In each newsletter, Bühler invites leading industry figures to comment on the key trends and issues in their industry. In this edition Dr. Logrieco, highlights the significant food safety risks associated with nuts and how advanced process technologies can help to control them.

The global nut market is valued at more than 43 billion USD, with peanuts, almonds, walnuts and pistachios being the most important submarkets. Nuts are rich in many essential nutrients and for this reason are regarded as a good meal supplement and a healthy alternative for snacking. However, there have been some food safety scares, which have been linked to nuts and nut products. Hazards in nuts include pathogens such as salmonella, mycotoxins – in particular the highly-toxic aflatoxin B1 – and foreign materials such as nut shells or glass fragments. Nuts are also common allergens and thus pose a potential health risk to sensitive consumer groups if they remain undeclared.

The management of these hazards becomes increasingly challenging with the growing complexity of the supply chains. Therefore, to avoid both adverse health effects and substantial economic losses, an integrated approach along the value chain is essential, placing risk-mitigating measures where they are most effective - at the root cause of the problem.

For instance, strict compliance with good agricultural and post-harvest practices, have been shown to lower mycotoxin levels significantly, as well as reducing the occurrence of foreign materials and microbiological activity. ISPA have a great deal of expertise in the detection and reduction of mycotoxin levels in the value chain and work closely with players across the agro-food chain, to improve safety and quality of agricultural products.

At the processing and manufacturing stage, advanced process technologies play an important role. Inactivation of pathogens can be achieved through thermal processing (roasting) or steam pasteurization. Sifting and mechanical separation is effective in removing those foreign materials which differ from the good product in size, shape, or density.

Optical sorters are a vital step in removing any remaining foreign material by colour, shape, or chemical fingerprints, in the non-visible, near-infrared region of the electromagnetic spectrum. Advanced optical sorting technology can also be used to target and remove nut kernels that have been contaminated with aflatoxins, enabling processors to reduce the levels of mycotoxins and comply with the stringent legal standard set for improving nut safety.

Ultimately, an integrated approach to food safety is critical in ensuring nut safety and the team at ISPA (www.ispa.cnr.it/) will continue to support all players along the value chain with its food processing expertise and scientific advice.
Nuts.
High definition BioVision™ technology redefines sorting capabilities for global tree nut processors.

Bühler has launched its revolutionary SORTEX E BioVision™. Featuring high definition BioVision™ detection technology, the optical sorter removes hazardous material up to 50 percent smaller than previously possible from almonds, pistachios, pecans, walnuts and hazelnuts. By targeting the spectral and spatial difference between nut meats and shell, the sorter is capable of distinguishing subtle differences between, for instance, pale shells and paler varieties of almonds. This is achieved accurately, in a single sort and at double the capacity of other sorters currently on the market - setting a new safety and quality standard for the industry.

Bühler has provided unparalleled sorting technology to global nut processors for decades. Nevertheless, recognising that demands on quality were becoming ever more stringent, a dedicated research programme was established, to ensure that technologies continued to meet the increasingly exacting requirements of today’s nut processing industry.

This research has resulted in the SORTEX E BioVision™. This optical sorter uniquely allows processors to accurately remove even smaller fragments of shell and foreign material than currently possible with existing technologies and it does so with up to double the capacity of other sorters currently on the market, using the same footprint.

Fundamental to the SORTEX E BioVision™ is Bühler’s proprietary high definition BioVision™ detection technology, which, by targeting the spectral and spatial difference between nut meats and shell, is capable of distinguishing subtle differences between, for instance, pale shells and paler varieties of almonds such as nonpareil. Without this technology, a much higher volume of the nut meat may be lost, due to false rejections.

“Historically, sorting shells from nut meat, in almonds in particular, has been an especially difficult task,” said Faisal Baig, Global Product Manager at Bühler. “This is due to the dozens of different almond varieties, each differing in colour, that require the settings of conventional sorting systems to be changed every time a processor switches to another product. As such, substantial loss in valuable nut meat is possible, or a significant underperformance of the sorter, if not adjusted to each specific nut variety.”

Responding to this challenge, Bühler invested heavily in extensive trials on a wide variety of tree nuts, investigating the precise nature of the light they reflected. Through its studies, Bühler discovered that kernels and shells, in all the tree nuts it examined, are characterised by their own spectral signatures. This unique pattern in the spectra has allowed Bühler’s in-house team to pinpoint the differences between the chemical characteristics of shells and those of nut meat, and underpins the introduction of the new SORTEX E BioVision™.
Faisal Baig, added, “In field trials, the SORTEX E BioVision™ demonstrated unparalleled sorting performance, for more than 10 different varieties of almonds at once, without any changes required to the sorting program. This allows nut processors to achieve a consistent quality sort for multiple nut varieties, therefore improving product quality, production throughput and uptime.”

