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Growth in demand in 2022 was fuelled by disruption and challenges in the supply chain during the Covid-19 Pandemic

Global tank fleet up nearly 9%

The global tank container fleet grew by 8.65 percent in 2022, according to ITCO's 11th Annual Tank Container Fleet Survey.

The number of units in use around the world reached 801,800 at 1 January 2023, compared with 737,935 a year earlier.

Reflecting continued strong demand for new equipment, a total of 67,865 new tank containers were built, compared to 53,285 new units in the previous year – an increase of 14,580 units.

The survey shows how, numerically, the industry continues to be dominated on a global level by a relatively small number of major tank operators and leasing companies. The biggest 10 tank container operators account for over 281,160 units, representing over 49 percent of the global operators' fleet. The top 10 leasing companies account for 299,300 tanks, about 83 percent of the total leasing fleet.

Commenting on the results of the survey, ITCO president Reg Lee noted: "This growth in demand in 2022 was fuelled by the massive disruption and challenges in the supply chain during the Covid-19 Pandemic – which has underlined the critical role that the tank container can, and does, play in the logistics requirements of major customers."

Lee went on to point out that this resulted in manufacturers ramping

up production to meet short-term high demand. However, the knock-on effect of this will be an oversupply of tanks, reduced levels of new production, and, possibly an increase in the number of tanks being disposed of.

"As it was not possible to guarantee regular deliveries to end-users during the pandemic, the tank container strengthened its role within a dedicated logistics supply chain, being used as a shipping tank, a road/rail intermodal tank and a storage tank," Lee stated.

Looking ahead to the coming 12 months, he noted: "Many tanks being held by chemical companies are being returned – in part due to the easing of supply chain problems and in part due to the cost of holding tanks on demurrage. These include leasing tanks, which will put pressure on the leasing sector and the depots where they are stored."

This year ITCO is celebrating its 25th anniversary. During this time, the organisation has worked to promote safe working practices in the industry and the safe handling of tank containers, as well as its sustainability and efficiency.

The complete survey can be downloaded from the ITCO website.

www.itco.org

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European chem sector struggling

Collapsing Q4 profits and losses for European chemical majors, together with low expectations for 2023, show just how badly the sector is still suffering.

Analysis by data firm ICIS says that amid warnings that the dire conditions of late 2022 continued into 2023, some of Europe's most powerful chemical companies swung to a Q4 loss, including BASF, Lanxess and Covestro, while others such as Arkema and Evonik saw profits collapse.

Europe's chemical industry continues to be battered by lacklustre domestic and export demand together with destocking, the report stated. In the meantime, high energy and feedstock costs continue to undermine its competitive position, allowing a flow of cheap imports from Asia, the Middle East and the US to gather momentum.

Since the onset of the war in Ukraine in February last year, European chemical producers have faced rocketing gas and energy costs and falling downstream demand as inflation hurt consumer demand in the region, as well as the broader manufacturing economy.

Although gas prices have fallen back to 2021 levels, they remain well above the long-term average.

At the latest count, 25.6 million tonnes a year of chemical and fertiliser capacity remains offline or is running at reduced levels according to ICIS analysis.

The impact on industry-wide operating rates has been devastating. Analysis by ICIS chief economist, Kevin Swift, estimates that Europe's chemical business was running at only 51 percent in January, far below the long-term global average of 77 percent.

As a result, industry performance is now far worse than during the 2008-9 financial crisis. Then, operating rates fell to 50 percent, but only for one month – December 2008. They quickly bounced back and for the whole of 2008-9 were well above 60 percent, barring that single month.

By contrast, capacity utilisation in Europe has averaged only 54 percent for the six months since August 2022.

Latest statistics from trade group Petrochemicals Europe show how EU ethylene production collapsed in Q3 2022 compared with previous years.

Most major European petrochemical companies are struggling to make money or are loss-making, the report states.



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Under new ownership

Woodcote Media Ltd to acquire Bulk Distributor magazine

Woodcote Media Ltd, a specialist business-to-business publisher of market-leading titles covering biofuels, bioenergy, tank cleaning, fluid handling and aerosols, is set to acquire Bulk Distributor magazine from A&D Publishing.

Woodcote Media's owner Peter Patterson has many years publishing experience, not only within the magazine sector, but specifically within the industries that *Bulk Distributor* serves, having previously been publisher of *Hazardous Cargo Bulletin*, as well as founder of *Tank Storage* magazine and the leading industry exhibition, StocExpo.

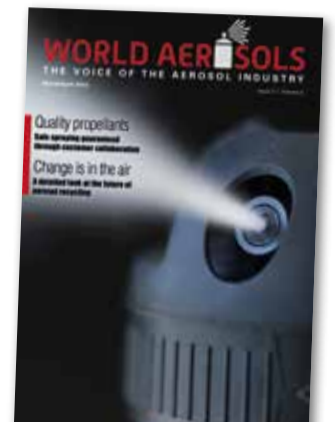
Peter stated: "I'm delighted and excited to be taking ownership of such a leading brand as *Bulk Distributor*, which has been serving the bulk logistics industry for over 30 years. I'm keen to rekindle my knowledge of the tank container and industrial packaging sectors."

He went on to say: "*Bulk Distributor* fits in perfectly with our plans for growth and will sit comfortably alongside one of our sister titles, *Tank Cleaning* magazine, that covers road tanker and tank container cleaning, leading to fantastic synergies between the two titles. I'm sure that there are many new faces within the industry, and maybe a

few familiar ones, that I'm eager to catch up with at some of the leading events over the next few months."

Neil Madden, managing editor of *Bulk Distributor*, commented: "Having known Peter personally for several years, we at *Bulk Distributor* are excited to be embarking on this next stage of the magazine's 30 year-plus history.

"As Peter says there are many synergies between *Bulk Distributor* and *Tank Cleaning* magazine which we can leverage to bring our readers even greater value."



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Going to the next level

Hoyer Group CEO Björn Schniederkötter explains to Bulk Distributor how the group is facing up to today's, and tomorrow's, logistics challenges

It has been just over two years since Björn Schniederkötter became CEO of Hamburg-based Hoyer Group.

Succeeding Ortwin Nast, who stepped down after 14 years at the helm of the logistics specialist, Schniederkötter immediately had to face up to big external challenges as the global economy began emerging from the Covid-19 pandemic.

This was followed by the start of the Russia-Ukraine conflict which brought yet more disruption to global supply chains and drastic increases in energy costs.

However, those higher energy costs have accelerated the push to more sustainable energy sources in track with the general move to decarbonise more of the global economy.

Hoyer sees itself as having an important role in this process.



Björn Schniederkötter – In global sales, we have created an optimal link between the central key accounts and decentralised field sales

Indeed, Björn Schniederkötter points out that the company has been transporting hydrogen for more than 30 years, possessing not only a great deal of experience and expertise in this field, but also the necessary equipment, and a solid customer base.

"In recent years, we have invested significantly in H2 equipment, as well as in intensive training for our colleagues in order to be able to handle this dangerous product safely and well," he says.

"Hoyer is now building up a neutral fleet of trailers and containers, and are thus ideally positioned to competently help develop projects in the ramp-up phase. We are also well-positioned in the field of carrier fluids (especially ammonia) and have our own equipment here as well."

The group's sustainability strategy also includes a significant

reduction in CO2 emissions, he continues.

"With regard to the decarbonisation of transport, we are very intensively evaluating all types of vehicle drive that we can use," Schniederkötter says. "We already have the most modern and low-emission fleet, partly also with alternative drives. However, it is important for us that trucks with alternative drives have dangerous goods approval."

In addition, Hoyer is in the process of using e-trucks in concrete projects with certain customers, and these are in already the advanced evaluation phase.

Driver shortage

Road haulage, of course, faces its own challenges, such as the

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DUAL AND EXPLOSION-PROOF OPTIONS AVAILABLE

chronic shortage of skilled, qualified drivers, an issue that needs to be addressed not just by individual companies but also collaboratively with other industry stakeholders.

“Driver shortage is one of the most critical issues we face in Europe and globally,” Schniederkötter says. “The executive board of the Hoyer Group has set up a task force to deal proactively with this issue. It analyses how demand will develop over the next few years, what the reasons are for the departure of colleagues and staff fluctuation, and how we can counter this.

“Our newest fleet also contributes to driver satisfaction, as do our driver supervisors, who maintain intensive contact with our drivers, which strengthens emotional formation. The key to satisfaction, apart from above-average pay, is clearly the appreciation we show to our drivers,” he asserts.

Citing the motto ‘Treat everyone as you would like to be treated’, Schniederkötter explains that for Hoyer internally, this means in concrete terms that the group guides, trains and supports drivers. The company is also working with customers to create a robust infrastructure for loading and unloading, and to establish “an appreciative approach”.

“Treating drivers with respect is very important across all sectors,” he points out, “and on the government side, a road infrastructure must be created throughout Europe that enables drivers to reach their destination safely, and without traffic jams and unnecessary waiting times. I also see the role of the state in improving the infrastructure for stationary traffic, ie, safe parking spaces with social standards everywhere.”

Market conditions

The second half of 2022 impacted business for many bulk liquid logistics operators, as volumes from the European chemical sector declined significantly.

In addition, there were significant challenges in supply chains as the railway sector experienced inefficiencies. And this was, of course, compounded by significant cost increases due to higher personnel and energy costs.

Schniederkötter says that despite considerable internal efficiency measures, Hoyer had to pass on parts of the cost increase to the market. But Hoyer will continue to invest significantly in European infrastructure. For example, together with a joint venture partner in Ludwigshafen, the group is building one of the most modern storage and cleaning terminals.

“We are gearing up for global growth,” he comments. “We have taken a close look at local markets and will also expand our global network, as we are currently doing intensively in the US with our site in Houston, Texas, and in Asia with our site in Thailand.”

The group has added to its equipment fleet, investing significantly in more tank containers, which Hoyer sees as the group’s main asset area. Currently, more than 40,000 units are in operational use.

“We also respond individually to our customers’ needs to customise tank containers for them and adapt them according to their requirements,” he explains. “In parallel, we are investing in infrastructure to be able to handle our tank containers productively on a global scale.”

Moreover, new tank trailers have been acquired, and the IBC fleet has grown by 5 percent. In addition, Hoyer invested heavily in logistics services, such as the commissioning of one of the most modern storage facilities for dangerous goods in 2022.

Supply chain solutions

Given this spread of logistics services it is not surprising that supply chain solutions (SCS) will likely play an increasingly bigger role in group activities.

“Transport from A to B has long since ceased to be the sole service portfolio of the Hoyer Group,” says Schniederkötter. “We are investing significantly in the area of SCS and last year we were able to take over the complete warehouse handling for one of our customers, evonik in Germany, and integrate it into our operating business.

“Hoyer thinks and acts in terms of creating additional value for our customers and partners. Our vision is that our customers concentrate on their core competencies, such as development,



Treating drivers with respect is very important across all sectors



Hoyer thinks and acts in terms of creating additional value for our customers and partners

production, manufacturing and sales, for example, and we take over the upstream and downstream logistics activities, on-site and off-site. For liquid bulk, petroleum, gas, food and the chemical industry, we see ourselves as a global market leader. We think in terms of long-term partnerships and therefore it goes without saying that we see SCS as a growth area.”

Responsibility

As a family business that thinks and acts in terms of generations, Hoyer is always aware of its social, ecological and economic responsibility.

“We are committed to sustainable corporate structures, putting our employees first and acting in a value-driven manner,” Schniederkötter continues. “The revised Hoyer Group vision and the strategic objectives aligned with it form the basis for all decisions concerning day-to-day business and corporate development, in line with the values of the family-owned company. The clear focus is on

sustainable growth.”

In the past year, management further elaborated long-term regional strategies, initiated infrastructure measures and implemented group-wide internal organisational development.

“In 2022, we carried out a reorganisation to make us even more market-oriented and to continue to position ourselves as the leading provider of comprehensive logistics services on the global market,” he says. “We have set up three operational divisions and one for global sales. In the global sales division, we have created an optimal link between the central key accounts and the decentralised field sales under a central guideline. The business remains local, but receives embracing and co-ordinating leadership, which actively supports our global growth.

“In this way Hoyer is thus even better aligned to customer and market needs,” Schniederkötter concludes.

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Hoyer has invested significantly in more tank containers, which Hoyer sees as the group’s main asset area



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Growth in deployment brings increased risk

TT Club has an intimate understanding of the tank container sector, as the insurer provides cover for well over half the fleet. This transport equipment continues to show its utility and flexibility, but as Mike Yarwood, MD of Loss Prevention at TT exemplifies, the risks involved remain prevalent



Large scale growth in the tank sector will undoubtedly provide many opportunities for logistics operators of tank containers as greater capacity will be required to serve chemical commodity trades. However, as is often the case, opportunity does not come without risk.

Analysis of TT's claims point to the primary risks being those of impact incidents, internal pitting (from corrosion) and cargo contamination. It is believed the increased occurrence of impacts involving tanks is a factor of higher volumes of tanks handled at maritime and intermodal terminals with the greater proportion of such incidents occurring at these locations. Increased congestion, it is suggested, puts additional pressure on operators of handling equipment to achieve greater throughput levels.

Contamination and corrosion issues in large part originate in inappropriate cargo care and insufficient cleaning and maintenance regimes. TT's guidance in mitigating such risks revolves around operator preparation and knowledge.

It is important to know your customer. TT has had experience where low-grade chemicals were mis-sold as higher-grade products, leading to rejection of the cargo by the consignee as being out of specification. While in essence a sales contract issue, the logistics operator can be exposed to significant storage costs while the dispute between seller and buyer is resolved, frequently tying up large

numbers of ISO tanks for several months. In one instance this was compounded when, after several months, it was discovered that the low-grade material had solidified and had begun to attack the integrity of the ISO tank, resulting in deep pitting to the steel shell and rendering the tanks as total losses.

Robust selection

As basic good practice, TT recommends that robust selection criteria be developed, particularly when it comes to the employment of sub-contractors whether they be haulage contractors, tank cleaning and heating stations or repair facilities.

Risks can become enlarged when companies move into unfamiliar operational territories, it is essential for them to achieve a full appreciation of the prevailing market conditions, general business culture and expectations from local parties such as enforcement agencies. Since local economic and business ethics may differ, a local partner or agent could prove invaluable in providing assistance and expertise.

Cleaning

While cargo contamination has a number of potential causes, an area of focus is the expediency and sufficiency of cleaning the unit following discharge of cargo.

In order to avoid such issues, it is imperative to ensure that the last carried cargo is fully removed from the tank container before the next cargo is loaded. Effective cleaning after each carried consignment is therefore of paramount importance.

The transport of certain products may require additional internal cleaning, including removal of valves and changing of contaminated seals and gaskets, to prevent contamination of the next cargo. As part of the pre-trip inspection the cleanliness of the tank container should be checked to ensure that it meets the requirement of the shipper, especially where some prior cargoes are banned or the cargo to be transported has particular sensitivities.

The availability of a suitable cleaning station should be taken into account prior to a cargo being accepted for transport; certain cargoes may not be able to be processed. The risks inherent in transporting the tank container in 'empty/dirty' condition to a location where there is a suitable cleaning station also need to be assessed.

