



Product Recovery (Pigging) Case Study:

DCS Manufacturing

United Kingdom

How Multiple HPS Pigging Systems
Minimise Waste and Effluent while
Ensuring Rapid Product Changeovers
in a State-Of-The-Art Personal Care
Product Manufacturing Facility

HPS Product Recovery Solutions

www.HPS-Pigging.com



Summary

- The DCS Group manufacture a wide and diverse range of personal care products. These include products for some of the world's best-known brands, as well as their own Enliven range.
- Due to increased demand, The DCS Group relocated their personal care product manufacturing to a new facility.
- The new facility has multiple lines transferring products from mixing and holding tanks (rather than IBCs) to fillers throughout the building.
- HPS designed, implemented, and commissioned multiple liquid product recovery (pigging) systems at DCS. These ensure minimal product waste and effluent, along with rapid changeovers.
- The pigging systems resulted in a 93% reduction in waste compared to when using IBCs.
- In addition to waste reduction and accelerated changeovers, the pigging systems are user-friendly and require minimal maintenance.
- The systems are also fully automated, resulting in increased efficiency, enhanced safety, and decreased risk of human error through the reduction of manual intervention.



About DCS Manufacturing

DCS Manufacturing is an innovative, modern private-label health and beauty product manufacturer that specialises in liquid-fill products.

DCS make a wide range of products for many of the world's best-known and well-recognised brands.

The products include surfactants, such as shampoos, conditioners, and gels, as well as emulsions such as lotions and creams. They also manufacture body sprays and natural silicone oil-based products, as well as sanitisers.

Importantly, DCS also produce the Enliven range of products, which is their own brand.

The Enliven brand delivers quality personal care and grooming products of exceptional value. These range from everyday essentials to a select range of luxury items.

The flexibility and focus of the DCS manufacturing strategy, in both its own as well as private-label products, has resulted in DCS becoming a rapidly growing company whose turnover continues to increase significantly.

Since its beginnings in 2007, the DCS Manufacturing Division now employs over 120 people.

DCS is BRC CP certified at AA level (the highest level).



DCS Manufacturing Enliven brand delivers quality personal care and grooming products of exceptional value.

Project Background

Having outgrown their existing manufacturing facilities and due to a significant increase in orders, DCS relocated to a large, state-of-the-art manufacturing facility in Redditch, UK.

Relocating is never easy. And, in addition to all the hard work and disruption associated with moving a factory, DCS changed premises in 2020, during the height of the COVID-19 pandemic!

The relocation site was about ten years old but completely empty. DCS took the opportunity to review the whole factory layout and processes.

Mike Taylor, Quality/EMS Manager at DCS, who contacted HPS before the relocation, commented,

“The increase in demand for our products, as well as a wider variety of products, formulations, and colours, meant increased batch changeovers as well as volume and throughput. The relocation gave us the ideal opportunity to completely review and improve production processes. This included increasing capacity by replacing IBCs with much larger holding tanks, as well as, of course, investigating the suitability of pigging for liquid transfer, product recovery and waste reduction.”

Why DCS Investigated Pigging Technology

DCS manufacture a wide range of products at their new site.

Before relocating, the DCS operations team cleaned pipes manually between batch changes. The labour required to clean a line was significant – typically requiring 4 to 5 team members and resulting in production downtime of 3 to 4 hours. So, the associated non-productive labour costs were high.

In addition, instead of using IBCs, which they had at their previous facility, they now had much larger, more efficient holding tanks.

With increased volume and capacity at the new site, manual cleaning was not feasible – it would have meant significantly lost production time and high volumes of liquids going to disposal and treatment. These levels of effluent would have been beyond the capacity of the drainage/waste system.

In fact, one of the issues with the new premises was that there were limits on the amount of effluent that could be disposed of. This was an additional reason that DCS needed to create as little waste as possible.

Mike continued,

“The new factory was a blank canvas for us, so it was the ideal time to think about implementing pigging within our processes.”