Using the SORTEX E BioVision™, nut manufacturers can now achieve a greater than 99 percent removal of shells, depending on input contamination and throughput, plus an impressive 97 percent concentration of shells in the reject stream.

Bühler’s proprietary technology has also enabled its optical system to be produced with a higher resolution than other available technologies, thereby making it possible to detect and remove hazardous materials up to 50 percent smaller than other industry solutions can manage today. It does this accurately and at high speed, minimising associated losses of the good nuts - setting a new safety and quality standard for the industry.

Featuring a hygienic, stainless steel, open design, with built-in, bespoke dust management, as well as Climate Control systems, the SORTEX E BioVision™ offers superior cleanability, consistent and reliable operation over time, and a constant world-class sort, even in the dusty environments and changing ambient conditions that, by their nature, prevail in nut processing facilities.

The option to be combined with Bühler’s proprietary colour cameras, InGaAs™, PROfile™ detection technologies, state-of-the-art broad spectrum lighting and high speed ejectors, means the SORTEX E BioVision™ can be positioned at various stages of the nut processing lines to give an unrivalled sorting performance. With one simple set-up for different varieties of almonds, hazelnuts, pecans, walnuts and pistachios, unprecedented removal of hazardous materials and nuts that are mouldy, rotten and diseased, can be accomplished.

Charith Gunawardena, Head of Business Unit Optical Sorting at Bühler, said: “The introduction of the SORTEX E BioVision™ represents the company’s dedication to investing in research and development, using its technical expertise and vast experience to provide solutions which can be tailored to the individual needs of the processor. As a partner of choice for optical sorting solutions, we’re proud to work closely with key members of the industry to ensure that we’re providing advanced technologies that support the industry.”

The SORTEX E BioVision™ is Bühler’s latest offering for nut processors, further enhancing the company’s existing SORTEX E product range. Customers who have already purchased the SORTEX E1C will have the opportunity to upgrade to the new BioVision™ detection technology. The SORTEX E BioVision™ marks a further technological evolution in optical sorting, further cementing Bühler’s position as the market leader in this field and expanding its influence in delivering innovative solutions to the global food processing markets.
Bühler strengthens its position across South East Asia with rice processing contracts in excess of USD 100 million.

Capitalising on the increasing demand for rice in South East Asia, the Bühler Group, a leader in rice processing and optical sorting solutions has reaffirmed its position as the first choice technology partner for rice processing and reprocessing across South East Asia with orders in excess of USD 100 million. The contracts, secured over the past two years, have an emphasis on food safety, hygienic production, energy efficiency and sustainability. The recently introduced UltraLine range of high capacity, energy efficient rice processing equipment has been instrumental in securing these agreements.

Bühler’s renewed strategic focus across South East Asia marks a significant 24 months in the company’s continuing expansion in rice processing as well as consolidating its global position as processing technology partner of choice in all of the world’s most important rice producing markets. The company has been awarded major contracts by the largest rice processors and reprocessors across Thailand, Cambodia, Indonesia, Vietnam, Philippines, Malaysia and Myanmar – including Merry Rice, Crystal Rice, Siam Parboiled, TPS Group, Capital Rice, La Suerte, Phung Hoang, Kilang Beras Pek Choo Keok Sdn. Bhd, Yoma Sun and Nine Seas – to increase the cost effectiveness and environmental efficiency of its rice processing lines. The total investment in rice processing plants and related equipment for these projects alone is set to exceed USD 80 million.

Working with rice processors and reprocessors in the region, Bühler offers and develops new market optimised rice processing solutions that add value for its customers through improved yield, performance and efficiency. It also looks to increase awareness of food-safe rice mills to ensure hygienic and safe food for consumers.
Significant product launches including the SORTEX S UltraVision™ optical sorter instrumental in South East Asia growth.

Over the past two years, Bühler has experienced significant growth in the region, where over USD 100 million worth of business was conducted, with particular success gained in Thailand. This marked a record period, partly thanks to a smaller number of larger contracts, including the company’s largest ever contract for rice processing for Merry Rice, globally valued at over USD 40 million. The contract, for sixty-two of Bühler’s SORTEX S UltraVision™ machines, and fifty-two high capacity UltraPoly™ polishers will result in the world’s largest rice mill, capable of sorting over ten thousand tonnes of rice per day.