Apart from identifying a competent cleaning station, successful cleaning will require complete and informative instructions, such as:

- Full identification of the last carried commodity
- Complete and accurate cleaning instructions, taking account of future use of the unit
- Any additional relevant information regarding prior carried cargoes

Certain types of tank container can give rise to additional challenges for the cleaning process. For example, units fitted with surge or baffle plates have a greater surface area to clean due to the additional internal structure and the areas where the baffle plates are fixed present particular challenges.

The tank operator should also perform due diligence in selecting a service provider; in addition to the pure ability physically to clean the unit, there are ethical sourcing and environmental considerations. For example, the cleaning station should be able to demonstrate an effluent process system and licencing concerning disposal of remnant cargo. (See checklist.)

In conclusion, business growth always comes with a certain amount of risk. From the employment of new and potentially unfamiliar contractors to entering contracts with what may be new shippers, operators will likely – and in some cases unwittingly – expose themselves to operational and commercial risks. This should not detract from the positive search for new opportunities for the tank container sector. But careful preparation before embarking on expansion makes shrewd business sense.

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Checklist

The provision of the following Thirteen Point Checklist is TT's attempt to encapsulate, in easily digestible form, the major risk mitigation actions that operators can employ:

1. Has the cargo to be shipped been clearly identified and correctly classified – do I have a current and fully completed Safety Data Sheet (SDS)?
2. Have any special requirements/instructions been adequately considered and communicated?
3. If required to do so, is there sufficient information available to complete the Dangerous Goods Declaration?
4. Is the selected tank appropriate for the cargo to be carried?
5. Has the pre-trip inspection been successfully completed?
6. Is a valid cleaning certificate available for the tank?
7. Is the last cargo transported in the tank compliant with the shipper's requirements?
8. Are the components of the tank to be used in good condition and compatible with the cargo to be shipped?
9. Is the volume of cargo suitable to avoid over or under filling and within the weight limits for the entire journey?
10. Has the shipper provided instructions and have these been passed accurately to all stakeholders through the intended transport chain?
11. Upon completion of filling have the valves and fittings been correctly closed and seals applied?
12. Has a transport plan been considered including any applicable national restrictions for the entire journey?
13. Are the correct placard and markings in place?

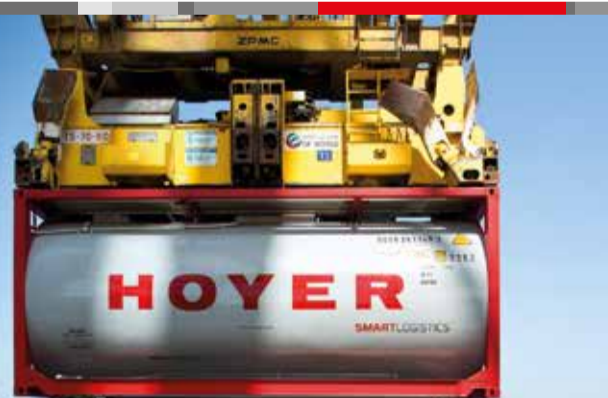


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WHEN IT MATTERS

Bertschi looks ahead after challenging year

The year 2022 was marked by rising inflation and – in the second half of the year – a sharp slump in production in Europe's chemical industry as result of the massive increase in gas and electricity prices.

In this challenging environment, Bertschi was able to repeat the one billion Swiss franc sales mark achieved for the first time last year, increasing sales by 8 percent to CHF1.1 billion.

"We are satisfied with our business results. This success is the result of, among other things, the positive development of the global transport concepts initiated in 2012 between Asia, America, Europe and the Middle East," commented Hans-Jörg Bertschi, executive chairman of Bertschi Group.

The group is focusing on the digital transformation of its processes. An important step was taken with the integration of all systems in European transport, including the integration of customers and service partners. This transformation took place gradually, all the while carefully considering each and every employee.

Further steps are planned for 2023 – including in the global logistics business. Bertschi is developing and implementing its digitalisation concepts and the software required for this is being built independently, with a team of 80 employees, including 50 software developers.

Sustainable logistics

In 2022, Bertschi once again made targeted investments of CHF120 million in expanding sustainable logistics infrastructure, growing the tank and silo container fleet to 42,000 units (+5 percent) and digital transformation.

"By making these investments, we are focusing on shifting transport from the road to more environmentally- and climate-friendly rail," remarked CEO Jan Arnet. "For example, last year, the doubling of capacity in our intermodal terminal at our site in Terneuzen, The Netherlands, not only enabled an expansion of the range of services we, it also contributes to the EU's Green Deal."

With the construction of a new logistics centre for dangerous liquid chemicals in Zhangjiagang (China), close to Shanghai, an important investment was completed in mid-2022 after several years of planning and construction. This storage and filling centre, with a capacity of 25,000 tons of liquid products for storage in tank containers and 25,000 tons of packed goods, as well as automated filling facilities, is now considered one of the safest and most sustainable chemical logistics centres in all of China, according to the group's international customers.

Following a successful trial operation, the facility received its final operating license in January this year. "Thanks to the logistic hub's excellent position on the Yangtze River Delta, close to Shanghai, and its direct accessibility by water, this infrastructure is ideally positioned to offer customers in the global tank container business not only transport services, but also sustainable door-to-door supply chains," explained Hans-Joerg Bertschi.

Outlook

As a result of the high rate of inflation and the associated interest rate increases, the global economy weakened significantly in the second half of 2022. European chemical producers are also suffering from the massive rise in energy prices, which is leading to facilities being closed and production relocated overseas.

Bertschi expects the economic downturn to become more pronounced in 2023, reflected in significantly lower demand for logistics services. At the same time, Bertschi is exposed to the sharp increase in energy costs of rail operators in European intermodal transport, which makes the company's services significantly more expensive.

"As a company, we are in a very good position that will enable us to survive in this challenging environment, and we are cautiously optimistic that demand will recover in the second half of the year," stated Arnet.

Despite the challenging outlook, Bertschi is planning to make significant investments in the company's future in 2023. The focus remains on the sustainability of logistics. In January of this year, work started on the construction of a major rail terminal in Antwerp, the second largest port in Europe.

The terminal also incorporates value-added services. Containers arriving in Antwerp from overseas can be delivered directly by barge to the new rail terminal, stored there and then intermodally distributed by rail across all of Europe. This will be achieved without burdening the road network right up to arrival at the destination terminal.

The successful transfer of more than 90 percent of all transport from road to rail and water routes, enables a 70 percent saving on CO2



Bertschi tanks on a deepsea vessel

emissions compared with direct road transport. "In our corporate strategy, we have set ourselves binding targets and defined a broad action plan to reduce our CO2 emissions further," explained Hans-Joerg Bertschi.

As part of this strategic objective, in 2022 terminal vehicles in The Netherlands were converted from conventional diesel to run on HVO biodiesel. Hydrated vegetable oil (HVO) is a renewable fuel and generates 90 percent less CO2 emissions than normal diesel.

At the Birrfeld (Switzerland) terminal, the buildings have been fitted with photovoltaic installations to generate electricity. Both these CO2 reduction measures – renewable fuels and solar collectors – will also be used at other Bertschi sites in future.

In 2022, the company introduced the GLEC (Global Logistics



Chemical logistics hub in Zhangjiagang

Emissions Council) approach, which is a new method for calculating the CO2 emissions of all its transport services in Europe. Using this method, it is now possible to calculate the exact CO2 emissions for each variant of transport and transparently make them available to customers.

Bertschi wants to offer customers different transport options, with the aim of reducing further the carbon footprint. In this context, it is preparing to offer alternatives such as hydrogen- and electric-drive vehicles for pre- and onward carriage by road to rail and water transshipment terminals. An expansion of this GLEC approach to global transport will be initiated in 2023.

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Who we are

DJD International Logistics Co.,Ltd (hereinafter referred to as DJD) is a professional global ISOTANK supplier that provides bulk liquid cargo logistics services for customers around the world.

Founded in 2005, with headquarters in Dalian, China, and offices in Shanghai, Singapore and Malaysia. DJD is a first-class international freight forwarder registered by the Ministry of Commerce and a NVOCC approved by the Ministry of Transport. It is also a Class A dangerous goods declaration enterprise approved by the maritime department, a Customs AEO certification enterprise, a leading provincial small and medium-sized enterprise with specialized expertise in 2022, and a council member of China Container Industry Association and ITCO.

In terms of management, the company has introduced ISO9001 quality management system, ISO14001 environmental management system, ISO45001 occupational health and safety management system, which ensure standardized management and high - quality operation.

Vision

In the future, DJD will continue to uphold the business purposes of professionalism, rigor, practicability and efficiency; constantly improve our service level and create a well-known brand in the industry. We are committed to becoming a high-quality, highly recognized international ISOTANK logistics operation enterprise.



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VdB powers ahead in Africa

Van den Bosch is expanding its deepsea activities with the purchase of 500 additional 20ft tank containers.

The tanks were immediately put into use, enabling the logistics service provider to respond to the growing demand from the African market for deepsea transport using ISO tanks for the food industry.

Van den Bosch runs its deepsea activities from its branch in Dubai and is now one of the world's largest tank operators for the food industry. The focus is on the African market with an emphasis on shipping liquid food products, such as olive and sunflower oil, ethanol, glucose and whisky, in tank containers.

"We have been active in Africa since 2014, with a particular focus on developments in the continent," says Mark Ashton, commercial director of Van den Bosch in Dubai. "Over the years, we have grown with the increasing demand for bulk transport. The purchase of these 500 additional containers reflects that and will support our growth model within Africa."

In March, the Dubai operation, Van den Bosch DMCC, obtained ISO 22000 certification. ISO 22000 is an international food safety quality standard. The basic conditions for food transport, management elements and HACCP are key parts of this quality management system.

Van den Bosch's office in the Netherlands and its base in the UK have long been ISO 22000-certified. Ashton comments: "By obtaining ISO 22000 certification, we are endorsing the importance of food safety and proving to our customers that we meet all the quality requirements."

Sustainable change

Much of Africa still operates in the traditional way, whereby products are shipped in small packages or even flexitanks. So, Van den Bosch has been focusing on setting up and redirecting traditional transport flows to bulk transport.

"ISO tank containers offer an efficient, reliable and sustainable alternative," Ashton goes on. "Through our current operations in countries such as Ghana, Ivory Coast and Nigeria, we've noticed the need for such a sustainable transport solution."

"Investment in the region offers us opportunities to develop further in the African market," he adds. "This includes countries such as Cameroon, Senegal, Togo and even Sierra Leone. The focus is now on establishing a reliable and available supply of tank containers in these countries. That is the key to sustainable change."

Ivory Coast cleaning station

Further investment in the African market translates into the construction of new tank cleaning facilities on the continent. A new tank cleaning station is now opening in Abidjan, Ivory Coast. This follows a cleaning facility that opened in Ghana in 2016.

According to Ashton: "For bulk transport to take place, ISO tanks must be available that comply with the proper cleaning requirements. The new cleaning station will be built in full compliance with European quality standards for food, Kosher and Halal cleaning."

The station is expected to open in the second quarter of 2023.

Driver ruling

In March, the Dutch Supreme Court overturned a prior judgment, instead ruling that Hungarian truck drivers are not entitled to claim Dutch wages.

The case involves a lawsuit brought by 10 Hungarian drivers against their former employer Silo Tank Kft, which is now Van den Bosch Transport Kft.

In brief, various rulings over recent years concern whether the Hungarian drivers should have received Dutch wages for the international transport activities they carried out on behalf of Silo Tank in between 2007 and 2012.

On 2 May 2017, the 's-Hertogenbosch Court of Appeal ruled that the drivers were not entitled to Dutch wages. This ruling was overturned by the Supreme Court on 23 November 2018. On 27 July 2021, the Arnhem-Leeuwarden Court of Appeal ruled that the drivers were entitled to Dutch wages.

Now, the Supreme Court has overturned the judgment of the Arnhem-Leeuwarden Court of Appeal. This means that the Hungarian drivers are not entitled to claim Dutch wages. The case is being referred to the Amsterdam Court of Appeal. In doing so, the Supreme Court is following the earlier judgment of the Advocate General. The Supreme Court thus overturns the Court of Appeal's judgment that the Netherlands was the Hungarian drivers' usual country of work.

Van den Bosch CEO Rico Daandels was pleased with the ruling:



Through its operations in Africa, Van den Bosch noticed the need for a more sustainable transport solution that tank containers offer

"The Supreme Court ruling confirms that we acted correctly and that the drivers have always been paid appropriately," he said.

According to Daandels, the ruling once again proves the complexity of this matter – not only within this case, but across the sector.

Moreover, the case is harming the industry's image. "We are now 10

years on and unfortunately have to conclude that the attitude and tone of the Trade Union Federation (FNV) have been polarising and damaging to the sector," he stated.

www.vandenbosch.com



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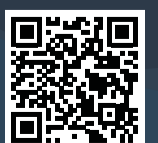
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Conflict and the supply chain

In this thought piece Suttons International outlines the impact of the Ukraine conflict on chemical supply chains

The ongoing conflict in Ukraine has had a significant impact on the chemical supply chain.

Chemical supply chains both within Europe and globally have been compromised and many long-established routes have been disrupted. While we can analyse the short-term impact, the long-term effects are yet to be fully understood.

Suttons International has reacted to these changes with a number of measures and is continually reviewing the situation to ensure customers supply chains and production schedules are minimally disrupted.

Impact

The impact the conflict has had on the physical transport of chemicals in Eastern Europe cannot be understated. The country is a major transit point for pipelines and links that carry raw materials in and out of Europe. The conflict has damaged or shut down many of these transit links, leading to disruptions in the supply of key feedstock for many chemical production processes.

The sanctions imposed on Russia due to the invasion has led to restrictions to previously accessible raw materials and has resulted in a significant increase in energy costs. This has had a huge effect on chemical supply chains in Europe and beyond, leading to shortages and price increases for a wide range of chemical products. These, in turn, have had cascading effects on multiple industries that rely on these inputs.

In order to protect chemical plants in Europe from costly shutdowns, new supply chains to source raw material and feedstock from other



Suttons' operations team is aligned to customers' manufacturing schedules and commercial forecasting, enabling it to ensure tank availability and vessel capacity keep products moving

locations have had to be quickly established, often at greater expense to the producers.

The increasing cost of feedstock has been compounded by skyrocketing energy prices. As an already highly energy intensive industry, soaring energy prices within Europe have forced many chemical producers to pass on these costs to customers and end users, ultimately making these producers less competitive and attractive when compared to alternatives from Asia or the Americas.

This has all come at a time of reduced deepsea ocean rates, which have recently stabilised to the lowest levels since pre-covid. As well, chemical logistics costs within the EU (and UK) are at an all-time high, due in part to the issues already discussed, and lingering effects of Covid and Brexit, which further reduce the affordability and appeal of European chemical producers.

As a result, there has been a downturn in demand, therefore overall production at many sites has decreased. The loss of manufacturing

output has further reduced the competitiveness of European chemical manufacturers, which are unable to bring the economies of scale necessary to reduce cost, when compared with rivals, or their own manufacturing, in other regions.

The impact on the global supply chain is far reaching. We are only in the early stages of what could be a complete shift in numerous supply chains, which have been long established and unbroken for many decades.

In the medium to long term, we can expect to see manufacturers source chemical products necessary for their operations away from now higher cost European manufacturers to alternative suppliers outside Europe.

