

# PROCESS FOOD OR BEVERAGES?

**PIGGING SYSTEMS**  
**Learn How to**  
**Increase**  
**Yields, Cut**  
**Waste, and**  
**Improve**  
**Sustainability**



# Introduction

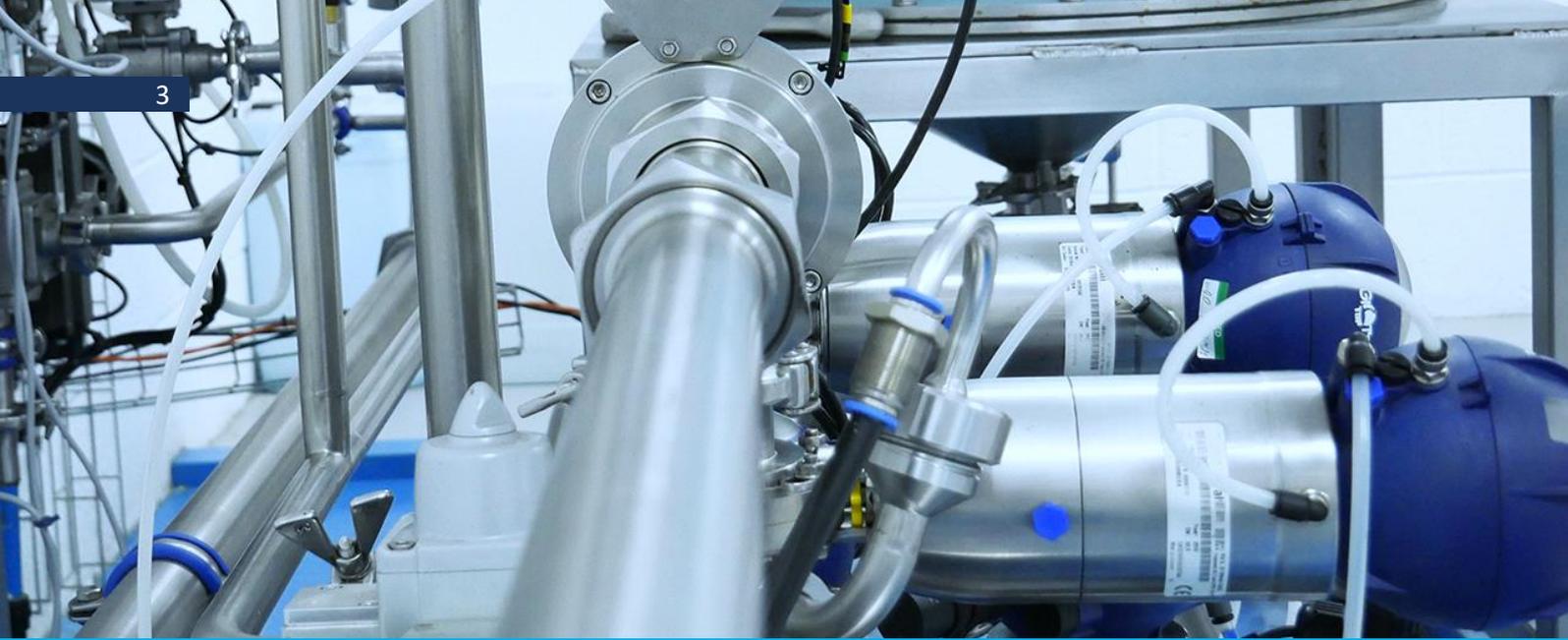
In the food and beverage industry, competition is increasing. Margins are getting tighter. Raw material prices are surging. Manufacturers are also facing rising freight, transportation, and packaging costs along with pandemic-related expenses. On top of that, sustainability targets are becoming ever-more demanding.

**“A pigging system is saving a soft drinks manufacturer roughly \$31,500 US dollars a day”**

As a result, waste reduction and efficiency gains have become a necessity for many food and beverage companies. That’s why **liquid product recovery (“pigging”) is becoming an essential part of the food and beverage production process.**

Sanitary (hygienic) pigging is one of most effective ways to increase product yields, reduce waste, save water, and speed up changeover times. And because pigging saves product and other resources, it has a positive impact on the environment and helps companies towards their environmental sustainability goals.





## What is Pigging?

If you eat chocolate, sweets, ready meals, dips, sauces, yogurt, soup, or honey; or if you drink wine, beer, spirits, fruit juices, cola, or other types of soft drinks, then the chances are you've eaten or drunk something that's been 'pigged' during its processing or production.

In the food and beverage industry, sanitary pigging recovers residual liquid product from pipes. If it wasn't recovered by pigging, this liquid would go to waste. This product is perfectly useable so can be sold or continue to be processed along with the rest of the batch, rather than being flushed down the drain.

## How Pigging Works

In its simplest form, a pigging system consists of a solid projectile (the 'pig') with a diameter slightly larger than the pipeline transporting the liquid. The pigging process introduces this pig into the pipeline (usually automatically) and pushes it through the pipe.

