

# Smart, Safe and Sanitary Transfer of Materials for the Food & Beverage Industry



## Introduction

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In a 2014 survey of food & beverage processing professionals by Food Processing Magazine, an overwhelming 59% of respondents stated that food safety was their number one priority for 2014<sup>1</sup>. Not particularly surprising as anyone within the food processing industry knows that breaches to food safety regulations can bring about harsh penalties. Only recently, in late 2013, a Sydney based food manufacturing company was fined over \$50,000 for contraventions of the Food Safety Scheme relating to hygiene and sanitation<sup>2</sup>.

After food safety, the second top priority for those surveyed was cost control, and this was followed not far behind by a focus in 2014 on automation and labour. The challenge for food processing companies then is trying to balance an adherence to regulations set for their respective industry, whilst at the same time reducing unneeded costs such as product wastage and downtime, and minimising the need for manual labour tasks.

This paper provides an overview of the challenges faced in overcoming these issues relating to product transfer in the food and beverage industry, and available options for overcoming these issues.

## Food safety - cleaning and sanitation

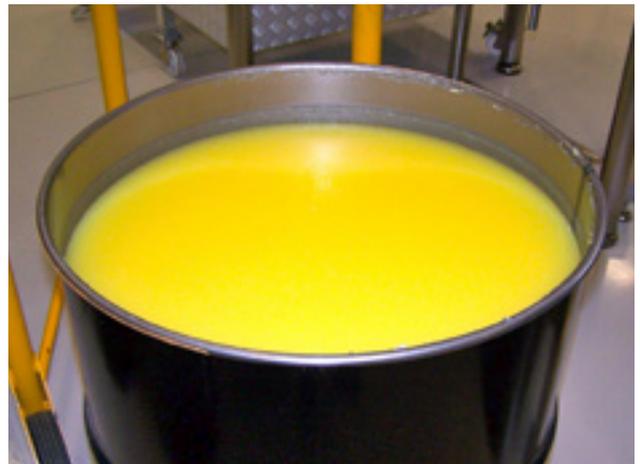
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Eliminating the potential for contamination to enter factory processes is essential to maintaining proper adherence to regulations. The first step to this adherence is ensuring any surfaces coming in to contact with materials must be food grade, corrosion-resistant, minimum 304 grade stainless steel,<sup>3</sup> with the correct surface treatment. The use of industrial pumps for material transfer within the food and beverage industry is still prevalent, and these pumps as a general rule will not be food grade and as such do not meet the standards.

The ability to effectively clean and sanitise food and beverage processing equipment is also essential to a safe operation. Australian Food Standards stipulates that equipment needs to be designed, constructed, located and installed to ensure no likelihood of food contamination, as well as being easily and effectively cleaned.<sup>4</sup>

The ability for machinery to be 'knocked-down' onsite, without tools and 'Cleaned In Place (CIP)' is an important factor as equipment with longer cleaning and decontamination cycles will result in a greater downtime. For a number of reasons, air operated pumps are preferred over electric motors. The ability for air operated pumps to be hosed down for example, is a benefit they have over electric pumps; they can also 'run dry' without damage and they simply stall ('stand-by mode') when the outlet valve is closed. Electric motors have brushes and bearings that wear and can contaminate the product.

If machinery is effectively cleaned and sanitised the risk of materials becoming contaminated by pathogenic or spoilage microorganisms is greatly reduced, in turn reducing the risk of human illness and liability to the producer.<sup>5</sup>



## Minimising wastage and increasing productivity

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Reducing waste during the material transfer process is an extremely important, though onerous, task in keeping production costs to a minimum. The key is trying to incur as little waste as possible without compromising sanitation or productivity.

Traditional manual methods of emptying drums and bin containers are susceptible to increased wastage, as well as being dangerous and time consuming. Thankfully advancements in technology in recent years have seen the increased use of automatic drum and bin

unloaders. The implementation of automated unloaders reduces human involvement, thus reducing chances of contamination.

Eliminating the need for manual lifting and emptying of drums (some weighing up to 400kg) removes the risk of injury to workers. It will also increase productivity, with the typical evacuation time for a drum unloader being approximately 5 minutes, compared with an average 30 minutes or more for comparable manual processes.<sup>6</sup>

## High-viscosity ingredients

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Heavy and thick materials such as peanut butter, conserves, tomato paste, fruit juice concentrate, dairy products, chocolate, caramel and other non-flowable liquids are especially difficult to unload and transfer. High-viscosity transfer applications present unique challenges when it comes to pumping without blocking or hindrance to flow-rates.