Navigating the conflict

One important Suttons International took was immediately to stop all Suttons tanks carrying out import and export business to and from Russia. We are continuously working with our customers to provide logistics solutions for transport of alternative and ethically sourced products from other areas of the globe, to help with the immediate disruptions caused by the sanctions.

Another way in which Suttons is helping its customers navigate these issues is through the use of strategically located bulk storage locations to hold buffer stocks of critical raw materials. This way we can keep our customers constantly supplied with raw materials and finished products, further offsetting the unpredictability of the ongoing conflict.

We are committed to the UK-EU market and to supporting our customers requiring short sea

logistics. We are working with customers to develop the most cost-effective way to move products between the UK and Europe, to help them remain competitive.

Likewise, thanks to our global network with depots and offices across the US, South America, Southeast Asia, Japan, and China, we are able to support any customers who are unable to retain their existing supply chains and help with the planning and distribution of products from new locations.

Suttons is proactively investing in the use of advanced visibility tools which will allow us to understand the fluctuations within the supply chain and more effectively utilise our assets to support customers, with the aim of keeping their costs down.

Furthermore, our skilled and effective operations team is aligned to our customers' manufacturing schedules and commercial forecasting. This enables us to ensure tank availability and vessel capacity meets customer demand, to keep products moving and to keep any potential disruptions to the minimum.

Fundamental changes are occurring across chemical supply chains. The political and economic situation caused by the conflict has cast uncertainty on the long-term viability of the European chemical supply chain, which is still feeling the lingering effects of Covid and Brexit. The high energy costs are a particular frustration which must be overcome in order to stabilise and restore confidence in the industry.

www.suttonsgroup.com

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Leschaco to open chem centre in Moerdijk

Following the opening of a new chemicals and dangerous goods warehouse in Malaysia last year, Leschaco has signed a lease with industrial land developer DHG (David Hart Group) developing a new ADR warehouse in Moerdijk, Netherlands.

Situated between the ports of Rotterdam and Antwerp, Moerdijk offers accessibility to the European hinterland and ensures that customers' products are transported in an efficient manner in terms of cost, speed, accessibility and frequency, the Bremen-based logistics specialist said. The new facility is scheduled to be ready in the third quarter of this year.

The centre has multimodal transport links. In addition to the proximity to Rotterdam and Antwerp, it has access to the two most important waterways in the Netherlands – the Rhine and the Meuse with daily barge traffic to and from Rotterdam and Antwerp – as well as direct connections to the A16 (Antwerp-Breda-Rotterdam), A59 and A17 (Moerdijk-Roosendaal-Antwerp). In addition, two public rail terminals in the vicinity are available for use.

The warehouse offers space for approximately 45,000 pallets on an area of 29,000 sqm. It is divided into five sections. Four of them are equipped with CO2 extinguishing systems, specifically designed for the storage of chemicals and dangerous goods, while the fifth is for the storage of general cargo and is equipped with ESFR sprinklers.

"This project is an important strategic milestone for our presence in Europe. It is also necessary to meet increasing demand in the region and to be closer to our customers, said Constantin Conrad, Leschaco's managing partner.

Sebastian Haebler, head of global contract logistics, pointed out that the new logistics centre offers customers in the chemical, healthcare, automotive, industrial materials and consumer goods sectors a wide range of services.

"In addition to pallet storage, this includes various kinds of value-added services according to our customers' demands," Haebler added.

David Hart, owner of DHG, said that as family businesses, Leschaco and DHG share similar motivation, standards and values. "Partly for this reason, we are honoured to add Leschaco to our DHG 'family' and to be a part of its expansion within Europe," Hart said.

The new building meets all safety and environmental standards. Solar panels on the roof will be able to cover part of the electricity demand. Other sustainable measures, such as the use of electric floor heating instead of gas or oil installations, LED lighting, and high construction standards for insulation, also contribute to improving



Leschaco has teamed up a lease with DHG to develop a new ADR warehouse in Moerdijk

the climate balance, as do the short distances to the port of Moerdijk for transport by barge and rail and e-charging stations for cars.

DHG is the biggest developer of large logistics real estate at its own risk in the Netherlands. Since 2015, DHG has completed over 1.3 million sqm of distribution centres according to the SMARTLOG concept. These distribution centres are designed in such a way that

they are suitable for a wide range of types of user. All distribution centres and terminals are situated in good logistics locations, right by waterways, roads, terminals and airports. Currently, some 300,000 sqm is under construction, planned to be delivered in 2023.

www.leschaco.com

Annual Production
12000 TK

01

Product

- Standard tank
- Lined tank
- Gas tank
- Food grade tank
- Electrical tank
- Reefer tank
- Baffle tank
- AHF tank
- Hydrogen peroxide tank
- Metallic Sodium tanks
- IBC/SBC tank
- T20/T22 tank

Nantong Tank Container Co., Ltd

Established in May, 2007, NANTONG TANK CONTAINER CO., LTD (NTtank) is a professional ISO tank container manufacturer located in Nantong, Jiangsu, China, close to Shanghai.

NTtank supplies both standard ISO UN Portable tanks and customized special tanks, with annual capacity of 8,000 standard ISO tanks and 4,000 multi-type special tanks, like SWAP Tanks, Reefer Tanks, Electrical Heated tanks, Different lining tanks (rubber, PE, Teflon, Chemline, Saekaphen, etc.), AHF acid tanks, Hydrogen peroxide tanks, Metallic Sodium tanks, High purity ammonia tanks, T20/T22 tanks, T50 gas tanks (ASME U and U2 stamp), offshore tanks and other small pressurized / none pressurized IBC for liquid products transportation.

The faith of NTtank is to provide its customers with tanks and services of the highest quality and reliability consistent with sound commercial practices and economic consideration.



The Cryopack 3000 SA can be shipped three on a flatrack

Shorter, but the same

For many years, Wessington Cryogenics' Cryopack 3000 has been sought after by shippers wanting a tank with a little more capacity without compromising too much on space.

However, when it comes to shipping, this longer tank has meant that only two could fit on a flatrack.

Now, Wessington has introduced a slightly shorter version – the Cryopack 3000 SA – which will enable clients to ship three on a flatrack. This has been made possible by some re-engineering that enabled Wessington to reduce the length but maintain capacity at 3,000 US gallons (11,355 litres). The tank is still ADR/RID/IMDG and DNV2.7-1 approved.

<https://wessingtoncryogenics.com>

02

Service

- Global service network

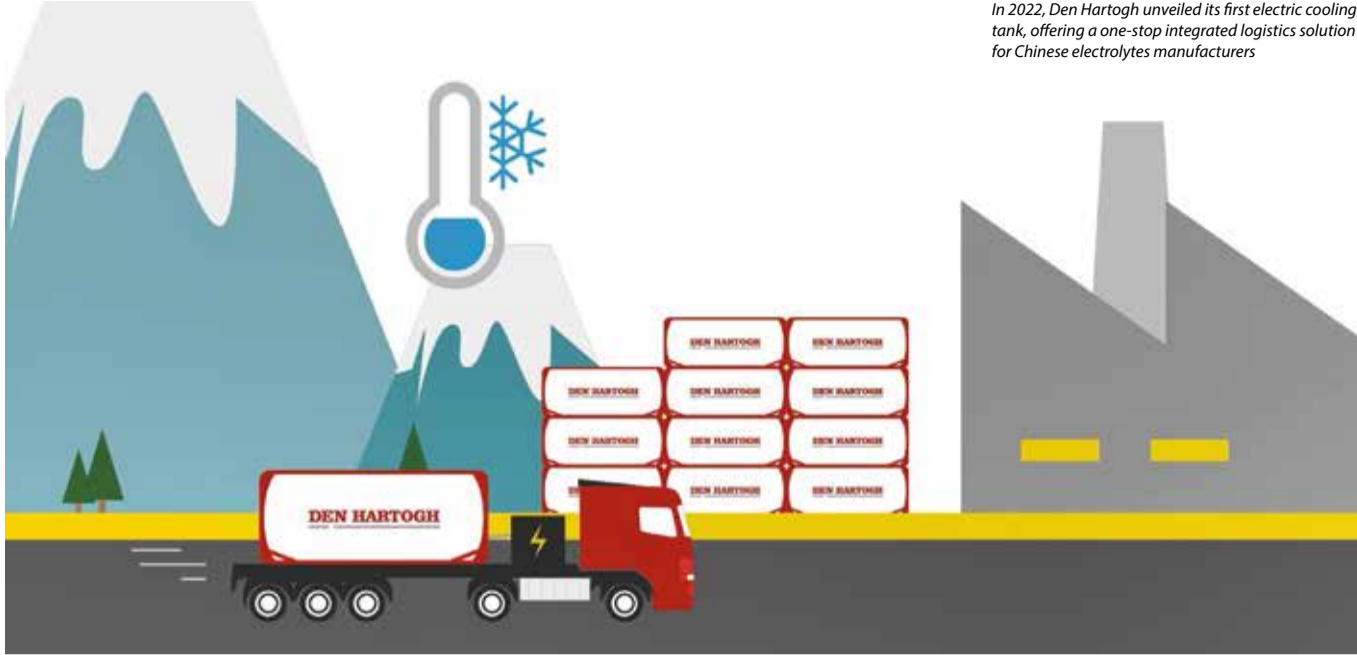
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In 2022, Den Hartogh unveiled its first electric cooling tank, offering a one-stop integrated logistics solution for Chinese electrolytes manufacturers



The Volvo FM truck will be used in the Rotterdam cluster where Den Hartogh implements the dedicated last and first mile of intermodal transport

Den Hartogh goes electric

Royal Den Hartogh Logistics is pushing ahead with its sustainability ambitions with the addition of its first Volvo FM electric truck, an important step in reducing its CO2 emissions.

The company has purposely chosen the lightest possible electric truck with maximum load capacity, without compromising safety and driver convenience.

In 2025, Den Hartogh wants to have reduced its transport-related CO2 emissions by 25 percent and to be fully CO2 neutral in 2050.

Group managing director Pieter den Hartogh commented: "These are serious ambitions. We want to minimise our impact on the environment and work as sustainably as possible. For that reason, we are continuously looking for opportunities to enable us to reduce our emissions. We do that with electric as well as LNG-powered trucks. The addition of the Volvo FM Electric is a new milestone."

The Volvo FM truck will be used in the Rotterdam cluster where Den Hartogh implements the dedicated last and first mile of intermodal transport, explained Joep Aerts, business unit director Liquid Logistics. "We load and unload tank containers at our big customers. This means that we have relatively short trips, with the

truck returning to the site every evening so that it can be charged at night. This is a way of using electric transport at all our bigger international intermodal hubs."

The company purposely chose the lightest possible electric truck with maximum load capacity. The Volvo FM Electric has a GCW of 50 tonnes. By choosing five batteries instead of six, there is even more load capacity.

"We don't need to make any compromises on safety either," Aerts continued. "This Volvo FM electric has every possible safety feature, which we extended with cameras in the wing mirror."

"For us, it's also important – certainly in view of the use of the truck – that the Volvo FM has easy access. That's really great for our drivers."

The truck will go into operation immediately, although not yet for ADR transport. "Legislation still lags behind reality," said Aerts. "Using an electric truck to transport ADR goods is not yet permitted. However, we hope to see a change in the legislation soon. Now we can still easily schedule non-ADR transports separately, which is impossible with various other electric trucks."

Besides the fact that the truck is electrically powered, it also helps

that the chassis of the Volvo FM is made from fossil-free steel to help reduce the CO2 footprint. Pieter den Hartogh went on: "We've had a partnership with Volvo Trucks for years. It's these kinds of things, together with Volvo's alternative powertrains, which mean that we are keen to work together in the transition to becoming CO2 neutral."

Electrolyte logistics

The global renewable energy industry is growing rapidly resulting in an increased demand for lithium battery electrolytes. In 2022, Den Hartogh unveiled its first electric cooling tank, offering a one-stop integrated logistics solution for Chinese electrolytes manufacturers exporting from China to Europe.

The door-to-door delivery was entirely co-ordinated and managed by Den Hartogh using its own trucking fleets. The company continues to invest in modern technology and creative logistics solutions to help fulfil customers' needs in an increasingly complex environment.

www.denhartogh.com

Let's meet in the 'Village'

The tank container industry will once again meet at the ITCO Tank Container Village at transport logistic 2023, taking place in Munich from 9-12 May 2023.

With over 72 Members exhibiting, the Tank Container Village is again completely sold out – the largest that ITCO has organised.

Two evening receptions will be held at the Village.

Tuesday 9 May: CIMC Safeway will be sponsoring the Welcome

Reception taking place at the end of the first day of the exhibition from 18:00 to 20:00.

Wednesday 10 May: Perolo will be organising its traditional wine-tasting evening from its exhibition stand from 18:00 onwards

The ITCO Tank Container Village will be located in Hall B4 of the transport logistic 2023 Exhibition.





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X-treme composite

As a specialist in fibre-reinforced composites, Lamilux Composites has launched what it calls a revolutionary tank cladding material. The new material, developed and manufactured in Germany, is about five times stronger and 30 percent lighter than other tank cladding materials.

Lamilux X-treme is a fibre-reinforced composite material with the maximum possible content of reinforcement fibres in a highly elastic epoxy resin matrix. The outstanding toughness saves operators time and money by reducing maintenance and repair costs and also container downtime.

Tank containers of all kinds are subjected to very high mechanical loads during loading and transport, whether they are used as containers on a cargo ship or as tank containers on trains or on a truck. This is where Lamilux X-treme comes in: it provides safe and energy-efficient transport of tank containers.

Even under the harshest conditions on road and sea, the material remains visually appealing and maximises the durability of the entire structure. The operator also saves on running costs for his fleet, as the tank container has a significantly lower deadweight than one with a conventional exterior shell.

The advantages claimed for Lamilux X-treme include: reduced maintenance and repair costs; maximum durability and less downtime; high-quality appearance even under the toughest conditions; and reduced operating costs due to weight reduction.

The company says the customer's brand is the most important business value. It's not just time and money to fix damaged containers, it is also annoying. Mostly, containers are repaired via patches, or they are partially replaced with new cladding. This results



The advantages claimed for Lamilux X-treme include reduced maintenance and repair costs

in containers looking like patchworks and not nearly so representative of the company as when they were new. Lamilux X-treme protects the containers from being damaged, so they do not have to be repaired most of the time, the company claims. It means that tanks can retain their new look much longer and better represent the customer's brand.

Lamilux fibre-reinforced composites are produced in a continuous, automated production process. The separate production lines ensure

minimum delivery times while providing consistent quality, which can be reproduced at any time. The X-treme product range can be made in widths of up to 3m, and the length of sheets or rolls can be changed to meet the customer's needs.

From 9-12 May, Lamilux will be participating in the ITCO Tank Container Village a transport logistic in Munich.

www.lamilux.com

Profit jump for STC

Stoltt Tank Containers (STC) posted a full-year operating profit for 2022 of US\$172.7 million, compared with \$81.6 million in 2021.

Transport revenue increased 30.8 percent to \$679.8 million, and demurrage revenue increased 63.6 percent to \$119.8 million as customers held on to tanks longer for storing back-up stock due to supply chain disruptions.