To 'pig' a system, pigs are propelled through the pipe by pressurizing the pipework behind it. Compressed air, carbon dioxide, nitrogen, clean water or even the next product (depending on the application) provide the pressure. Instead of being flushed to drain, waste treatment or collection areas, the liquid residue in the pipe is recovered: pushed by the pig and forced to the destination filler or tank, or returned to source, to continue processing along with the rest of the product. The pigging process itself is extremely quick, highly effective, and easy to implement on both new and existing lines.

**"The HPS pigging systems resulted in a clear increase in product yield, equating to 48,000 extra cans per week"**

**-Coca-Cola**

# Benefits of Pigging Systems

Sanitary Pigging and Product Recovery Systems deliver major cost savings and a wide range of tangible benefits. The return on investment from a pigging system is high and payback is extremely quick (usually just a few months).

## Increased Product Yields

Because pigging recovers residual liquid from process pipelines rather than wasting it, it's an extremely effective way to increased yields. HPS pigs are the benchmark of the industry and recover up to 99.5% of residual product from a full pipeline.

In food and beverage processing plants, there's often a lot of product left in the line before a changeover. And the more viscous the product, the more residue there is. Pigging systems will help you recover nearly all this residue, as useable product.

As an example, HPS provided an automatic pigging system for a soft drink manufacturer located in Costa Rica. The pigging system is saving the company roughly \$31,500 a day.

**“A winery is saving roughly 40 mega liters of water and wine savings of 440,000 liters per year with a pigging system”**

**-Pernod Ricard**

HPS also provided three fully automatic pigging systems for a plant that manufactures one of the world's most popular fizzy drinks. Each system delivers product from any one of four tanks to a filling machine. The three pigging systems delivered a 4% increase in product yield, equating to 48,000 extra cans per week.

Also, a wine bottling plant implemented a pigging system and now saves an average of 256,000 liters of wine every year.

## Reduced Waste

By increasing product yields through pigging, there's less product to send to waste. What's more, the cleaning and changeover processes also use less cleaning fluids. In this way, sanitary product recovery and pigging systems directly reduce waste processing costs.

And the reduction in waste means improved efficiency, faster changeovers, increased productivity, enhanced cleaning, reduced energy consumption, improved sustainability, resulting in lower costs and higher profits.



## Faster Changeovers

When companies expand product ranges, it's often desirable to use previously dedicated pipelines. However, changeover from one batch to another can account for significant product loss, high wastage costs and less productive human-resource hours.

Pigging systems can significantly speed up the changeover process. By removing nearly all the product from a pipeline before the cleaning, the cleaning process itself is a lot quicker and less resource intensive.

Because there's hardly any product left to remove, the requirement for flushing and CIP is significantly reduced, as are cycle times.

And while pigging technology will not completely eliminate the CIP process, some stages can often be removed or considerably shortened.

So, pigging speeds up changeover times, lowers water and CIP chemicals usage, and unlocks more productive (value-added) time for running production.

**“Each changeover, a butter oil manufacturer recovers approximately 200 kgs of good product that would otherwise be wasted or become effluent”**

**-St Ivel**

## Improved Environmental Sustainability

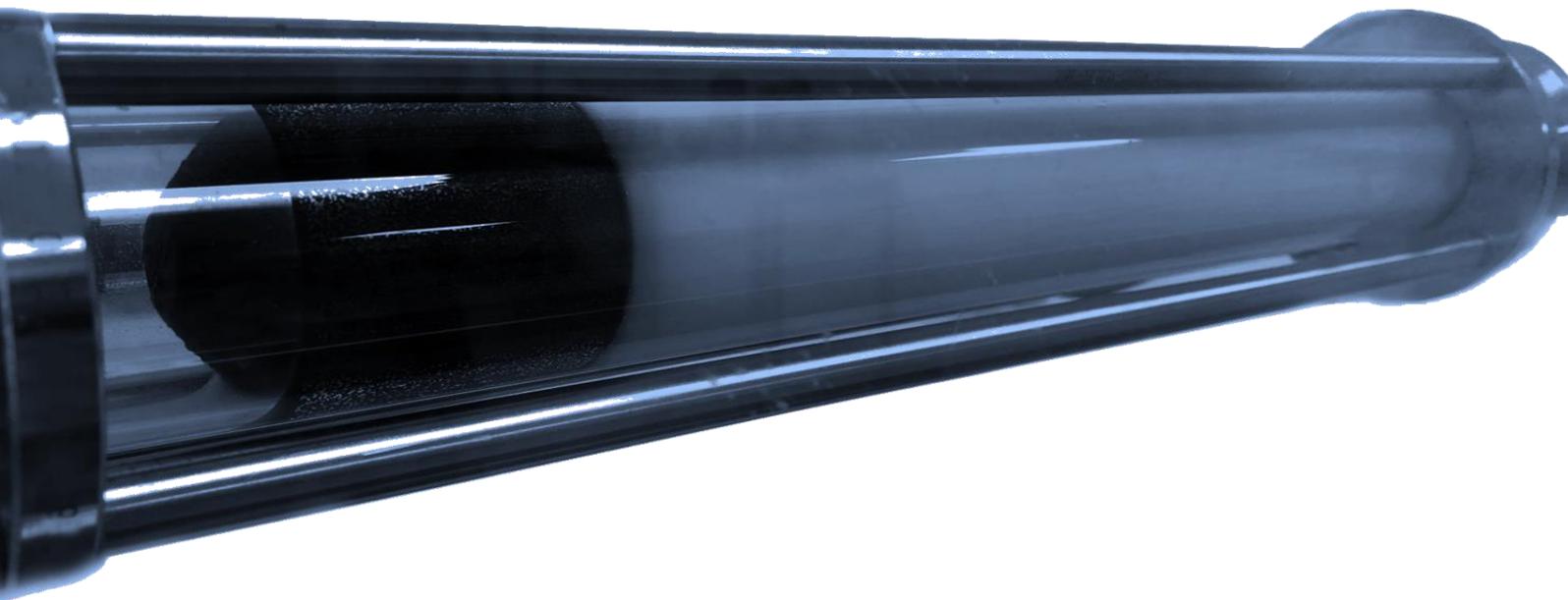
Many food and beverage companies have strong environmental initiatives. Therefore, the positive environmental impact of pigging is a key benefit to many of these producers and processors.