Among contracts already confirmed are the first complete rice mill in Vietnam for Phung Hoang, capable of processing 400 tonnes a day. A complete paddy processing plant in Malaysia for Kilang Beras Pek Choo Keok Sdn. Bhd and two complete paddy processing plants in Myanmar for Nine Seas and Yoma Sun. Crystal Rice in Cambodia has also started production and Siam Parboiled in Thailand is in the advanced stages of installation.

Speaking about its success in South East Asia, Mark Ledson, Managing Director of Bühler Thailand, commented: “Over the past two years we’ve consciously changed the way we do business across South East Asia. We’ve dedicated time to listen to our customers’ needs and demonstrate our ability to offer a truly complete engineered solution that is supported by our commitment to Service Excellence.”

Significant product launches in 2014 have also helped grow Bühler’s reach across South East Asia including the UltraWhite™ whitener, UltraPoly™ polisher and SORTEX S UltraVision™ optical sorter – widely regarded as the most technologically advanced, highest capacity range available for rice today.

Speaking about the launch of the optical sorter, Mark Ledson added: “The response to the SORTEX S UltraVision™ has been incredibly positive, many of our
customers have confirmed the SORTEX S UltraVision™ as taking optical sorting to the next level and sets us apart from the competition as a global leader in this market. We understand the enormous pressure rice millers are under to process rice in the most sustainable way, maximising yield and improving quality and food safety standards. We believe high capacity processing is the future, if the industry is to match growing demand.³

In addition to the launch of the UltraLine range, Bühler teams across South East Asia have also been actively promoting Food Safety as a key concept. With both consumer and customer interest in food safety on the rise, particularly with budding exporters, Bühler is in a prime position to offer end-to-end solutions that guarantee hygienic performance and food safety, including process engineering solutions for rice, solutions for pre-cleaning, silos, drying, rice milling and automated bagging.

Moving forward, Bühler will continue to extend its reach and presence in the region by completing existing projects and securing new ones. It has developed a fully-fledged factory in Vietnam and has built an accessory workshop in Indonesia. All this demonstrates Bühler’s commitment to its customers across the region. It is also actively building its channels for single machine sales and is establishing country focused technology teams in most of the countries in South East Asia. Developing markets such as Cambodia and Myanmar will also present new opportunities to deliver smaller capacity rice mills, demonstrating Bühler’s ability to cater to the complete spectrum of rice mills across the region.

Commenting on the strategic focus for South East Asia, Rustom Mistry, Director, Head of Rice Processing in Asia, commented: “In the past 24 months we have won large rice milling projects in Thailand, Cambodia, Myanmar, Malaysia, Indonesia, Philippines and Vietnam. Looking ahead to the next two years, we will be looking to drive our market share across regions in South East Asia and enhance our Sales & Service structure (including distribution channels) along with developing new mid-market rice processing solutions to give our customers value for money and continue to build the Bühler rice brand image. By developing and strengthening our technology expertise and service excellence in each country we are better prepared to serve our customers locally and further demonstrate our commitment to the local community and wider industry.”

Bühler will continue to lead the market in the supply of rice processing equipment and mill installations to the Thai and South East Asian rice markets. This builds on its recent heavy investment in innovative high capacity rice processing infrastructure, expansion of local sales and service channels, provision of energy efficient processing technologies and its strategic partnerships with the leading rice processors and reprocessors in the region, including Merry Rice, TPS Group, Capital Rice, La Suerte, Phung Hoang, Kilang Beras Pek Choo Keok Sdn. Bhd and Nine Seas.
Highlighting Bühler’s recent wins in South East Asia

Bühler’s string of contract wins across South East Asia, valued in excess of USD 100 million, further emphasises its success and position as the first choice technology partner for rice processing and reprocessing.

Thailand
In Thailand, a portion of Bühler’s growth came as the result of the company’s largest ever contract for rice processing globally for Merry Rice. In addition, confirmed contracts included a pre-cleaning and dryer complex for Capital Rice; various milling machines for Siam Indica; a complete paddy to rice mill for Sirichokchai and seven of Bühler’s SORTEX S UltraVision™ machines for Riceland. The team also confirmed sales with Siam Parboiled, 4G Contracting and Bright Lights representing a total investment of over USD 52 million. Siam Parboiled’s new Rice mill was won in late 2013 and is in the advanced stages of installation.