Higher operating revenue was offset by a 68.6 percent increase in ocean freight costs, reflecting higher liner rates driven by tight capacity. Overall volumes decreased due to lack of space on ships and other supply chain congestion.

STC president Hans Augusteijn said the firm's 40th anniversary year was marked by "unique market conditions and strong performance".

"As customers faced the implications of supply chain constraints, rising inflation, the war in Ukraine and Covid-19 lockdowns in China, we were able to keep their liquid cargoes moving," he said in the annual report of parent group Stolt-Nielsen. "We were

successful in securing space on ships in a very tight market, ensuring our customers' products could reach their end customers. I am proud that no STC customer ran out of stock or had to close production because of us. This accomplishment is testament to our agile and dedicated team, fleet size, customer centricity, industry relationships and digital capabilities."

Augusteijn went on to say that STC's ongoing digital transformation strategy also contributed to its agility and reliability.

"This year more than half of our business was conducted through our digital platform," he stated. "Digitalisation also formed a major element of our training activity as we helped staff improve their digital skills. This training complemented ongoing learning and development, which included new opportunities for staff to participate in exchanges where they worked in different offices and project teams.

"We also increased communication on safety issues and extended training on dangerous goods safety based on feedback from previous employee engagement surveys. These activities helped us to



STC said 2022 was marked by "unique market conditions"

reduce our Total Recordable Case Frequency (TRCF) from 6.7 in 2021, to 4.8 in 2022."

Europe's

For 2023, Augusteijn said rising energy costs and China's Covid-19 situation would likely result in softer demand in the first half of the year. However, the tank operator expects volumes to increase as the year progresses

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MCM celebrated its 40th anniversary at the end of 2022



In 1984, MCM became the first tank rental firm to offer 30,000 l swap body tanks

MCM – 40 years of specialised services

Founded in Geneva in 1982, tank container leasing company MCM (Management, Control and Maintenance SA) celebrated its 40th anniversary at the end of 2022.

With a fleet currently standing at 2,400 units, MCM remains a relatively niche player in the leasing sector. But the company says its unique offering lies in offering containers that are often modified according to specific customer requirements rather than focusing on general commodity tanks.

"MCM is a small company, but this is by choice," says a spokesperson. "Our organisation and the fact that we are part of an international group, would allow us to invest in large numbers of tanks year after year. "But this is not our strategy.

"We want to remain flexible. This means being able to work on all types of projects whether for 1 container, 10 units or even up to 100 units. Therefore, it is important to keep in close contact and proximity with each of our clients, both from our head office and also from our local offices. We also have to be able to work with an individual truck driver on one hand, and with large international companies on the other," the spokesperson adds.

From the start

MCM's origins arose from the company's founders' extensive experience in both tank manufacturing and operations, and then with LOWACO/CATU, a large Swiss leasing company.

In 1984, MCM became the first tank rental firm to offer large capacity swap body tanks of 30,000 litres. This was followed in 1989 by introducing a fleet of small capacity specialised tank containers for high density and corrosive liquids. Then, in 1999, MCM also became one of the first leasing companies at the time to add 35,000 litre units to its fleet.

A year later, low and high pressure T50 gas tanks were added to MCM's fleet.

In 2010, MCM was acquired by LAMY Group, based in Paris, France. A diversified group, LAMY's interests are in raw materials management and trading, energy management and logistics.

Today the fleet is still dominated by swap bodies, gas tanks (low and high pressure), and ISO tanks, which can be standard, but are mainly specials.

Challenging times

Having celebrated its 40th anniversary, MCM is emerging from what has been for many companies an extremely challenging few years.

The first part of 2021 was "very disturbed" as the ongoing COVID-19 pandemic caused major supply chain disruption.

"Customers were panicking and getting rid of all unnecessary equipment," said the spokesperson. "MCM actually planned for the worst, as all the indicators were catastrophic. We had to navigate by sight for the first half of the year without really knowing what to

expect. We also had a lot of tanks off-hired during this period, which was very disruptive and negative signals in terms of activity."

During the Summer of 2021, the company was just as surprised as most to see that the market completely turned around and bounced back in a dynamic way.

Then in 2022, just as everyone thought normality would return post-pandemic, MCM's activities were affected by the war in Ukraine and by its activities in this area. But despite these terrible events, the overall level of activity remained dynamic and the market became bullish, the company says.

"So far this year, business has been stable, with the exception of Eastern Europe," the spokesperson continues. "But it is difficult to forecast what the rest of the year will bring. The prognostication was supposed to be good, although market indicators now seem to be less bright up to 2024."

Nevertheless, MCM is constantly buying new tanks; these are ordered in small batches, but are continuously manufactured to renew all the fleet ranges. Highly specialised tanks designed to client specifications are also added to the fleet on a regular basis.

MCM works mainly with industrial companies and transport operators, mostly based in Europe, but the leasing company also has customers all over the world.

In recent years MCM has had a very good utilisation rate of around 90 percent. The company sees this as an optimal rate that allows it to have a good part of the tanks rented out, while maintaining enough equipment to rent to customers as and when required.

Digitalisation

Beyond equipment supplies, MCM has invested significantly in digitalising processes.

"As an ISO 9001-2015 company, we have to implement a set of internal digital development processes with different IT tools," says the spokesperson. "We have developed an ERP specially dedicated to our activity and needs, and are using many more digital processes, such as electronic document management.

"We are constantly developing this system in the aim of better management and control over our activities but for our customer follow-up. We also recruited a communication/digital manager, who is now in charge of implementing all digitalisation processes."

All this points to an important lesson in the tank container leasing industry. Following a flurry of merger and acquisition activity in the sector over recent years, it is still possible for smaller, highly focused lessors to survive – and thrive – in this very competitive market.

www.mcm.ch



MCM is constantly buying new tanks, ordered in small batches, but continuously manufactured to renew all the fleet ranges



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VTG to focus on tank leasing

Hamburg-based VTG is to concentrate its tank container business solely on leasing.

The rail wagon hire specialist, one of the largest of its kind in the world, announced in March that it was exiting the tank container logistics business, operated through VTG Tanktainer.

The group said its tank container transport and logistics activities will be discontinued by the end of the second quarter of 2023. This will also involve closing its international subsidiaries, with the exception of the joint venture Shanghai COSCO VTG Tanktainer.

VTG said the step was necessary in order to respond to an “increasingly fraught market situation” with which VTG has been confronted since the third quarter of 2022.

“A pronounced slump in demand for transport in the chemical industry and declining freight rates – in part due to the massive increase in energy costs – has been accompanied by substantial price hikes in the intermodal segment,” a statement read.

“At the same time, freight costs can now only be planned on the basis of prices valid for between three and six months. After thoroughly examining various options, the executive board, acting in agreement with the shareholders, took the strategic decision to discontinue the logistics activities of VTG Tanktainer.”

VTG had previously signalled its intention to concentrate on tank business meets our long-term profitability expectations both during and beyond the coronavirus crisis.”

However, having put all its operating eggs in the European basket, VTG seems to have been hamstrung by the downturn in the European chemical sector. Hence, the decision to exit the transport and logistics business completely.

But, VTG does see this an opportunity to expand its tank container leasing business.

All leasing activities – including staff and assets – are to be transferred within the group at the Hamburg site by the end of the second quarter. Relevant offerings will in future be made available from here. VTG Tanktainer’s other facilities in Germany, Finland, North America and Singapore will be closed by the end of this year.

At 1 January 2023, VTG Tanktainer’s fleet stood at 6,115 units, according to latest ITCO fleet survey, though this was listed under the operators category. How many of these units will be retained by the leasing business remains to be seen.

In June 2022, VTG had new shareholders when a subsidiary of the Abu Dhabi Investment Authority (ADIA) and Global Infrastructure Partners (GIP) agreed to buy jointly a 72.55 percent stake, acquiring this from funds managed by Morgan Stanley Infrastructure Partners (MSIP) and Joachim Herz Stiftung, which held shareholdings of 57.55 percent and 15 percent, respectively.

www.vtg.com



MRC has built a diverse portfolio of rail freight cars

Mitsui Rail consolidates

North American railcar leasing company Mitsui Rail Capital has announced that JA Mitsui Leasing Ltd (JAML) and Mitsui & Co Ltd have entered a definitive agreement for JAML, through its subsidiary JAML MRC Holding, to take full ownership of MRC. MRC is currently a joint venture between JAML and Mitsui.

“JAML has been a joint venture partner with Mitsui for MRC since 2015, so they’re very familiar with our business, which will make this a smooth transition,” MRC president Kevin Cook said. “JAML is focused on expanding its presence in North America and is very supportive of strategic growth initiatives at MRC.”

MRC has built a diverse portfolio of rail freight cars deployed across a wide range of industrial sectors including energy, food, manufacturing and construction. In addition, MRC has built a strong reputation for its customer service, which has been the foundation of the business since its establishment in 1996.

www.mrc-rail.com



VTG’s tank transport activities will be discontinued by the end of the second quarter

container leasing, which is, after all, better aligned with the group’s overall business.

In November, 2021 the group agreed an asset purchase agreement with UK-based Suttons International under which Suttons would acquire VTG’s overseas tank containers, personnel, and customer contracts, including VTG interests in a joint venture with Mission Line in Brazil.



Concentrating on tank leasing is arguably better aligned with the group’s overall business

At the time VTG said that in selling its overseas activities it was “strategically realigning” the Tanktainer business unit, and in the future, VTG Tanktainer would focus on the global leasing of tank containers, flanked by “integrated logistical services”.

“This sale refocuses and aligns our asset business with the strategy of the whole VTG Group,” said Oksana Janssen, chief operating officer Eurasia & Far East at the time. “It also ensures the operating

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Trifleet profits up

Trifleet Leasing's contribution to GATX's profit was higher than the prior year, a result of higher revenue from more tank containers on lease.

In its first full year reporting as part of GATX, Trifleet posted a profit of US\$13.8 million, up from \$10.2 million the previous year.

The tank container leasing market was said to have been strong in 2022 and demand for tanks was "robust". Utilisation increased to 93.1 percent at 31 December 2022.

For the group as a whole net income was \$155.9 million, or \$4.35 per diluted share, for 2022 compared to \$143.1 million, or \$3.98 per share, for 2021.

Results for 2022 included a net negative impact of \$61.8 million from tax adjustments and other items, compared to a net negative impact of \$39.1 million from tax adjustments and other items in 2021.



Conditions in the railcar leasing are expected to remain favourable this year

At Rail North America, profit in 2022 was higher than the prior year. The increase was primarily attributable to higher net gains on asset dispositions.

Rail International profit in 2022 was lower due to the impairment of Rail Russia and the negative impact of foreign exchange rates, partially offset by higher revenue from more railcars on lease.

In 2022, after a strategic review, GATX made the decision to exit its rail business in Russia. The decision was due to the impacts of the Russia/Ukraine conflict on the business and the business risks associated with the geopolitical environment resulting from the conflict.

Therefore, the net assets of Rail Russia were classified as held for sale and an impairment loss of \$14.6 million was recognised in 2022. The sale of Rail Russia was completed on 31 January 2023.

To date, the Russia-Ukraine conflict has not had a material impact on business operations at GATX's global railcar, aircraft spare engine, and tank container leasing businesses outside of Russia, the company stated.

Furthermore, the nature of the impact on financial results varies across the business units. Higher steel prices have led to higher new asset costs across the rail and tank container leasing businesses, a trend that supports higher lease rates on many existing assets but makes new investments more challenging.

Supply chain disruptions, slower new railcar deliveries, and limited access to key components, such as wheelsets, have been more impactful in Europe and India, GATX reported.

2023 outlook

As for the coming, GATX said conditions in the North American railcar leasing market improved throughout 2022, and conditions are expected to



Trifleet benefited from robust demand for tanks in 2022

remain favourable in 2023.

Lease rates for railcars scheduled to renew in 2023 will likely be generally higher than expiring rates as the lease rate environment for existing railcars is expected to be healthy.

Rail International should see robust demand for railcars in both the European and Indian businesses, with an expected increase in profit as demand for equipment in Europe continues to be

strong. GATX also plans to invest in the fleet. Lease revenue is expected to be higher in 2023, resulting from more railcars on lease and higher lease rates. In India, absent any potential supply chain disruptions, the company anticipates significant growth in the fleet, which will also contribute to an increase in profit.

www.gatx.com

Leasing fleet up by 30,000

ITCO's latest Tank Container Fleet Survey shows that the total leasing fleet grew by almost 38,000 units in 2022, from 322,950 to 360,925 (see table).

Among the major lessors, the most notable change in the table is that Raffles Lease leapfrogged CS Leasing in the rankings following what the company itself described last year as an aggressive programme of fleet additions.

At 1 January 2023, Raffles counted 30,000 tanks in its fleet, up from 20,500 12 months earlier. CS Leasing itself was no slouch in

growing its fleet, which was up from 23,450 to 29,150.

The second largest lessor Eurotainer, which is owned by the same parent group as Raffles, recorded an increase of 4,500 units to 55,000.

Peacock Container added some 2,500 units during 2022. In 2021, the company more than doubled its fleet with the acquisition of 9,000 tanks from GEM Containers.

At 1 January 2023, the top 10 lessors accounted for 299,300 tanks, representing about 83 percent of the total leasing fleet.

Lessor	HQ	01/01/23	01/01/22
EXSIF Worldwide	USA	70,000	71,350
Eurotainer*	France	55,000	51,500
Seaco Global	Singapore	43,000	42,000
Raffles Lease*	Singapore	30,000	20,500
CS Leasing	USA	29,150	23,450
Trifleet Leasing	Netherlands	22,360	20,190
Peacock Container	Netherlands	20,000	17,500
Triton International	USA	12,200	11,400
Albatross Tank Leasing	China	9,900	9,500
International Equipment Leasing	USA	8,150	7,600
TWS Rent-A-Tainer	Germany	7,690	7,660
Multistar Leasing	South Africa	5,190	5,140
Modalis	France	5,000	4,000
NRS Lease	Japan	5,000	7,000
Matlack Leasing	USA	2,500	2,500
Tankspan Leasing	UK	2,285	3,030
MCM Management	Switzerland	2,400	2,200
Noble Container Leasing	Hong Kong	1,900	1,730
Unitas Container Leasing	Bermuda	1,600	1,600
Combipass	France	1,500	1,500
Tristar Engineering	Switzerland	1,100	1,100
Total (above 1000)		335,925	302,950
Estimated total for others under 1000**		25,000	20,000
TOTAL LEASING FLEET		360,925	322,950

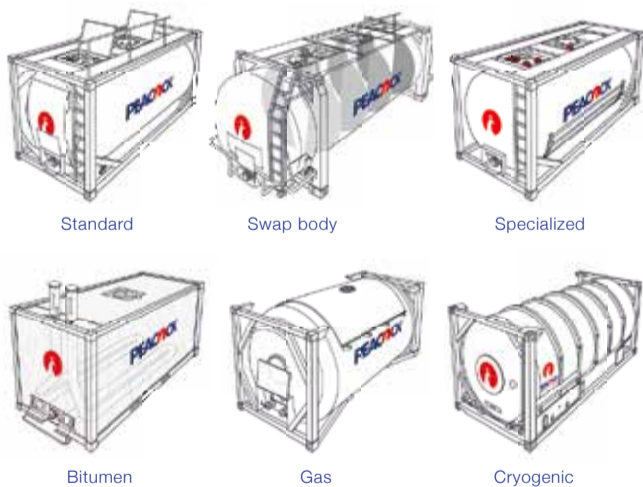
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**There are a number of regional lessors that are not readily contactable. Accordingly, an estimate has been included.



