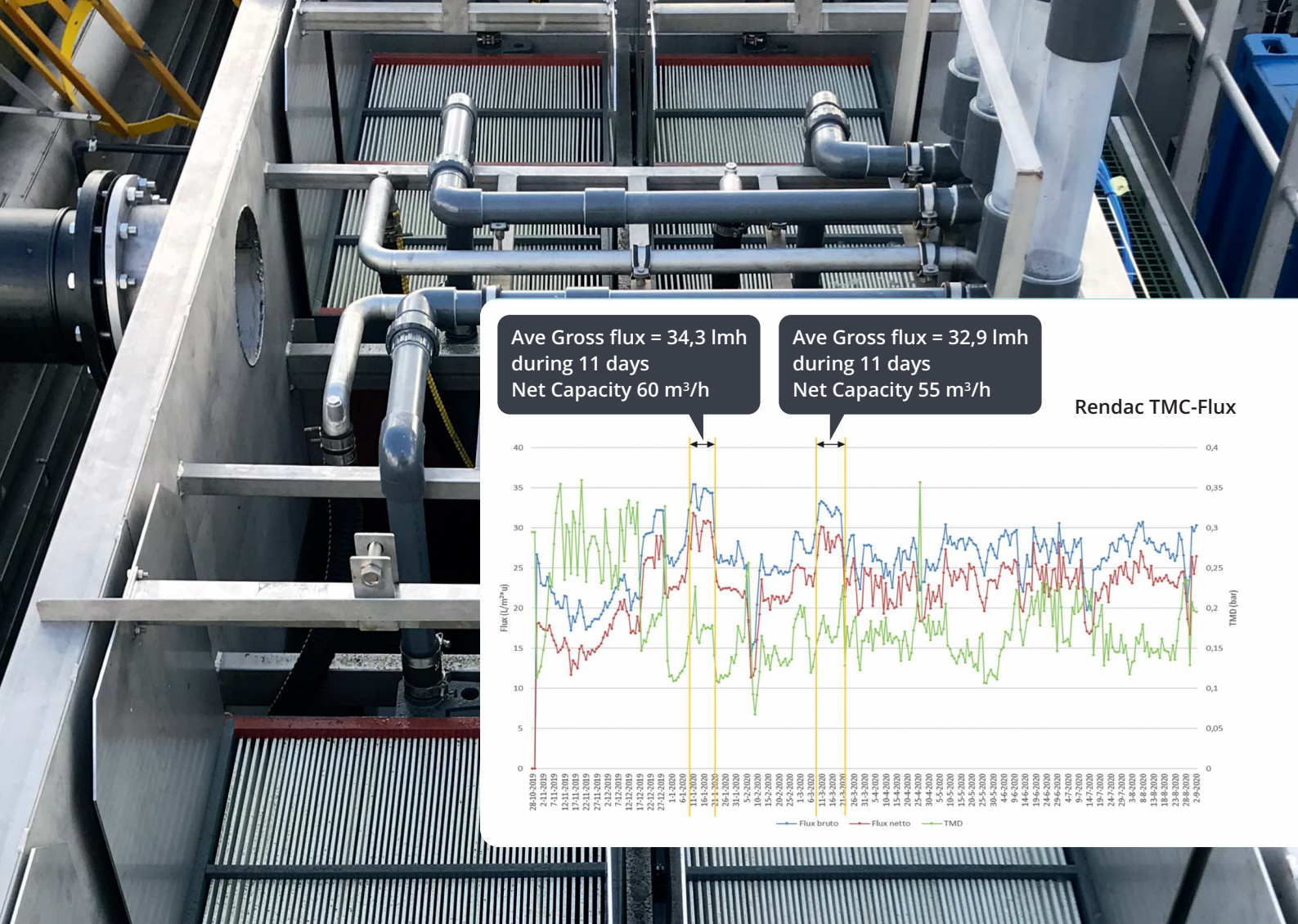
Rendac Denderleeuw

CHALLENGE

Adding value to specific organic waste streams from animal origin is the main goal of Rendac, part of Darling Ingredients Inc. Rendac's wastewater, with high concentrations of nitrogen and presence of grease, poses an enormous challenge for its wastewater treatment plant. Production expansion created the need to increase the wastewater treatment capacity while remaining compliant with existing environmental legislation and within the existing site space.

Rendac asked Pantarein, a respected Belgian solution provider for industrial wastewater applications, to adapt its existing plant so it can cope with an increasing wastewater flow within the available footprint. Pantarein selected Blue Foot to provide the membrane technology for the plant upgrade, which was done in two phases. The third phase, which was completed in 2022, doubled capacity and enabled the reuse of treated wastewater for cleaning and utility purposes, aligning with the core sustainability values of Darling Ingredients Inc.





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SOLUTION

The original set-up of the wastewater treatment plant consisted of an anaerobic treatment followed by dissolved air flotation. Therefore, the conventional activated sludge (CAS) plant influent received high concentrations of fines and a fibrous bacteria culture. This original wastewater treatment design was upgraded by:

1

Changing the aeration units within the activated sludge track.

2

Addition of a bow sieve as pre-treatment to the membrane section.

3

Installation of 8 IPC® Flex Navy towers each containing 3 IPC® Flex Navy modules (phase 2).

RESULTS

By optimising the aeration units in the CAS plant, Pantarein was able to expand the biological treatment capacity and reduce the hydraulic retention time in the bioreactor. The dedicated membrane section, containing about 1.800 m² of IPC® membranes on a footprint of only 22 m², increases the wastewater treatment capacity by 100% from 720 m³/day to 1440 m³/day.

Other advantages demonstrating the IPC® membranes are an ideal fit for this application are the limited pre-treatment requirements and resistance to membrane fouling caused by animal hair due to the truly back-washable membranes.

Though the more stringent environmental restrictions were met, Rendac aims to reuse their treated wastewater in the near future.