Cambodia
In Cambodia, the first turnkey project won by Bühler in South East Asia was secured in late 2012 for a complete paddy processing plant capable of processing 2000 tonnes per day. The plant is now in production.

Indonesia
Following Bühler’s recent high value agreement to supply the TPS Group, with two, 17 tonnes per hour rice reprocessing lines, a number of installations have been secured, including a contract with PB. Mulyo for the first Indonesian installation of Bühler’s SORTEX S UltraVision™ machine. Further contracts have also been noted across the region driving investment to over USD 7 million with further installations currently in discussion.

Vietnam
New contracts in Vietnam include the first complete paddy mill project capable of processing over 400 tonnes per day. The contract with Phung Hoang, comprises paddy intake, drying, silos and complete rice processing plant featuring Bühler’s SORTEX S UltraVision™ machines. The HAACP certified food safe mill also includes a complete sorting, blending and packing station comprising state of the art technology. In addition, contracts with Thanh Hung Enterprises, Thung Thanh Company and Tri Van Phu represented a total investment of over USD 7 million.

Philippines
Orders are continuously being received for milling and sorting and an investment by one of the largest rice processors saw Bühler install a complete paddy processing plant capable of processing over 500 tonnes a day.

Malaysia
In 2014, a complete paddy processing plant in Malaysia for Klang Beras Pek Choo Keok Sdn. Bhd was confirmed and is currently in the final installation stages.

Myanmar
Two complete paddy processing plants have recently been installed in Myanmar for Nine Seas and Yoma Sun representing an investment of over USD 2 million.
Grain.

SORTEX A optical sorter cornerstone for improving grain safety.

Producers of food and feed are faced with intensifying expectation to deliver products of a consistent quality – free from defects, foreign materials and potential health hazards. As a result product specifications are becoming increasingly complex and quality management programs need to be revised in order to cope with these demanding requirements. Advanced optical sorting solutions are becoming a necessity to grain processors in ensuring safe and high quality finished products.

Among the growing number of safety concerns is the widespread presence of mycotoxins, a group of naturally occurring chemical compounds produced by certain mould fungi. These secondary metabolites of moulds can grow on a variety of different crops and the level of mould contamination and risk from mycotoxins can be exacerbated by extreme weather conditions, poor agricultural practices, post-harvest storage and handling conditions.

If consumed, mycotoxins can have harmful effects on humans and animals. In order to control and limit the exposure to mycotoxins, legal maximum limits for food and feed have been set in many countries. Compliance with these strict levels combined with numerous varying commercial specifications, is putting additional pressure on processors of a wide variety of grains, all over the world.

Aflatoxin, Deoxynivalenol (DON) and Zearalenon are the three mycotoxins creating the most concern, as they affect various grains such as wheat, maize, rye, barley and spelt. With some mycotoxins such as the highly-toxic Aflatoxin, the vast majority of grains are not affected, however just a few highly contaminated kernels could make an entire lot unsafe for further use.

Fungal contamination may also affect colour, texture, density, processability and therefore result in poorer quality and lower yield of the final product. Since the concentration of mycotoxins cannot be reduced significantly by a chemical or thermal treatment without compromising product quality, the most effective way to tackle the problem is to remove the contaminated grains from the feed and food value chain as early as possible.

Bühler provides integrated solutions for the entire grain process, including intake, sampling systems, cleaning, storage, quality control and automation. Its comprehensive, multi-element cleaning line, including mechanical separation, aspiration channels and optical sorting has proven to be the most effective way of reducing the mycotoxin concentration in grains. The pioneering SORTEX A optical sorter forms the cornerstone of this solution, providing reliable and accurate rejection of optical defects with a minimum loss of good product. Experts at Bühler have an in-depth knowledge of optical indicators associated with mycotoxin contamination, which is based on extensive case studies and confirmed in collaboration with customers and research institutions, such as the Institute of Sciences of Food Production (ISPA) in Bari, Italy.

In addition, SORTEX optical sorters reliably remove foreign kernels and foreign materials which represent a further food safety concern, as they can cause injury if eaten or swallowed. It is essential to prevent these serious issues, to avoid putting people’s health in danger as well as risking costly, commercially damaging product recalls and business relationships.

The SORTEX portfolio offers a wide range of customisable product options, including advanced proprietary vision and feed systems, allowing processors to meet their exact sorting requirements, be it the removal of discoloured/ diseased kernels or the separation of wheat from oats to ensure a gluten free product or the separation of GMO soy and maize from wheat.