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EXSIF opens in Dubai

EXSIF has established a new office in Dubai, UAE, to serve customers in the Middle East and India.

With the opening of the Dubai office, EXSIF now has a presence in 19 countries worldwide.

The new office is headed by vice president – Middle East and India Daniel Bleymann, who most recently led EXSIF's offshore tank rental business. In his new role, Bleymann will represent both EXSIF's ISO tank leasing and offshore tank rental businesses.

Meanwhile, specialty chemicals company Nouryon recently recognised EXSIF among its top global partners in its annual 2022 Supplier of the Year Awards event held in Rome, Italy.

Suppliers were identified and rated based on strategic spend, shared commitment to innovation and sustainability, overall supplier performance and actions taken to improve Nouryon's competitiveness. Award recipients were recognised for outstanding performance in three categories: innovation, reliability, and sustainability.

EXSIF was named by Nouryon as one of its top global sourcing partners in the area of supplier reliability. Recipients in this category were recognised for exceptional supply reliability, collaboration, and close partnership with Nouryon while facing a challenging supply and demand environment.

"Our suppliers are vital to Nouryon's success, and we value their resilience as well as their commitment to pursuing innovation, reliability, and sustainability, despite facing a challenging supply chain environment," said Charlie Shaver, Nouryon chairman and CEO. "It is through our close collaboration with suppliers that we are able to continue to innovate and grow with customers, support our strong market position and drive sustainable growth for our company."

EXSIF representatives Warwick Spencer, managing director, Europe and Americas, and Randy Seawright, senior commercial manager, accepted the award at the event in February.



Warwick Spencer and Randy Seawright

www.exsif.com

Management changes at Raffles

After 20 years of service to the Ermewa Group, Claus Ringgaard has retired from the organisation.

Ringgaard served as general manager, Asia Pacific for Eurotainer for 16 years, leading the growth and development of the business in the region. For the past three years, following the acquisition by the Ermewa Group, Ringgaard has served as managing director of Raffles Lease, ensuring a smooth ownership transition.

In January this year, Shin-ei Sato has been named general manager, Asia Pacific for Raffles Lease. He is responsible for the company's business in the Asia Pacific region and will manage the sales development and strategy implementation in the region from the company's office in Singapore.

Sato was most recently regional manager, Japan for Eurotainer for 10 years. In that position Sato successfully advanced the company's leasing business and achieved double digit percentage growth in recent years. Prior to Eurotainer, he was employed by Niyac, as the exclusive agent for Hoyer Group in Japan.

In Europe, Raffles Lease is strengthening its sales team.

Raffles has seen significant growth in its business in Europe. In order to meet the continuing demand for tank container leasing to operators and logistics companies, and continue to deliver a high level of service, the decision was made to expand the team.

In the Hamburg office, Michael Heinkel has been appointed as sales manager Europe. Heinkel has more than 12 years' experience in bulk logistics and leasing in tank containers and railcars, bringing sales, business development and account management skills.

Sander Spruit has been hired as sales manager Benelux. Spruit has served as sales executive - Benelux with Eurotainer for several years and is well suited to manage existing clients and grow the leasing business with transport and logistics companies in Belgium, the Netherlands and Luxembourg.

Spruit will continue to build relationships with clients to serve their container leasing needs, and will be based in Rotterdam as the central hub for the region.

www.raffleslease.com



Raffles has seen significant growth in its business in Europe

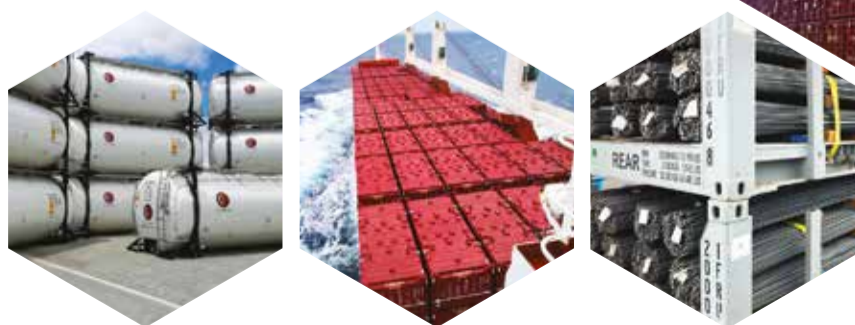
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Boasso, Quala to tie the knot

It's a case of old friends, new friends in North America.

Boasso Global and Q Super Holdings, the holding company for Quala, announced the signing of a definitive merger agreement in February.

In what is one of the most significant moves ever in the North American depot sector, the two businesses will create one of the biggest tank depot and related services providers for the liquid bulk logistics industry.

The transaction is supported by a new investment from Boasso's majority shareholder, KKR, through its KKR Global Infrastructure Investors IV fund. Under the terms of the agreement, KKR will inject more capital into Boasso to facilitate the merger with Quala by buying shares from Advent International and invest in the combination of the two businesses.

The planned merger sees the two companies sort of come full circle. Founded in 1985 as a 5-acre dry/tank container repair depot in New Orleans, Boasso was purchased by Quality Distribution Inc in December 2007. In 2008, Boasso management assumed control of legacy Quality Distribution terminals in Newark, NJ and Savannah, GA.

Boasso continued to operate as a separate entity in the proceeding years; latterly expanding its footprint abroad. In 2017, it acquired Den Hartogh's tank cleaning and depot business in Europe, which included two locations in the Netherlands (Botlek & Dordrecht), one in France (Amiens), and one in Spain (Parets).

The following year the company bought Kobler, Tank-und Silo-Container Transport based in Mutterstadt, Germany. In 2021, after Quality Distribution, Inc became Boasso Global, Wales-based PM Rees & Sons and sister company Atlantic Tank Clean Barry was the next target.

Then in 2022, Boasso acquired Frans de Wit, a tank services and trucking business based in Moerdijk, The Netherlands.

In 2015, private equity outfit Apax Funds acquired Boasso as part of its purchase of Quality Distribution. Then in 2021, Quality Distribution sold its Quality Carriers bulk liquid transport business to rail operator CSX Corporation. As a result of that transaction, Boasso became a standalone entity.

Last year, Apax announced it was selling its majority interest in



Boasso has expanded its footprint into Europe over recent years

Boasso Global, Inc to asset management firm KKR. KKR made the investment in Boasso through its KKR Global Infrastructure Investors IV fund, which focuses on infrastructure investments in North America and Western Europe.

Horses for courses

Quala offers container cleaning and maintenance services, including tank trailer, ISO tank, railcar and IBC cleaning, while Boasso tends to

concentrate on services for tank containers. On completion of the merger, the companies will combine their complementary geographical footprints and services with the aim of delivering enhanced solutions.

"Boasso and Quala are premier infrastructure service providers to the global liquid bulk logistics ecosystem with trusted reputations and highly complementary networks and service offerings," said Dash Lane, partner at KKR. "This transaction is about growth and

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12. On-hire / Off-Hire Surveys,
13. Tank Leasing,
14. Technical Services and Assistance (on or off site) &
15. Emergency Response Team.

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Boasso officially opened its new headquarters in the Water Street Tampa community empowering the two great teams led by Joe Troy and Scott Harrison to come together and make long term investments in quality, safety and superior solutions for customers.”

Boasso CEO Joe Troy commented: “We are focused on meeting the needs of our global customers and the combination of Boasso and Quala makes perfect strategic sense. This transaction will enhance our ability to deliver safe, compliant and best-in-class services to our ISO tank container customers and meaningfully expand our access to more locations across North America to serve their needs. This is a rare opportunity to put together two Tampa-based, complementary businesses.”

Scott Harrison, CEO of Quala, echoed these sentiments. “Our organisations not only have a strong commercial relationship, but also shared cultures of delivering excellence, innovation and safety for our customers. This combination with Boasso and new investment from KKR will allow us to advance our position as a leading provider of container cleaning and maintenance services while continuing to meet our customers’ needs,” he said.

Since Advent’s investment in Quala in 2016, the company has cemented its position as the largest independent tank wash, inspection, maintenance and repair provider in North America.

Like Boasso, Quala has grown significantly, expanding across services and markets. Under Advent’s ownership, the company invested heavily in building out the platform – including critical investments in safety, talent and technology. Quala’s accomplishments include developing a proprietary technology suite, OnTrax, to make Quala’s services more seamless for customers.

Advent’s investment enabled Quala to increase its footprint from 60 locations and 500 employees to 119 locations and over 1,800 employees and the company has achieved substantial profitable

growth.

Stephen Hoffmeister, managing director at Advent International, said: “The Quala management team has delivered compelling performance by driving an employee first culture, technological innovation and customer excellence. Quala is a well invested platform strategically positioned to continue its success and make important investments for its people.”

The transaction, which is subject to required regulatory approvals, is expected to close in the first half of 2023.

New HQ

In January, Boasso officially opened its new headquarters in the Water Street Tampa community. The grand opening celebration was attended by Boasso Global’s team, Tampa Bay’s Mayor Jane Castor, Tampa Bay Chamber of Commerce members, plus community and business leaders and local vendors.

Employees moved into the new corporate office in June 2022 after previously being located less than a mile away. The new office is located at 615 Channelside Drive and offers a loft-style design with high ceilings and natural lighting. The space was thoughtfully designed with various work styles in mind. Employees can opt for traditional workstations with sit-to-stand desks, and collaborative lounge seating areas, or work from the private, outdoor terrace with waterfront views, overlooking Sparkman Wharf.

“Boasso Global is a global, port-based business, so having Sparkman Wharf as our new headquarters location not only personifies who we are but has the added benefit of being an exciting central location in Tampa surrounded by restaurants, stores, and special event venues,” said CEO Joe Troy. “As Tampa continues to grow, it offers us a tremendous quality of life and access to talented, diverse, and highly educated employees.”

The new headquarters is home to corporate employees, which include accounting, finance, legal, human resources, IT, and marketing. With over 12,500 sq ft of office space, the building can accommodate the company’s continued plans for expansion.

“We are thrilled to have the international organisation, Boasso Global, headquartered in Tampa, and as a member of the Tampa Bay Chamber. Companies like Boasso that select the area for a headquarters location bring significant value to the entire region, further establishing Tampa Bay as a great place to do business,” said Dr Bob Rohrlack, Tampa Bay Chamber of Commerce’s president & CEO.

www.boassoglobal.com

Gröninger equips Freund

With more than 225 truck combinations, Freund is a well-known player in the field of dry bulk transport.

Recently, a completely new dry bulk cleaning facility was commissioned at the company’s headquarters in the German city of Kerpen. The new cleaning station was kitted out by Gröninger and consists of two bays for interior cleaning and two drying bays.

With sophisticated software the customer can determine and fine tune the washing programmes. There is the option to choose between cold and hot water, and the metering of an alkaline cleaning agent. This way various products can be cleaned as efficiently as possible. Following the cleaning the tanks are dried.

A Gröninger Drypack provides warm, filtered air, for a hygienic result within a short drying cycle.

Supplying the cleaning technology in so-called Cleanpack (stainless steel frames), the assembly time onsite was reduced considerably. The controls are remotely accessible by Gröninger service and control room staff in Rotterdam, in order to provide optimal support under all circumstances.

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Freund’s new dry bulk cleaning station in Kerpen was kitted out by Gröninger and consists of two bays for interior cleaning and two drying bays



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25 years of commitment

Long-term relationships and a commitment to excellence are behind Depot Software's success

Although having been around for more than 25 years, Depot Software's first customer is still using the company's software.

Depot Software was born in 1996 when Lucas Vos, founder and owner of the Lucrasoft ICT Group, developed the software for a maintenance & repair tank container services customer in Heinenoord, near port of Rotterdam.

The fact the initial customer has remained with the company is testament to Depot Software's pride in nurturing long-term relationships from day one.

Thanks to that successful collaboration, Depot Software quickly gained recognition among full-service depots worldwide. Today, the software is used in more than 200 depots for a range of services, including handling and storage, cleaning and heel, heating and transloading, liquid logistics, and drumming.

The software firm continually evolves and enhances its product software to meet the highest standards of safety, accessibility, and environmental sustainability.

This success is attributed to the company's team, with Angelique Noordijk at the helm. As general manager of Depot Software, Noordijk drives the team towards excellence, and firmly believes in the power of collaboration. The team works closely with customers, from end-users to strategic decision-makers, to ensure alignment and success.

Love for logistics

Mother to a 9-year-old daughter, Angelique Noordijk is a mechanical engineer by training.

Her love for logistics was sparked during her time as a mechanical engineer, which eventually led her to work as an operations manager at Tank Cleaning Europort. It was here that she was first introduced to Depot Software, which piqued her interest and curiosity.

Noordijk joined Depot Software six years ago as a lead consultant, a role that was perfectly aligned with her university studies in social sciences. Her graduation topic, 'Research into structural, cultural, and interpersonal factors that play a role in the implementation of a software application', provided her with a unique perspective and skillset that she has brought to her role as general manager.

With her leadership and experience, she has enabled each team member to excel in their role and facilitated their growth and



Angelique Noordijk

development. Through her vision and dedication, Angelique Noordijk has helped build a cohesive and effective team that is dedicated to the success of Depot Software.

The team's focus is on providing high-quality, standardised software solutions that meet the needs of customers in the tank container industry. They take pride in their product and are committed to staying up to date with the latest market trends and developments.

Through collaboration and knowledge sharing, members of the team continuously improve the software to support better the processes and objectives of customers. The team is passionate about its work and strives to provide the best possible service to customers, who they see as partners in the success.

Depot Community

Depot Software is shifting its focus towards standardisation in order to enhance efficiency and improve market performance. The company has moved away from providing customised solutions and is now offering a standard product that can be easily configured to meet the needs of individual customers. This transition has numerous benefits, such as reducing ad hoc development and defects, and increasing market operation. The team stays informed about market trends and incorporates the most significant changes as standard features, ensuring that customers always have access to new functionalities that can enhance their operations and decision-making.

This year Depot Software is establishing the Depot Community to bring together end-users, operational managers, and strategic decision-makers. Through the community, Depot Software will provide the tools, knowledge bases, and events needed to maximise the potential of the software, while facilitating collaboration and knowledge sharing between customers to help them stay competitive in the tank container industry.

www.depotsoftware.com

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Dinges records value-added success

Safety is always a top priority when transporting goods – especially when hazardous goods are being handled.

For this reason, there are numerous important regulations for tank containers, which concern the inspection of safety-relevant aspects. For example, according to the regulations of the International Convention for Safe Containers, an intermediate inspection must be carried out every 2.5 years and a periodic inspection every five years.

The workshop team of Dinges Logistics carries out these inspections of containers as an approved partner of Bureau Veritas, the leading company for testing, inspection, and certification. In this context, a positive conclusion has now been drawn from the past year. In the Dinges workshop, approximately 400 inspections of tank containers were carried out in 2022. This figure increased sharply compared with the previous year and is attributable to the growth in capacity, which resulted primarily from the opening of another site and the associated expansion of the workshop.