As well as forming part of an ethical business strategy, being environmentally responsible is increasingly important to consumers, employees, and other company stakeholders.

The costs of removal or treatment of waste from plants has become a major expense to many liquid processing companies. Additionally, changes in legislation and environmental policies can lead to companies deploying extra resources and incurring further cost. An effective way of reducing these costs, while reducing carbon footprint and improving sustainability, is to pig the product transfer pipelines. This significantly reduces waste and associated costs.

Pigging saves water and saves energy. It reduces the use of harmful chemicals and associated disposal requirements. It also means fewer trucks on the road. In practical terms, the positive environmental benefits of pigging are considerable.

For example, an HPS pigging system is saving a wine manufacturer approximately 40 million liters of water a year and wine savings of 40,000 liters.



# Important Things to Consider

## How to Select the Best Pigging System

The principles of pigging, that is, sending a specialist projectile through a pipe to reclaim the residual liquid, may seem straightforward. However, to design an effective and high-performance pigging system for food and beverage production, needs a wealth of experience and expertise.

There's a lot to take into account. Matching the correct pig dimensions to the internal pipeline diameter is critical. There are also major differences in the effectiveness and performance of different pigs and pigging systems.

That's why, if you are thinking about implementing a pigging solution into your production plant, make sure you choose a system from a specialist in pigging and product recovery, with a long history, proven technology, reliable credentials, and a strong track record.

## How to Select a Good-Quality Pig

A pigging system is made up of a variety of components. However, one of the most important components is the pig.

The highest performing pigs typically recover upwards of 99.5% of residual product from full pipelines, and tend to be of one-piece, cylindrical, flexible design.

Other key features to look out for when choosing a pig for food and beverages is reliability, safety and the materials used (food-grade, FDA compliant materials). Pigs with fins should also be avoided (due to product buildup between the fins, longer cleaning times and potential hygiene issues).

It's also extremely important to choose a pig that doesn't contain solid magnets. That's because solid magnets can shatter or break free from the pig and contaminate the product. They are also a major safety concern.

Instead, the safest and most reliable pigs contain a flexible magnetic core.

## Bring the Benefits of Pigging to Your Business

With intense competition and margins getting thinner, reducing waste, improving efficiency, and ensuring processes are environmentally sustainable is becoming essential.

Pigging and liquid product recovery systems will help your business increase yields, increase capacity, cut waste, lower costs, speed up changeovers and be kinder to the environment.

In addition, pigging delivers a wide range of additional benefits. These included reduced cross-contamination risks, decreased labor costs, improved lot control, prevention of aeration and foaming plus much more.

HPS Product Recovery Solutions are the world's leading specialists in process pigging, liquid product recovery and transfer solutions.

So, if you're looking to increase yields, cut waste, and improve sustainability, it's time to start pigging!



# About HPS

HPS is the world's leading specialist in pigging, liquid product recovery and transfer for manufacturers, producers and processors of food and beverages. This includes confectionery, soups, dairy, yogurts, sauces, dips, chocolate, soft drinks, juices, syrups, beer, wine and spirits and many other products.



HPS clients include Kraft, Campbells, Rachels, Heinz, Coca-Cola, Britvic, Orlando Wines, E & J Gallo, Glenmorangie, Unilever, P & G, and many others. There are thousands of HPS systems in use throughout the world.

Established in 1995, HPS has extensive experience in food and beverage processing which ensures highly efficient, reliable, and cost-effective operation.

In addition to food and beverage companies, HPS also delivers product recovery, liquid transfer and pigging solutions to homecare, personal care, paint, pet food and other industries.

You can't take risks with your processes. That's why HPS engineers will work with you to ensure your solution meets your operational requirements – *before you deploy it*. For more information, please see our contact details on the next page or [click here to find your nearest HPS office, agent or representative](#).

## Our Customers