As the consumer and commercial demand for cleaner, safer grain becomes stricter, the importance of optical sorting to safeguard food safety in the most challenging of grain processing applications, including hazardous foreign material and mycotoxin removal, will continue to intensify. The SORTEX A optical sorter is just one example of Bühler’s commitment to continuous research and investment, providing innovative solutions that deliver high standards of food safety and the best return on investment for the world’s food processors.
SORTEX A - ensuring safe and high quality finished products.
Confectionery.
Bühler’s optical sorting solutions offer quality assurance in confectionery processing.

The Bühler Group who for decades have been providing a wealth of industry standard setting technologies for chocolate and compound production, are now expanding with its range of sorting solutions. The SORTEX E1C and SORTEX K2A optical sorters are designed to support confectioners who demand the highest standards in product quality and food safety.

The confectionery market is enjoying dynamic growth in Asia, South America and other emerging regions, while innovation and novelty underpin developments in Europe, resulting in a proliferation of new confectionery items. Bühler is committed to supporting processors in meeting this increased demand and the need to produce ever safer, high quality, innovative confectionery products, while ensuring efficient production with reduced operational costs.

With already more than 20,000 optical sorters installed in over 100 countries, sorting a wide range of produce from grains, pulses, coffee and spices, to nuts, seeds, fruits and vegetables, Bühler is now, formally bringing nearly 70 years of innovative sorting experience into confectionery applications. While this technology has been available to confectioners on an ad hoc basis in the past, the Bühler team is now focusing its know-how on enhancing optical sorting excellence, specifically for confectionery applications, such as chewing gum, candy, chocolates, mints, pastilles, gummy bears and more.

*One of the values of Bühler’s technology is its inherent flexibility and ability to remove unwanted material from mixed products, therefore providing the highest level of both safety and consistency in end product quality, while...
Removing colour and shape defects from chocolate gems for product uniformity, maintaining production efficiency," said Stephen Jacobs, global product manager, Buhler Sortex, who explained that its precision sorters reliably detect and remove out-of-specification colours, shapes and sizes in one pass, to ensure end product quality. “Bühler’s optical sorters can remove a wide range of foreign material such as wood, plastic or glass from a vast range of finished confectionery products.”

These fast, reliable optical sorters can handle small, medium-sized or large production volumes and are equipped with advanced technologies such as broad-spectrum lighting, high definition colour cameras, and enhanced InGaAs and PROfile™ (shape and structure) technology, to bring the ultimate in quality control and product safety.

“Occasionally, misshapes may be produced or products stick together. For chocolate manufacturers in particular, there may be loose, mistied or missing wrappers, or perhaps contamination from a previous product. Our optical sorter will pick these up immediately and eliminate them from the production flow,” said Jacobs. “In hard candy, the product can chip due to the handling. Our technology is designed for gentle handling of products whilst also being able to recognise and reject any broken product.

“Confectionery consumers are highly discerning and intolerant of any faulty product, lacking in consistency, colour or quality,” said Jacobs. “Thanks to its decades of experience and expertise, Bühler can support its confectionery customers, in achieving the high quality consumers have come to expect in their favourite confectionery products.”

Bühler, with its 150 year heritage, sophisticated experience in chocolate production and optical sorting solutions, will continue to be a reliable integral partner for confectioners who value quality excellence.
Fruit & Vegetable.
Optical sorting: Providing safety and quality assurance for processors.

Ensuring food safety and security is crucial for processors of frozen fruit and vegetables. Increasingly, quality control and safety processes enhance product consistency by removing colour defects and extraneous vegetable matter, as well as potentially dangerous foreign material such as plastic or glass. In doing so manufacturers of all sizes can ensure their growth and maintain their reputation within the industry, in the eyes of both their customers and, ultimately, consumers.

Currently, there is no specific legislation regarding foreign materials, but there is legislation which states that all food manufacturers are responsible for the safety of their food and that food must not be unsafe or harmful to consumers’ health. For example, from the Food Safety Act 1990 to the General Food Regulations 2004, manufacturers are required to show due diligence and conduct ‘reasonable practicable’ measures to prevent foreign material contamination. As a result, food companies must have processes in place to eliminate and manage any risks that are identified.

Implementing food safety measures in general requires an investment by food manufacturers, which makes it important that the solutions also provide the benefits of an increased return on investment. By having superior precision optical sorting equipment in place throughout the various stages of processing, manufacturers benefit not only from increased safety and quality, but improved yield and efficiency.