Basically, all services of the workshop are not only used by the company's own fleet, but are also available to Dinges customers. In



In the Dinges workshop, approximately 400 inspections of tank containers were carried out in 2022

addition to the container inspections, the workshop team also provides a complete portfolio of maintenance, repair and overhaul services for tractor units, tank semitrailers, chassis, and tank containers.

Furthermore, the workshop is a recognised TÜV base, in which not

only various tests, but also the adequate preparations for the TÜV approval are carried out. For example, the TÜV tests due twice a year, ie, the main inspection and the safety inspection, are executed in Dinges' own workshop for some 350 vehicle license plates in its fleet. In addition, painting work is also carried out and in order to optimise this, an investment was recently made in a paint booth.

Ingo Dinges, owner and managing director is very confident with regard to the workshop's performance.

"Of course, growth always implies certain challenges, but these have been mastered well," he said. "Through our internal evaluations, we can see a consistently positive development. The team complements each other really well, with all employees bringing their individual strengths to favourable effect."

The workshop is an essential part of Dinges' value-added service. It contributes significantly to the success and the future viability of the company.

<https://dinges-logistics.com>



The establishment of the Kandla depot is part of Legend's plan to expand services to Northern India

Legend opens second India depot

Legend Group has opened a new container depot in Kandla, India. This marks the firm's second depot in India after successfully operating a tank depot in Nhava Sheva in January 2021.

Located just 12 km from Kandla port and 65 km from Mundra port, the 5-acre (20,000 sqm) facility provides quick access to two of India's busiest ports with a handling capacity of 1,200 TEU.

The establishment of the depot is part of Legend's strategic plan to expand services to Northern India and capture opportunities in this rapidly growing market. Additionally, it allows customers in the region to benefit from greater flexibility, cost savings, and efficiency by gaining quick access to Legend's solutions.

Also this year, Legend opened a new office in Seoul, South Korea.

The Seoul office offers logistics and shipping solutions for all types of freight including bulk liquid chemicals, dry and perishable commodities, project and oversized cargos.

The new office is located at NK Building 13th Floor, Bongeunsaro

306, Gangnamgu, Seoul, and led by Francisco Roh, general manager.

Subsidiary Legend Shipping launched a domestic trucking service in Dubai, providing domestic transport and door-to-door delivery to clients in industries such as manufacturing, trading, oil & gas, construction and energy.

The trucking service is initially being offered to clients in the region that are located near ports in UAE. Legend plans to build up the fleet and expand routes to several ports, storage terminals and refineries in the region to deliver complementary services along with its own ISO tanks and dry containers.

"We are very excited to launch our domestic trucking services in Dubai. We believe this new venture will enable us to expand our reach in the region and help us better serve existing customers, as well as new ones," said Dennis Wong, deputy CEO of Legend Group.

www.legendlogisticsltd.com

Solar-powered depot

As part of its initiative to promote a 'clean and green' environment, Indian company Zodiac Tank Container Terminals has been at the forefront of adopting environmentally-friendly technologies to safeguard nature, climate and communities.

During 2022, the company successfully commissioned a 150kWp rooftop solar power generation plant at its Khalapur facility. This initiative is a first of its kind at a tank container and road tanker cleaning and repair facility in India.

The depot is now fully operational and entirely run-on solar power, and the effort was recognised by partner firm OORJA Solar. Zodiac said this was a testimony towards its commitment to promote a cleaner environment and inspire communities to adopt similar methods.

Zodiac Tank is an ISO 14001:2015 certified company and promotes best practices in the environment.

www.zodiacterminals.com



Zodiac's rooftop solar power generation plant at its Khalapur facility is a first of its kind at a cleaning and repair facility in India



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Since 2018, in addition to tank cleaning, Claessen Tankcleaning has specialized in repairing tank containers. Because of our repair department, we can also offer customers container re-inspections.

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Tracking gases

When the assets you need to track are potentially explosive gases conveyed around the globe in tank containers, simple positioning information is not enough, writes Gavan Murphy, Globalstar director of marketing, EMEA & APAC

The first thing you think about when it comes to asset tracking is following an item of equipment or cargo as it travels from point A to point B. However, if the shipments in question are potentially explosive gases, simple positioning information is far from enough.

A leading international exporter of hazardous



As gases are potentially explosive, it is essential that the containers can be accurately tracked

gases owns and operates a fleet of 600 cryogenic tank containers used for worldwide export of 'air' gas, namely argon, nitrogen, oxygen, carbon dioxide (CO₂) and nitrous oxide. Customers represent a diverse range of organisations and sectors, including energy and gas providers, industrial companies, leisure sector including hotels, medical businesses, beverage makers (who use CO₂ for carbonated drinks), among others.

As the gases are potentially explosive, it is essential that the containers can be accurately tracked throughout their journey to ensure safe transport. This is only possible by employing satellite communications with ubiquitous coverage, even as the cargo traverses the world's oceans.

Furthermore, it is vital to know each tank's fill level. Achieving this requires collection and analysis of data which reveals differential pressure levels.

The company deployed the Ovinto Sat smart asset monitoring system to ensure the safety of



Gavan Murphy, director of marketing EMEA and APAC at Globalstar



Only satellite can deliver always-on connectivity with assets

gas shipments as they travel to customers. Ovinto Sat is enabled by Globalstar's worldwide satellite fleet traversing the planet in Low-Earth Orbit.

Solutions which the gas exporter tried earlier were only able to provide positioning information. Only Ovinto Sat offered a solution that included sensors for measuring temperature and pressure inside the vessels. Ovinto Sat's configurability, enabling the company to program the sensors to meet specific logistical requirements, was a huge factor which persuaded the company to deploy the system. The company also found Ovinto Sat's operational dashboard to be highly functional and user friendly.

Other GSM-based systems trialled were unable to provide uninterrupted tracking, others deemed too complex for speedy implementation, or their operational user interface was unintuitive. The robustness, low power consumption and long battery life of Ovinto Sat units were further key features that led the company to determine it as the best solution for its needs.

"We were confident that Ovinto Sat devices were rugged enough to withstand long journeys on road, rail and sea that our containers often take," the assets manager at the gas exporter commented.

Each of the company's 600 tank containers is now fitted with an Ovinto Sat device, as is every new container the company buys.

Many factors can influence the pressure in a tank. The density inside changes subject to atmospheric temperature variations as it is shipped around the world. Frederick Ronse, managing director of Ovinto, which created Ovinto Sat, explained: "The density can vary depending on where it comes from; for instance, LNG characteristics will be different when sourced from a hot country compared to somewhere with a cooler climate."

Measuring and analysing differential pressures at the top and bottom of the container reveals how full the tank is. As a result, Ovinto Sat helps customers optimise their assets' value because they know when a tank will be ready for refilling.

Being able to predict reliably the state of the container and its condensed gaseous contents benefits all parties in the value chain, ensuring that end customers receive deliveries when expected and in a highly efficient manner.

Hydrogen and LNG

LNG is a rapidly growing business area for the gas exporter, particularly in the US and Mexico. It is believed that the LNG market will see significant growth in the coming years as demand surges for sources of energy alternative to traditional oil and gas fossil fuels.

Additionally, hydrogen based energy, particularly to fuel vehicles, is an area of fast expansion. "As the world turns to cleaner sources of energy, hydrogen is emerging as a big part of the solution to solve the global energy crisis," explained the assets manager.

"Hydrogen is outside of our traditional markets but it is one of the fastest growing parts of our business," he said. "With the proliferation of vehicles with new power sources, hydrogen filling stations are proliferating in many regions; we absolutely believe that this will be a growing part of our commercial success going forward."

Many of the initiatives aimed at promoting the use of hydrogen for vehicles are backed by national and local governments as part of their commitments to reduce carbon emissions.

Islands in the Pacific, for example, currently rely heavily on crude oil for their energy. "Providing LNG to such countries offers them a guaranteed energy source that is much cleaner," the assets manager added.

Top ATEX certification

Critically important for conveyance of hazardous materials, Ovinto Sat complies with the highest possible ATEX standard certification for explosion safety. At the heart of Ovinto Sat is Globalstar's low power STX3, the smallest and lowest power consuming chipset on the market.

Because it is battery powered, Ovinto Sat allows customers to monitor materials in unpowered

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At the heart of Ovinto Sat is Globalstar's low power STX3, the smallest and lowest power consuming chipset on the market

environments including rail tank cars and containers. The STX3's low power consumption means the battery lasts up to eight years. Ovinto Sat collates data from various sensors and GPS in each container and sends it securely by satellite to the customer headquarters. The flexible Ovinto Sat system can be configured so that alarms are triggered when particular pressure and density levels are detected.

Satellite IoT

It is critical to be able to monitor continually the pressure inside containers to ensure the safe travel and delivery of these highly dangerous liquefied gases. Tank containers get stacked during transport and storage. The sensor devices are affixed to the outside of the container, each safe inside its own rugged domed casing. The devices maintain continuous visibility of the satellite network, so data on the environmental characteristics of the containers can flow uninterrupted as they move across the globe on the way to their destinations.

Ovinto chose STX3 for Ovinto Sat because its extended battery life ensures customers can rely on the sensor devices for years without having to replace batteries. Furthermore, Globalstar's second-generation satellite network ensures that each status transmission reaches the asset's owner, even when the asset, whether container, rail car, or other important link in the supply chain, transits through remote locations with limited or no cellular phone signal.

"There's huge potential for IoT technologies to transform container management and safety thanks to the emergence of low-powered devices that can run for years without human intervention, and the availability of reliable, low cost satellite communications," concluded Ronse.

www.ovinto.com
www.globalstar.com

Antwerp-Bruges, Amsterdam join forces with Routescanner

Port of Antwerp-Bruges and Port of Amsterdam are offering Routescanner's 'Direct Connections' on their websites.

The service shows all available connections from the ports. Routescanner is the route planner for container shipping and shows not only the fastest container routes, but also the most sustainable.

Since its launch in 2021, Routescanner has grown rapidly on both the supply and demand sides. "Port of Antwerp-Bruges has decided to join Routescanner to reinforce the evolution towards one trusted central repository for accurate, up to date commercial sailing and driving schedules," said Erwin Verstraelen, chief digital & innovation officer. Besides these two ports, Port of Rotterdam, DeltaPort Niederrhein, DuisPort, JadeWeserPort and Port of Sohar also use Routescanner on their websites to give shippers and freight forwarders insight into the most efficient and sustainable routes.

Every day, Routescanner processes more than 700,000 commercial sailing and driving schedules from deepsea, barge, rail and shortsea operators, and its network includes more than 4,500 terminals worldwide. Routescanner now has more than 175 affiliated partners.

Shippers and freight forwarders can easily find container shipping options on the platform. Maurice Delattre, area manager Port of Amsterdam, said: "We are delighted to join Routescanner, as it is a great platform that offers customers full transparency on available intermodal connections (shortsea, barge, rail) to



and from the port of Amsterdam, including CO2 emissions on the respective routes."

Chantal Gouka, managing director of Routescanner, added: "We are extremely proud that Antwerp-Bruges and Amsterdam launched our Direct Connections service. As initiator of

Routescanner, I believe that working together to provide global insight into container transport routes contributes to the transparency, sustainability and efficiency of the logistics sector."

www.routescanner.com

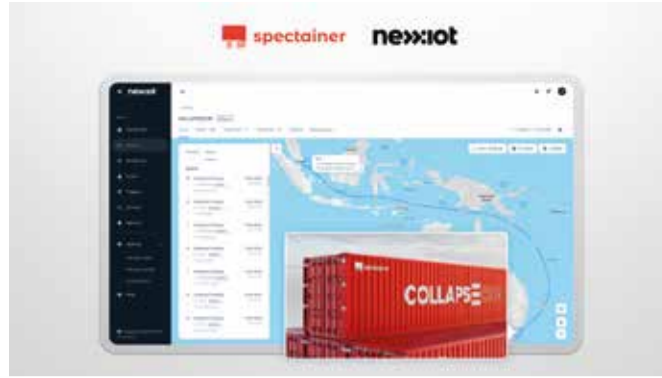


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Collapsecon is an intermodal container that folds up so that each empty unit can be collapsed and combined to form a single shipping container



With the containers now upgraded with Nexxiot's latest Asset Intelligence technology, the Collapsecon fleet is easily monitored across the entire journey from origin to destination



Innofreight has already equipped Nexxiot's technology on more than 1,000 of its railcars and will now move forward with digitalising the entire fleet

Spectainer partners with Nexxiot

Foldable container manufacturer Spectainer has partnered with Nexxiot to enable real-time visibility of its entire fleet of Collapsecon containers.

Collapsecon is an intermodal container that folds up using a fully-automated station so that each empty unit can be collapsed independently and then combined to form a single shipping container. This approach significantly reduces the cost and environmental impact of shipping by improving vessel slot efficiency, port lifting, vessel wharfing time, yard storage space, trucking, and handling.

Millions of shipping containers are carried across the world and at least a third are empty while in transit, wasting space, time, and resources due to trade imbalances in the market.

With the containers now upgraded with Nexxiot's latest Asset Intelligence technology, the Collapsecon fleet is easily monitored across the entire journey from origin to destination and back again.

This enables complete visibility which provides insights and automated handling processes to optimise operations, increase cargo safety, enhance the shipping experience for the cargo owner and lead the race to sustainable maritime shipping, Nexxiot says.

The partnership's efforts are enhanced through active collaborations with clients, who prioritise sustainability, cost reduction, and cargo safety as core anchors in their product life cycle, and depend on shipping technologies, such as smart containers to reach their goals.

"Shippers expect their cargo to be safe throughout its journey and that's why we have partnered with Nexxiot," said Nicholas Press, CEO of Spectainer. "Cargo owners and carriers need cargo visibility, in real-time, from anywhere in the world to drive efficiency and

process automation. Nexxiot's technology mitigates risk to people, infrastructure, and cargo while reducing emissions and waste. This makes it a strong partner to equip the Collapsecon, providing clients with the visibility they need on a global scale."

"The partnership with Spectainer will have a long-lasting impact," added Stefan Kalmund, Nexxiot's CEO. "The technologies and processes developed by our companies will benefit both the longevity of the supply chain industry and the well-being of our environment through lowering the consumption of resources and capital expenditures, maximising profits, and addressing the need for carbon footprint mitigation. These innovations will drive a technological maritime revolution in the race for smart, clean transportation."

Innofreight's fleet

Austria-based rail logistics company Innofreight has also selected Nexxiot to complete the digitalisation of its entire railcar fleet.

The company, which has just moved into its new headquarters in Bruck an der Mur, works closely with its customers and the wider industry to develop containers, railcars and unloading systems to optimise rail freight transport.

Innofreight, which has already equipped Nexxiot's Asset Intelligence technology on more than 1,000 of its railcars, will now move forward with a further deployment so the entire fleet is digitalised.

The rail firm's CEO Isabella Legat said: "The company operates in over 20 countries and handles more than 2 million container unloading's each year. With a railcar fleet of 2,700 and 23,000 containers in use, the adoption of the newest digital strategies is invaluable to our clients and partners, especially where safety is concerned. Here there can be no compromise."

New railcars will be produced by TŽV Gredelj, in Croatia, part of the Tatravagónka family – a factory with more than 125 years of experience in the design, production, reconstruction, modernisation, and maintenance of all types of railway vehicles.

These, together with the existing fleet will all be fitted with Nexxiot's Globehopper connectivity gateway.