Traditional unloading of these materials often required the need for manually scooping out materials or bin dumping, or diluting the product with water to evacuate remaining materials. Modern pumps and unloaders however provide transfer of medium and high viscosity materials again with only minimal manual involvement, and no need for dilution of product.

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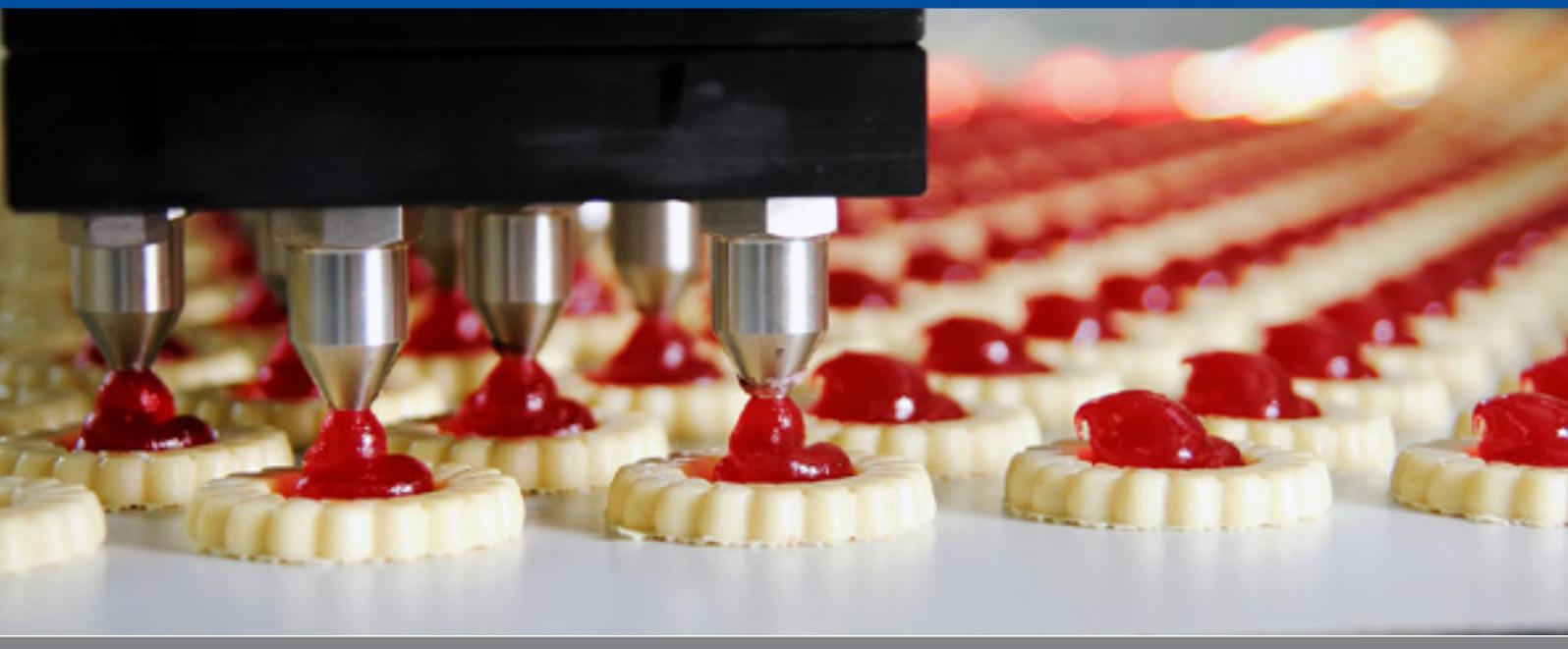
## Graco

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Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in the food and beverage industry. Graco's investments in R&D and dedication to Quality Control will continue to provide innovative solutions to a diverse global market.

### **SaniForce**

The Graco SaniForce family of sanitary pumping solutions provides safe, efficient and ergonomic material transfer for the most challenging applications. SaniForce Drum Unloaders for high viscosity materials can evacuate up to 99% of material from containers without dilution of manual scooping, emptying a 200 litre drum in less than 5 minutes. SaniForce Elevator Systems improves operator safety and the sanitary handling of products, allowing you to evacuate low to medium viscosity materials from drums without taking the drum off the pallet.



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