In order to ensure optimal food safety and quality, Bühler works closely with its customers and global food safety experts to develop innovative optical sorting technology that provide solutions for some of the key safety and quality issues faced by the food and drink industry. Having developed a reputation for providing effective and flexible technology and reliable expertise, Bühler also collaborates with other industry parties to share best practice, help generate new innovations and provide a greater understanding of the challenges faced by the industry.

Bühler’s Food Safety Initiative was set up to encourage innovation through such discussion and is helping to build knowledge, reinforcing its position as a global leader in optical sorting. As a result, Bühler is helping to contribute to safe and sustainable food production – while ensuring a premium product, with dramatically reduced chances of imperfections as well as providing greater financial yield.
Ensuring quality key to maintaining consumer confidence

SORTEX E range optical sorters for fruit and vegetable processors: for the safest products in your packs

Ensuring quality key to maintaining consumer confidence
Pulses.

Bühler automated system improves productivity, quality & efficiency for dynamic pulse processor Shivam Proteins.

The Bühler Group, is a world leader in the provision of rice and pulse processing solutions. Its installation of a fully automated pulse processing plant, at Shivam Proteins in Gujarat, India, enabled the company to meet increasing customer demand, while also delivering improved energy efficiency, better product quality and faster throughput.

The highly integrated solution, which produces hulled and split pigeon peas for the domestic market, was designed and installed by The Bühler Group. With a capacity of two tonnes per hour, the automated plant saves labour costs while ensuring consistent product quality and hygienic operation. It has been designed to be capable of processing locally grown pigeon peas as well as all major imported varieties to the highest quality premium products.

Shivam Protein, a wholesaler and retailer of pulses and grains, is based in Dabhoi, Gujarat, one of the main centres of the Indian pulse processing industries. The company started as a trading organisation over 60 years ago and moved into processing so that it could guarantee its products.

To ensure excellence within its production operations, Shivam opted for high-technology equipment and so began its long-standing relationship with Bühler. This is a new and growing approach in India, where manual labour still dominates. This can lead to low productivity, inconsistent product quality and compromised hygiene standards.

Shivam’s adoption of cutting edge technologies has proved to be a trendsetter and has had a positive response from the market, which is now increasing its demand for a greater range of cleaner and safer products, including pulses, grains and rice.

The new plant was commissioned from Bühler as a complete project, which included design, installation and full testing before handover. The plant integrates all the key processes of pigeon pea production. As well as
cleaning, it also grades and dries the peas, then dehulls, splits, optically sorts and polishes them before the final packaging stage.

The plant ensures high throughput, which helps lower the cost of production. It also guarantees key criteria such as product quality and hygienic processing, which are essential for market growth.

Since the plant was commissioned, Shivam has reported complete satisfaction with the new integrated plant. Yield has increased by 2%, when compared to the existing mill, whilst labour and power costs per tonne of output have been reduced significantly, due to the automated processes.

Mr. Ashok Jethwani, Owner of Shivam Proteins, says: “The Bühler dryer is the latest innovation in pulse processing. As well as improving the drying of the raw materials, it has helped to increase splitting efficiency by 25 per cent. De-hulling has also become more effective, while the even drying in turn helps lead to a more natural colour, resulting in an increased production of premium product.”

Bühler is committed to innovations in pulses processing, to deliver increases in yield, better safety and hygiene, and to meet the ever growing expectations of consumers. The automation and technical excellence Bühler brings to pulse processing helps reduce damage, provides far more efficient separation of impurities and much greater recovery of valuable product, such as lighter grains, which would otherwise be rejected into the waste stream.

The elevated hygiene standards in Bühler plants have been successfully promoted to Shivam’s customers. The performance of the Bühler plant, particularly its contribution to product appearance and hygiene, has been welcomed by Shivam’s customers and is allowing the company to develop plans for retail packaging and supply, with a view to quickly attaining consumer market leadership for pigeon peas daal.

Surojit Basu, Bühler’s Global Product Manager for Pulses, Spices & Sesame says Shivam placed a lot of trust in Bühler throughout this project: “Mr. Jethwani’s trust in our abilities has been a result of our long term relationship. He has been in the industry for a long time, so is well aware of needs of the consumers and also of the issues of the industry, which is why he appreciated and supported our breakthrough innovations in pulses processing. The success of this project means he is keen to continue the relationship and support to our continued innovations in pulse processing.”