Innofreight runs 230 block trains every day throughout Europe and seeks to develop logistics solutions that shift road traffic to rail to reduce CO2 and develops modular offerings to maximize capacity, efficiency, and flexibility.

Nexxiot CEO Stefan Kalmund commented: "We endorse Innofreight's stance on innovation and fully support the impressive vision for a more efficient and ecological transport network."

Legat explained: "The Innofreight culture is to push for constant improvement. The data we gather through Nexxiot's technology creates transparency, increased efficiency, and productivity through the smart use of data. We always seek to find the best strategic and cultural fit to maximise benefits to our clients.

"We first entered the partnership with Nexxiot in 2021. Since then, through (what we have learned) we understood that we can create a new benchmark in safety, maintenance efficiency and client services for our customers all over Europe. "Nexxiot's solutions will be deployed to expand our business as well as our services in line with our quality and security standard as we continue to optimise rail freight transports."

www.nexxiot.com

www.spectainer.com

www.innofreight.com

ONE smart container

Ocean Network Express (ONE) has announced plans to develop and integrate a smart container solution across its global fleet.

The development of the smart container solution will be done in collaboration with Sony Network Communications Europe. As one of the largest container carriers in the world, this collaboration brings together ONE's cargo shipping experience with Sony's expertise in the development and innovation of sensing and connectivity technologies.

ONE was created in 2017 following the liner service integrations of three big Japanese carriers: K Line, MOL and NYK. The new entity functions from its global headquarters in Singapore, supported by regional headquarters in Hong Kong.

The technology-enabled containers will give ONE greater insights about its container fleet. The data will enable better visibility of the containers, faster and proactive decision making and more, allowing more efficient container movement.

Customers will also stand to benefit as they will be able to access live updates throughout a shipment's journey. It will also provide more reliable shipping data for easy, transparent communication with relevant stakeholders.

"From its very inception, ONE is a business that believes in the value of collaboration," said Hiroki Tsujii, managing director, product & network for ONE. "Now, together with Sony, we are excited to create the future of container shipping. This is a future where we have access to the insights we need to offer our customers a higher quality



of service to forge a new standard of process excellence. The development of this smart container solution will combine the very best from experts in our respective fields."

www.one-line.com

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Amsted, Ermewa in multi-year IQ deal

Amsted Digital Solutions has announced a multi-year contract to supply 7,000 IQ Series gateways to transport equipment lessor Ermewa.

The IQ Series gateway is the newest telematics platform from Amsted Digital and provides a maintenance-free, solar-powered, rechargeable device that delivers real-time onboard health monitoring of key running components without the need for wireless sensors.

Designed to meet the most demanding requirements of freight rail applications, the IQ Series gateway is intrinsically-safe certified to the highest North American, European and global standards.

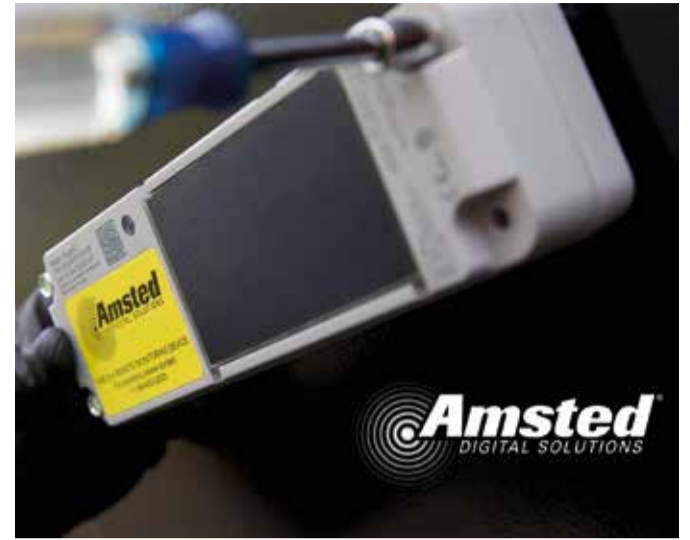
Data collected from the IQ Series device is synthesised into actionable intelligence that customers access through Amsted Digital's Supply Chain Visibility software platform, a cloud-based technology stack built on Microsoft Azure. Insights from the IQ Series help managers optimise maintenance planning, enhance safe

operations, improve shipment planning events and identify bottlenecks to streamline rail supply chains.

"This new platform is a game changer due to its flexibility to address many of our most important use cases without additional costs," said Charles-Antoine Riviere, digital manager of Ermewa.

Key to Ermewa's efforts to improve wagon safety and services to customers while managing maintenance costs, the platform will provide Load Status from Motion (LSM) for loaded and empty mileage tracking without an external sensor. Ermewa is already working with Amsted Digital to upgrade existing Amsted Digital systems with this feature over-the-air. Future projects for the IQ Series will focus on monitoring component health including brakes and wheelsets.

"We are proud to build our platform around our strategic customers and their value-added use cases," added Brad Myers, executive vice president and chief operating officer at Amsted



Amsted
DIGITAL SOLUTIONS

Data collected from the IQ Series device is synthesised into actionable intelligence

Digital. "Our IQ Series platform provides 80 percent more value at 20 percent of the cost when compared with competing platforms. "Through a simple FOTA, IQ Series can activate our Bogie IQ features which include real time monitoring of wheel flats and the ability to identify operational issues related to brake systems without the need for multiple sensors."

www.ermewa.com
www.amsteddigital.com



Often, small and medium sized freight forwarders don't have access to services like supply chain visibility because they lack software development resources and implementation skills

FourKites, cargonerds help SME forwarders

FourKites, which provides real-time supply chain visibility, is entering a partnership with cargonerds to enhance the digital freight platform with its supply chain visibility data.

Armed with FourKites' data and machine learning-driven estimated times of arrival, cargonerds can now ensure that its freight forwarders and their customers can track products across the end-to-end supply chain and know exactly when they will arrive at their destination. The integrated solution will track global shipments in real time across road, rail, ocean, air, parcel and last mile across the globe.

"FourKites has the largest global network of supply chain data and powerful machine learning on the planet," said Conrad Franchi, founder of cargonerds. "Its end-to-end solution enables us to give our customers the most accurate ETAs (estimated time of arrivals) and greater network collaboration. Having the right data at the right time to identify precisely what can be done is the only path to mitigating issues proactively while reducing costs and fees."

Hamburg-based cargonerds — a spin-off of Rohlig Logistics — is a software development company that serves small and medium-sized freight forwarders. In 2022, cargonerds moved 250,000 ocean shipments, 250,000 air shipments and 150,000 road shipments. Its mission is to unlock the value of digital supply chains and thus make it accessible for smaller freight forwarders.

"Often, small and medium sized freight forwarders don't have access to services like supply chain visibility because they lack software development resources and implementation skills," Conrad continued.

Now, cargonerds' freight forwarders can send data about each shipment in transit directly and securely to their supply chain stakeholders. In doing so, their customers can streamline communication, more easily collaborate with partners and increase on-time deliveries.

"Our technology is perfectly suited for logistics service providers, and we're thrilled to partner with cargonerds to expand our footprint globally," added Marc Boileau, FourKites' senior vice president sales, network & operations EMEA. "FourKites digitised solution will eliminate manual tracking from cargonerds' network of freight forwarders and customers, saving significant time and resources and enabling them to shift focus to higher-value tasks."

www.fourkites.com
<https://cargonerds.com/>

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RL-Trans drives sustainable solutions

Finland-based RL-Trans was founded in 1955, specialising in dry bulk and bulk logistics, transporting and handling unpacked powders and granules with pressurised silo equipment.

The company also transports liquid gases in bulk. Transported products include petrochemicals, food & feed and minerals among others. In 20 years, RL-Trans has grown at an annual rate of 15-20 percent every year. During these years its fleet has grown considerably from eight trucks to 270 transport units, transitioning from a local-based company into an international bulk logistics specialist offering its solutions on a Europe-wide scale.

According to market manager Andreas Lindedahl, RL-Trans sees the green transition as comprising a multitude of factors – preparing for new fuel solutions and electrifying mobility, optimising energy and fuel consumption, increasing sea and rail transport, offering detailed emissions reports, further investment in digitalisation, and more.



The company's own bulk terminal in Finland debags packed materials to bulk

The company has its own bulk terminal in Finland for storage and warehousing, and for debagging of packed materials to bulk. Using its own bulk terminal for distribution of products is of advantage, especially in Finland, because the allowed weight for road transport in the country is 76 tons, meaning that net loads of over 50 tons can be delivered to the end receivers.

To follow the EU's ambitious emissions reduction programme Fit for 55, the company has strongly integrated sustainable transport solutions into its strategy. Naturally, updating vehicles is one of the main missions.

"One hundred percent of our fleet is already compliant with the Euro 6 standard, but with the future that lies ahead of us, this is only the beginning", explains Lindedahl. "We want to offer our solutions to our customers with sustainability in mind for the whole logistics chain from beginning to end, there is no other way."

In 2019, RL-Trans invested in its first gas-powered trucks. Currently, trucks in operation are running on LNG and on biogas. Along with biogas, the rapid electrification and rise of hydrogen will open even more opportunities for emission reductions.

"Although there are already electric trucks on the market, they are not yet suitable for the majority of the bulk logistics business that we specialise in. One day, however, we will have heavy-duty electric trucks on the road. The same goes for hydrogen-powered trucks, but this technology is still in very early stages and the necessary infrastructure is yet to be built," says Lindedahl.

In addition to investing in trucks with smaller carbon footprints, RL-Trans has placed great emphasis on eco-driving. In 2017, the company developed its own eco-driving index and launched the internal Smart Bulk programme with the focus to increase overall traffic safety, cut emissions and reduce fuel consumption. The company has managed to improve its eco-driving index with 70 percent, meaning a significant fuel consumption reduction and subsequently also emission reductions as well as improved overall safety in its operations.

Although focusing on eco-driving is essential, the best way to achieve emission targets is reducing the kilometres driven. For RL-Trans, this means maximising the payloads as well as using intermodal and multimodal transport and sea routes as much as possible.

"We plan our transport routes carefully and always use seaway alternatives where possible to minimise emissions and energy consumption in international transport," Lindedahl goes on.

Optimising driving, routes, and payloads are all made possible by RL-Trans' heavy investments in digitalisation and in its fleet. The company's goal is to digitalise all its business operations step-by-step. At RL-Trans, digitalisation started already more than 20 years ago and has contributed to the rapid growth of the company.

"We are already a forerunner in the bulk logistics sector when it comes to offering real-time information about individual shipments to customers. Our automation system keeps our customers updated of their shipments. In addition, our GPS system is integrated to several other systems," explains ICT manager Mathias Lindedahl.

New technologies and safety features on its fleet have also been used to increase the safety of RL-Trans employees.

"Responding to the ever-changing demands of the market is in our DNA and with our great team of professionals we are sure that great opportunities lies ahead of us," comments Andreas Lindedahl.

www.rltrans.fi



RL-Trans sees the green transition as comprising a multitude of factors

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DSV collaborates on eHighway

One day, it might be possible for trucks to charge while driving, using an overhead contact line.

In Frankfurt, Germany, Danish logistics group DSV is participating in a research project working to test and establish an eHighway that could enable fully electric long-distance road freight.

The vision is no less than an electrified highway stretching all through Europe, allowing on-the-go charging and enabling long-distance electric trucks as a feasible freight mode. Supporting the company's long-term targets for the reduction of carbon emissions, DSV is participating in and supplying data for the ELISA eHighway project, which might one day turn this vision into reality.

DSV's role in the project is one of many initiatives in which the company plays an active role in supporting innovation projects that will be crucial in the green transition. New technologies such as long-distance electric road freight will be central to DSV achieving its 2030 ambition to lower its indirect emissions by 30 percent and ultimately achieve net-zero emissions by 2050.

Avoiding the road 'Suez Canal'

Electric vehicles will be central to the green transition of the industry. But today, there are considerable limitations that hinder a smooth and successful shift to long-distance electric trucks.

"Without the right levels of infrastructure, there is a danger that charging stations will be the Suez Canal of road transport and the cause of significant delays and congestion for electric vehicles," says Søren Schmidt, CEO, DSV Road.

"If the eHighway is established and expanded across Europe, it would create new possibilities when it comes to introducing long-distance electric trucks and offer lower-emission services without any delays for our customers. As a leading company in the industry, we see it as our responsibility to contribute to the early stages of the development of new technologies such as the eHighway."

Through the ELISA eHighway project, a range of project partners work to establish an electric highway that allows for easy on-the-go charging of electric vehicles, eliminating downtime spent on charging and eventually enabling a transition to electric long-distance trucks. Trucks driving on eHighway test tracks are equipped with roof sensors that detect an overhead contact line above the truck, which then connects to the line through a pantograph and charges while driving.

Collaborating to solve the challenge

DSV is collaborating with researchers from the Institute of Transport Planning and Traffic Engineering at the Technical University of Darmstadt who are collecting and analysing data to evaluate scientifically the development of the eHighway.

Since the beginning of February, a subcontracted DSV driver has been using the 10, soon to be 17, km eHighway test track in Frankfurt, transporting customers' goods to and from Frankfurt Airport. Through a data logger in the truck, data concerning more than 150 parameters, such as battery charging state and fuel rate, is sent to researchers at the Darmstadt institute. Additionally, the researchers conduct weekly evaluation interviews with the driver.

Supplying data for research, DSV seeks to help bridge a gap between the industry and academia:

"We are excited to provide daily data from actual operations, which can help in the development of the eHighway. The ELISA eHighway project is a great example of collaboration in and between the industry and academia, which will be absolutely critical as we work towards a sustainable solution to the biggest challenge of our time," says Schmidt.

Eva Kassens-Noor, professor at the Technical University, agrees that collaborating across academia and the industry is important: "The benefits of a collaboration between academia and the industry are the synergies between both: new research-driven innovations can infuse the development of novel technologies. Thus, we jointly advise policy makers through a cutting-edge, collaborative and interdisciplinary approach to transform our traffic system towards sustainable and climate-resilient systems," she says.

In addition to the track in Frankfurt, which DSV is currently testing, the project includes test tracks in the cities of Stuttgart and Lübeck. The current phase of the project runs until the end of 2024. Project partners are applying for funding for a potential next phase, allowing for further development of the eHighway.

www.dsv.com



Since the beginning of February, a DSV driver has been using the 10 km eHighway test track transporting goods to and from Frankfurt Airport



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Rhenus Trucking rolls out e-truck charging points

At the end of January, Rhenus Trucking awarded the biggest single contract so far for a private charging infrastructure in Germany to SBRS GmbH.

SBRS is one of the leading suppliers of technology for electric charging infrastructure for road vehicles. In the course of this year, SBRS will install 33 loading points at 14 locations of Contargo in Germany. These will enable the trimodal container transport service provider to expand its fleet from the present count of seven e-trucks to 33 over the next few months.

"This is a milestone for our enterprise on the way to decarbonisation by 2045," said Jürgen Albersmann, managing director of Contargo. "Building up a high-performance, future-oriented charging infrastructure is a prerequisite for comprehensive use of e-trucks in the local transport of containers."