Why DCS Chose HPS as their Pigging Systems Provider

HPS has a solid reputation as the world's leading hygienic (sanitary) and process pigging technology specialist.

As well as having a proven track record of delivering high ROI, rapid payback pigging projects in personal care product manufacture, HPS is also well-known for delivering high-quality pigging solutions for foods, beverages, confectionery, pet food, paints, coatings, chemicals, lubricants, home care products and many others.



HPS is well-known in the industry for providing exceptional quality, bespoke pigging solutions, which improve production efficiency and environmental sustainability.

Asked about previous experience with pigging, Mike said,

"I'd come across pigging technology earlier in my career, working in the food industry. I thought pigging could work well for DCS, and after some initial research on the Internet, I contacted HPS".

Key Objectives of the Pigging Project

The new factory presented a great opportunity to improve production processes.

The primary objective of pigging was to ensure as little liquid waste and effluent as possible were created during batch changeovers. This was by automatically recovering product so it could be used and packaged, rather than being sent to drain.

At the same time, by eliminating manual cleaning, HPS pigging technology would ensure changeover times were as fast and efficient as possible, while also needing minimal labour input.

Avoidance of waste product caused by batch cross-contamination was also important.

Nick Alcock, Engineering Manager at DCS commented,

"We had outgrown the use of IBCs; we simply had no capacity for them. We reviewed our whole layout including mixing tanks, holding tanks and fillers, meaning we could run larger batches and create less waste and downtime.

Part of this review included looking into the feasibility of pigging on several of the key lines".

The Solution

Working closely with DCS, the team identified eight production lines that would have the greatest number of batch changes and the widest range of colours and formulations.

Seven of the lines were from the new, larger holding tanks to filling lines, one was from a mixing tank to a holding tank. Each of the lines was 2-inches in diameter and varied in length.



HPS Advanced Liquid Product Recovery (Pigging) Technology

HPS designed, supplied, implemented, and commissioned fully automatic, single-pig pigging systems for each of the eight lines.

HPS AccuTect pig-detection technology ensures accurate and reliable pig location and subsequent control by the HMI/PLC.

HPS pigs are bi-directional and maintain full body contact, even around 1.5D bends, hence maximum product recovery rates.

In the DCS systems, the pigs are propelled using filtered compressed air but also allow product-to-product push if required.

The eight systems were installed and commissioned in stages to suit the schedule of DCS and keep any disruption to production to an absolute minimum.

HPS provided a full service – from design and supply of the equipment and programming of control systems to quality checking, commissioning, training on correct operation, safety and maintenance, and ongoing customer support.

The Results

The equipment was installed and commissioned according to a schedule defined by DCS.

Now the move is complete, the new facility provides significant room for future expansion and includes advanced blending and filling equipment with fully automated processes.



HPS Advanced Liquid Product Recovery (Pigging) Technology

The key liquid transfer lines incorporate HPS liquid product recovery (pigging) technology, helping to ensure optimal quality, fast and reliable transfers and changeovers, minimal effluent, and exceptional operational efficiency.

Nick continues,

“Sometimes with similar products, we are even able to perform product-to-product push, making batch changeovers extremely quick with no rinse or waste at all”.

“The systems work extremely well. They are more or less self-sufficient, very easy to use and need very little maintenance from us, occasionally checking on the pigs and replacing them if they’re worn, which isn’t that often!”

Specifically, the benefits of HPS technology at the new DCS plant include:

- **Sanitisation now takes around 15 minutes instead of 2 to 3 hours and requires much less labour.**
- **Estimated 83% reduction in washout times.**
- **93% reduction in waste compared to when using IBCs.**
- **Very little effluent to dispose of.**
- **Fast, reliable changeovers and transfers.**

Asked to sum up HPS pigging technology at the plant, Nick said,

“It’s a real win for us, everything just works!”

Asked if he would recommend HPS to other companies considering pigging, Mike simply replies, “Yes!”.



HPS AccuTect Pig-Detection Technology



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