

CASE STUDY

Simpsons Malt



The issue

Production capability reduced

Simpsons Malt in Northumberland has been providing malt for the brewing, distilling and food industries for over 150 years. The company is the second largest malt maker in Europe. Their Berwick-upon-Tweed Maltings employs around 120 people and produces 236,000 tonnes of malt annually.

Though it comes at the end of the process, the waste water treatment plant on the site drives the entire production facility. When it's running at its optimum the effluent plant is more than capable of delivering enough capacity for the whole plant. However, when it's not, it reduces production capability.

Prior to Suprafil's involvement the client's treatment plant had been suffering a number of issues for around seven years and these had been growing progressively worse. The existing system (a pressure feed JETOX system) in the Bioreactor treatment tank was underperforming and failing to reach required oxygen transfer levels and constantly blocking the ultra-filtration membranes. When this happened, the whole plant had to shut down and the membranes manually cleaned. At its peak it was an issue that was happening several times a week and because the aeration system was not running as efficiently as it should have been, it meant all three blowers had to run flat out 365 days a year, 24/7.



The solution

Tried and tested

Suprafilt has experience in a range of industries but Simpsons Malt presented a different challenge, principally because of the restrictions created by the existing fitted JETOX in the tank. The large surface bubble pattern and noise created by the old system suggested that the issue could be solved by the installation of a fine bubble membrane aeration system.

The vast number of bubbles it creates, though much finer, have far greater surface area than a larger volume bubble and as a result transfer more oxygen. The oxygen feeds the bacteria in the tank which breaks down any solid mass, COD and BOD.

To win the company's confidence that fine bubble system would be up to the job Suprafilt created a test grid – a 6m vertical pipe with around 20 diffusers. It was installed and worked immediately.

The installation had to fit around the existing floor mounted system and with it being a live tank, draining it ahead of any design and installation phase was not an option. One of the design team's main challenges was not to damage any of the existing pipework that was buried under the surface.

The result

Immediate visible difference

An aerated grid system installed at Simpsons Malt made an immediate visible difference and paid for itself within a month of installation.

The design team came up with two huge liftable grids to meet the requirements. At 12.5m long, with 16 tie bars, each to hold them together and featuring 250 diffusers, they were two of the largest retractable grids Suprafilt has ever produced.

The company was on track to save £37,000 in energy costs alone against the £58,000 project in the first year of operation – equating to 1900kW hours saved per day. The new system uses one blower with a second giving an occasional boost to assist.

The whole system paid for itself within the first month as it meant there were no restrictions on water throughput from the effluent plant and production could be increased.