This project further acknowledges Bühler’s reputation as the leading provider of hygienic, high capacity and cost effective solutions for pulse and rice processors. The company’s dedication to investing in research and development coupled with its engineering expertise gained over 150 years means it is well positioned to continue to deliver innovative solutions to increase yield and ensure a more profitable product, consistently.
Plastics.
Six months ROI for Poly Recycling GmbH with Bühler’s fully integrated optical sorting station

Following the installation of Bühler’s fully integrated optical sorting station, Poly Recycling GmbH confirmed that they achieved a full return on investment (ROI) in just six months. The installation, which included three SORTEX optical sorters for the separation and sorting of recycled plastic flakes at its plant in Weinfelden, Switzerland, was a significant step forward for Poly Recycling and a milestone in Bühler’s continuing development of its optical sorting capabilities for the plastics recycling industry.

The optical sorting station, the first of its kind in the industry, has enabled Bühler to widen its portfolio in the plastics sector, moving beyond single machine installations to fully integrated optical sorting stations. This solution, integrating separation and sorting steps in the processing line, includes plant engineering, sorting technology, mechanical separation machinery, pneumatic conveyors, pre-conditioners and auxiliary equipment.

The installation has provided Poly Recycling with a processing line capable of sorting a wide range of polymer, colour and PET products, to create plastic flakes of a higher quality standard than previously possible for its customers. This is a significant development for plastic recycling processors who are increasingly required to remove unwanted polymers together with unwanted colours and foreign materials, including flakes coated with glue or adhesives, loose paper labels, aluminium and ferrous metals. It also enables multinational food and beverage companies to meet the demands of the food industry for high quality food grade recycled rPET products and increasing the use of recycled materials in plastic packaging.

The company sought Bühler’s help to increase the capacity and quality of its rPET flake sort at its Swiss facility, which is now sorting at over 3 tonnes per hour, as well as enhancing its material sorting capabilities to overcome the issue of PVC contamination from labels on rPET bottles using newly developed PVC Label Reduction Kits. Three years on, the company has significantly expanded its business by providing its high-quality plastics
flakes to a wide range of new sectors. Previously supplying the food industry, where recycled plastics flakes were used to produce food packaging and beverage bottles, cosmetics products packaging, as well as films, containers and strapping, the use of Poly Recycling’s plastic flakes has now been extended to the clothing and automotive industries, where the product is used in the production of airbags, seat belts, insulation mats and air filters.

Speaking about the success of the installation, Mr. Casper van de Dungen, Managing Director of Poly Recycling GmbH and Vice President of Plastics Recyclers Europe (PRE), said: “Since the installation, there have been no issues with our Bühler optical sorting line. The equipment has been running 24 hours a day and seven days a week with no breakdowns. We’ve not only been able to improve the quality of our plastic flakes but have reduced the wastage of good product during processing, resulting in a return on our investment in just six months.”

Bernhard Gabauer, Segment Development Manager for Plastics at Bühler, said: “The partnership with Poly Recycling demonstrates Bühler’s commitment to develop state of the art, innovative optical sorting solutions for the plastics industry and is an acknowledgement of our global capabilities to supply complete process engineering solutions, driven by industry research and technical excellence. By choosing Bühler for its fully integrated optical sorting solution, Poly Recycling is well positioned to further expand its industrial processing of rPET beverage containers to high-quality Poly rPET flakes. Since the installation, we’ve been working closely with a number of leading plastic processors across Europe to install our optical sorting station and look forward to extending our solutions further to the wider plastics recycling sector.”

The creation of the fully integrated optical sorting station marks an important step for the Bühler team, as it extends its reach to plastics processors, looking to achieve greater recycling rates. This is particularly important at a time when many plastics recyclers are looking to adapt to more advanced, cost-effective and energy efficient processes. With the new fully integrated optical sorting station available from Bühler, processors in the plastics recycling industry are no longer required to source separate elements from multiple suppliers and can source a highly efficient and innovative plastic processing line from one supplier.

This significant installation is further evidence of Bühler’s reputation as the number one technology partner of choice in optical sorting solutions and demonstrates Bühler’s significant investment in its customer partnerships, technical innovations and localised service and support, which is serving the demands for processing and optical sorting solutions from processors around the world.
Employee focus.

Raymond Herbert, patent and regulatory expert.

Bühler’s patent history for its SORTEX technology dates back to July 1947, when its first application, covering electrostatic ejection, was submitted. Nearly 70 years on, Bühler continues to invent and innovate, to meet the changing needs of its customers. In this ‘employee focus’ we talk to Raymond Herbert, Patent & Regulatory Specialist, about his role in the patenting process and his work in ensuring that SORTEX optical sorters comply with global safety and environmental standards.

Raymond, please tell us what a typical working day for you, at Bühlers optical sorting head office in London, involves?

My job is very varied, requiring an understanding of regulatory legislation, the legal aspects of patents and machinery design, both electronic and mechanical.

It is my responsibility to ensure that the final certification of our SORTEX optical sorters are complete and accurate. I organise a wide range of machinery testing, report on test results and advise colleagues across the organisation on a range of matters where regulations come into play.

The patent work involves clearance of designs, to ensure we do not infringe existing patents - patent searching is an important part of this. Other aspects of my job include maintaining the patent coverage of our designs, which involves continual monitoring of our design ideas and patenting the worthwhile ones, providing they are considered novel and inventive.

Why are patents important to Bühler?

Bühler invests heavily in research and development, so it is important that its innovations are recognised and protected. A patent can provide an advantage in the market, generally either a cost benefit or protection of advanced machinery performance.

When a SORTEX machine is in the design stage, we regularly review design details for novelty, and if the idea is also considered to be inventive, we will consider making a patent application. Some patents are “strategic”, i.e., if we see an emerging technology that could be usefully applied to sorting in the future, we may file a patent, to get “a foot in the door” for the future use of that technology. Other patents cover features of our machines, which can range from mechanical details to specific electronic hardware.

Are there ever any infringements of our patents?

We maintain a watch on competitors’ machines in case they have copied our ideas. Infringements include copying of the styling of our machines and we are currently reviewing similarities in the look of certain competitor machines.

We are concerned with the misuse of the Bühler brand by competitors and employ a company specialising in brand protection to carry out work for us, to identify and clear up detected infringements, and so far the results have resulted in significant reductions in internet-based misuse of our name.

In addition, we maintain a watch on competitor patents, using competitor company names and technology types. The results are reviewed by a panel who may recommend follow up actions.

What types of regulations must be followed to certify that SORTEX optical sorters are safe and hygienically designed?

There are various laws, such as electro-magnetic compatibility (EMC), food hygiene, pressure vessels, waste disposal etc., with which we must comply, once we have determined that our products fall within their scope.

There are also many thousands of standards and industry
guidelines, typically produced by panels of experts. These may not be legal requirements as such, but do provide “best practice”. We make sure we are up to date and following appropriate standards.

Importantly, all of our optical sorting solutions meet the European Commission's Machinery Directive, which primarily requires that all machinery is safe, and this includes not contaminating food.

Bühler have customers in over 140 countries. How do the requirements vary by country?
All of our SORTEX optical sorting machines carry the CE mark. This is a form of “passport” for goods being distributed around the EU. It provides assurance that the item complies with all relevant EU legislation. It provides an assurance that the machine has been designed and built to the safety standards as required by the EU. These standards are recognised around the world so provide assurance of the quality of the machine.

A different certification - NRTL - is required for the USA and Canada. Although based on similar standards to those required for CE marking, this certification requires separate independent verification by external notified organisations.

Additional certifications are occasionally requested, one such example is Nigeria, where SONCAP certification is required.

For most of our markets the aforementioned certification is accepted and we are able to export our machines without hindrance, using the markings as described. Alternative regulations exist but, in general, these apply to consumer type goods rather than machinery.

Bühler also have customers that operate in hazardous areas, what type of certification is required in these circumstances?
For machines intended for use in hazardous areas, the certification required is ATEX for Europe and HAZLOC for USA and Canada. These machines include special measures which ensure they are not capable of igniting an explosive atmosphere. Hazardous area machines carry appropriate markings which provide details of the classification of the type of hazardous area they are intended for.

How can Bühler customers be confident that SORTEX optical sorters comply with all the necessary directives and meet their safety requirements?

All materials that come into contact with the food stream are required to have suitable documentation, to prove they are safe for food contact and we provide certification to support food processors in achieving their own compliance.

Generally, directives specify that documentation can be produced to show compliance and that this documentation is available to a recognised authority, should it be required.

For each sorting machine model, a set of documents are kept, which serve to show compliance with the various regulations and main standards used. We use various check lists and risk assessments, which form an important part of the documentation. Each machine is provided with a signed declaration, showing that it complies with all relevant regulations/directives that apply.