In June 2022, Contargo Trucking and Rhenus Trucking received notification of funding under the KsNI support programme for 28 battery-driven 44-tonners plus the relevant infrastructure. Rhenus Trucking has ordered the vehicles, and as service provider will deliver them progressively to its customer and sister company Contargo in the course of 2023. Parallel to this, SBRS will install a total of 33 charging points, each with an output of 250 kW, at Contargo's locations in Duisburg, Voerde-Emmelsum, Emmerich, Frankfurt-Ost, Industriepark Frankfurt-Höchst, Gustavsborg, Hamburg, Karlsruhe, Koblenz, Ludwigshafen, Mannheim, Neuss, Weil am Rhein and Wörth.

"With such a powerful infrastructure, we can use the e-trucks with the same flexibility as diesels. At the same time, we are offering our truck drivers a future-safe job – and a low-noise work environment," explained Michael Starke, managing director of Rhenus Trucking.

Andreas Stahl, managing director SBRS, commented: "After successfully initiating the transformation in public transport, we are now realising what is, for us, too, our biggest infrastructure project for e-trucks, together with Contargo."

Stephan Nahmer, also managing director of SBRS, added:



Michael Starke, managing director Duisburg Intermodal Terminal; Kristin Kahl, Sustainable Solutions Contargo; Andreas Stahl, managing director SBRS; Kristiane Schmidt, Sustainable Solutions Contargo; Stephan Nahmer, managing director SBRS; Michael Kleifges, managing director Duisburg Intermodal Terminal

"Sustainability is close to our hearts, and is anchored in our enterprise's DNA. Thus, intensively reducing emissions in the transport sector is a significant step. Our high-performance charging system can fully charge the e-trucks within two hours if required."

Duisburg Intermodal Terminal will now be able to operate the e-trucks 24 hours. "We can also increase their range by short intermediate charging, which is essential for our flexibility," said Michael Kleifges, Managing Director of DIT.

At Contargo, the aim is to drive 1.5 million km a year by e-truck. "In this way we will save almost 1,500 tonnes of CO2 equivalent annually, already reducing our total footprint by one percent," pointed Kristiane Schmidt, Sustainable Solutions Contargo. "Thus by ramping-up e-mobility we are offering all our customers the possibility of massively reducing their emissions."

The procurement of the 28 e-trucks and the relevant infrastructure is subsidised by the Federal Ministry for Digital and Transport under the funding guidelines for the purchase of commercial vehicles with



SBRS will install 33 loading points at 14 Contargo locations

alternative climate-friendly drivetrains and the deployment of refuelling and charging infrastructure (KsNI). The funding guidelines are co-ordinated by NOW GmbH, (National Organisation Hydrogen and Fuel Cell Technology). Applications are approved by the Federal Logistics and Mobility Office (BALM).

www.contargo.net

Abbey expands warehouse

Abbey Logistics is investing in new warehousing space in Bromborough, The Wirral, UK.

As one of the UK's leading transport providers of bulk liquids and powders, Abbey also specialises in warehousing services including bag-to-bulk and bulk-to-bag handling. The new warehousing space offers businesses an outlet to store goods both on a short or long term basis.

With 4,645 sqm of extra space (making a total of 18,600 sqm), Abbey's site offers comprehensive warehousing facilities and advanced stock control.

Mike Ellis, business development director, said: "Efficient warehousing services are a core solution to our logistics network. With multiple storage options, bag-to-bulk/bulk-to-bag loading, and picking services, Abbey can accommodate numerous warehousing needs. We like to offer customers a complete solution such as collecting a container, destuffing, storing then tipping bags into a bulk tanker and delivering to the final customer. The additional warehouse space gives us the flexibility of larger and smaller segregated chambers, and gives customers the flexibility to store in shared or dedicated units with some operating at food grade standards."



Abbey's new warehousing space offers an outlet to store goods both on a short or long-term basis

Warehouse manager John Abbot added: "This latest expansion in our warehouse facility has been driven by strong demand for ambient storage, delivering significant benefits for existing customers and creating capacity for new warehouse business. Combining distribution with warehousing will provide a seamless end-to-end solution."

Abbey's site benefits from being close to major motorway connections (M53 and M56) and the ports of Liverpool and Birkenhead.

www.abbeylogisticsgroup.com

Overnight to Scotland

XPO initiated a three-month trial of an innovative multimodal solution that is unique in the UK.

The company will migrate volumes destined for Scotland from its shared user pallet network to a new multimodal solution using overnight rail for the linehaul portion. Malcolm Logistics provides the rail service through a partnership agreement with XPO and accommodates loads of all sizes.

XPO first introduced a road-rail option in the UK in 2022, combining full truckload transport and daytime rail service for pipe manufacturer Wavin. The new solution's combination of pallet network and overnight rail maintains the lead times required and is expected to be faster than traditional trucking at a comparable cost, with significantly less environmental impact. XPO customers in the Midlands who ship to Scotland can reduce the greenhouse gas emission of a pallet by up to 79 percent.

The current trial covers a distance of more than 500 km from Crick to Daventry International Rail Freight Terminal in Northamptonshire, onward to Mossend Rail Terminal in Scotland, and then to XPO's distribution hub in Motherwell.

The multimodal transit time from Crick to Motherwell is about two hours shorter than the same journey by truck and avoids the risk of road delays, while also reducing road congestion. As each vehicle journey is about 600 miles, there is a savings of 705 kg of CO2 per trip.

www.xpo.com



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Arla turns cow poo into fuel

Arla Foods, the UK's biggest dairy co-operative, currently views bio-LNG as the best option to improve the sustainability of its commercial vehicle fleet.

To this end, the co-operative has taken delivery of seven new Volvo FM LNG 6x2 tractor units to help the business meet its targets to reduce the CO2 emissions of its operations by 2030.

Arla opted for Volvo after having trialled its gas technology against another manufacturer.

Supplied by Volvo Truck and Bus Centre South & East, the new FM's come equipped with sleeper cabs. They will be used for back-to-base operations collecting and delivering milk from Arla's farms and depot operations in Leeds and Burton-On-Trent to processing sites across the country.

Richard Wilson, inbound logistics director at Arla Foods, said: "We have some ambitious sustainability targets to meet in the coming years, and reducing emissions from our logistics operations will be key to helping us meet these. We have trialled dual fuel vehicles which proved successful, but these new units are an even bigger step up for us. We are now turning cow poo from our farms, and food which would otherwise go to waste, into a source of renewable fuel."

"These new bio-LNG trucks will play a crucial part in our plans to hit our 2030 sustainability targets – which is a 63 per cent reduction of CO2 against our baseline from 2015 for our own fleet operations. Who knows what the future holds in terms of electric and hydrogen technology but for now and the medium term we believe trucks powered by bio-LNG are the best route for us to make a significant carbon reduction in the fleet."

The FM LNG benefits from Volvo's unique approach to gas engine technology, using small amounts of diesel to initiate ignition of the air-fuel mixture. This enables the Volvo G13C engine to deliver the same 460 hp and 2,300 Nm of torque as a standard 460 hp diesel, with matching driveability, reliability and service intervals. The gas powertrain also provides engine braking just like a regular diesel tractor unit – and without needing a separate retarder which adds weight and complexity.

Paired with Arla's eye-catching milk tanker trailers, the new FM's are expected to cover in the region of 200,000 km a year and have been backed with five-year Volvo Gold contracts to guarantee maximum uptime.

They will refuel at Gasrec's flagship open-access site at Daventry International Rail Freight Terminal (DIRFT) and at the Gasrec built station at Reed Boardall's depot, in Boroughbridge.

Visibility of the new FM's is boosted thanks to large windows, narrower and raised A-pillars, lowered door lines and excellent side mirrors, plus the sleeper cabs are fitted with an additional rear window, as well as a lower window on the passenger door.

A high front axle helps ground clearance when operating off road, and the exterior also benefits from a steel front bumper and brushed Alloy wheels.

The seven FM LNG trucks replace seven diesel tractor units in Arla's commercial vehicle fleet.

Universal order

In another order for Volvo, waste-water specialist Universal Tanker

Arla Foods has taken delivery of seven new Volvo FM LNG 6x2 tractor units



Universal Tanker is taking delivery of a total of 38 Volvo FMX rigid trucks

Group has taken delivery of the first of a total of 38 new FMX rigid trucks that are set to join its rapidly expanding fleet throughout the next 12 months.

The business has experienced significant growth over the past few years and now operates a fleet of more than 100 commercial vehicles, working out of 21 depots nationwide.

While traditionally running with a rival manufacturer, the firm has turned to Volvo for this latest order – a mixture of replacement vehicles and fleet additions – due largely to the level of service and back-up it has received from the team at Thomas Hardie Commercials.

"We've bought five companies over the past six years, acquiring lots of kit along the way," explained Universal Tanker group director Simon Gunn. "One of them ran Volvos, which we inherited and the level of service we received from the dealership was second to none. We added our first two new Volvos, both Tridems, around three years ago and we've come back to them in large numbers this time."

"Paul McNicholas and John McCluskey at Thomas Hardie Commercials have just been a breath of fresh air. They have delivered exactly what we were asking for. The product itself is top quality so when you add in that level of dealer support it makes for a package

that's very hard to beat."

The first 6x2 FMX to arrive comes with rear air suspension and a hydraulically steered tag axle. It is fitted with a remounted stainless-steel tanker and vacuum unit, supplied and fitted by RTN Clayton Valley. Powered by Volvo's 10.8 litre Euro-6 diesel engine, producing up to 380 hp and 1,800 Nm of torque, the FMX is driven through a 12-speed I-Shift automated gearbox – delivering perfectly timed gear shifts to improve safety, driveability and helping reduce fuel consumption.

The FMX's day cab provides an ideal working environment, with Universal Tanker Group opting for Volvo's Drive package and Media package which add a range of optional extras to enhance driver comfort and functionality.

The interior also features a dynamic 12-ins high-resolution instrument display with a user-friendly interface, plus a 9-ins side display providing infotainment and navigation. An added factory fitted lower door window on the passenger side improves visibility.

"The rear steer axle is so important for our line of work," added Gunn. "It really is a super bit of kit and allows the driver to manoeuvre far easier when working off-road on rugged and busy construction sites. We've also opted for a high chassis height, which gives us excellent ground clearance."

Expected to cover in the region of 80,000 km a year the FMX has been supplied on a seven year Volvo Gold Contract, for maximum uptime. It will be used to remove and dispose of liquid waste from septic tanks, sewage treatment plants, pump stations and other facilities across the UK.

"We service a great number of domestic septic tanks in the UK as well as removing waste for many big-name businesses," said Gunn. "We're also now supplying large volumes of non-drinking water to construction sites. It's an increasingly busy business and we need trucks and back-up that we can rely on."

www.volvo.com

Ineos launches H2 truck

6⁰ tonnes of CO2 will be saved every year when Ineos Inovyn brings its new hydrogen truck into service.

The truck will deliver PVC from a production plant in Tavaux to Benvic's PVC compound plant in Dijon, France. As of April, carbon dioxide emissions from these deliveries will be reduced to zero.

To make this possible, Ineos Inovyn partnered with Benvic and logistics company GCA Trans Service to produce a new hydrogen-powered truck. The truck is built based on a DAF chassis in which the diesel motor has been replaced by hydrogen fuel cells. The truck, which will be refuelled at a local station in Dijon providing 100 percent green hydrogen, has a range of 500km between two refills.

Geir Tuft, CEO of Ineos Inovyn, said: "This is a historic moment for our company. The use of

hydrogen trucks for product deliveries is a key part of our sustainability roadmap which aims to reduce drastically our CO2 footprint over the next few years. The Tavaux truck will be leading the way, and we have already planned similar projects with other customers in Benelux."

Luc Mertens, CEO of Benvic, added: "This initiative between Benvic and Ineos Inovyn is a perfect fit with all our ESG actions, and also improves the environmental performance of our product. We work continuously to innovate our range of sustainable compounds in every way and logistics is a key factor so we are proud to be one of the first Ineos Inovyn partners to engage in hydrogen-based technology for our deliveries."

www.inovyn.com
www.ineos.com
www.benvic.com



Bartrums' bathtubs

UK logistics provider Bartrums has added three more Fruehauf stepframe bathtub tipping trailers to its fleet to boost its UK-wide malt barley haulage operation.

The order strengthens the East Anglian company's relationship with Fruehauf with which it has been dealing for more than a decade.

"We're working the Fruehauf bathtubs hard seven days a week, transporting malt to breweries across the UK and barley to three major maltsters in Suffolk," said Tremayne Johnson, operations director at Bartrums.

"The bathtub is an incredibly robust and reliable trailer that suits our business needs well. It offers an excellent tip and is easier to clean than a plank-sided trailer, making it exceptionally popular with our drivers."

The 70 cubic yard capacity bathtubs join a fleet of 170 trucks and 250 trailers operated by the family-run business, which is building a new 80,000 sq ft warehouse to manage the growth of its haulage work.

The vehicles are also used to transport

agricultural products including grains and corn, oil seeds, wheat and feed products nationwide.

Expected to cover 130,000 km a year, the bathtubs are specified with front-access combined ladder and walkways, smartphone-enabled PM1155 weigh systems and a Dawbarn Hydroclear electric sheeting system.

Johnson added: "Fruehauf continues to be a great partner for our business. With the ongoing supply chain issues impacting the haulage industry, it has stock availability and offers competitive rates along with advantageous delivery times."

Specialist truck and applications dealer MV Commercial completed a multi-million pound deal to acquire Fruehauf out of administration in October 2021. The deal saw MV provide a secure future for the well-known brand as well as protecting 120 jobs.

Established in 1929, Bartrums is headquartered in Eye, Suffolk. Run by a third-generation Bartrums family, the company also offers warehousing and storage solutions, as well as a pallet distribution service.

New DAF for loyal Bolshaw driver

Bolshaw Industrial Powders has received a brand new DAF XG+ from Motus Commercials DAF – Stoke-on-Trent, UK – ready for life on the road with driver Martin Shaw.

Based in Macclesfield, Bolshaws is a supplier of hydrated lime and other blended products for agricultural and industrial applications. The goods are transported by the Bolshaw fleet which is made up of six tractor units and 10 trailers.

Of this fleet, one truck is a DAF belonging to Martin Shaw; a loyal DAF driver who won't drive anything else. Shaw explained: "I personally really like DAFs and have driven a succession of DAF models over the years. The driver comfort is much better than the rest of our fleet."

So, when Shaw's truck was due for an upgrade, Bolshaws contacted its local DAF supplier, Motus Commercials.

Director Jonathan Bolshaw said: "The decision behind which truck to buy is mainly down to driver preference. Martin previously had the DAF XF but we try to give drivers the very best truck we can so now, with bigger and better cabs available, we chose the DAF XG+."

The DAF XG+ 530 FTN is a rear-steer tractor unit, featuring Hyva tipping kit. It has a microwave, DAF



Martin Shaw – a loyal DAF driver

Digital Vision System (camera mirrors), and additional Kelsa light bars. The new truck will be used for tipping work, but it will mainly be delivering products with a curtain sider trailer.

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Explosion safety does not start with an explosion vent

The topic of explosion safety is omnipresent for plant operators and machine manufacturers once it comes to handling or transporting combustible dusts.

In contrast to society's assumption that an increased risk of explosion only exists for gases, enormous forces can also be released by combustible dusts.

In order to minimise the risk of explosion when handling flammable solids and dusts, the requirements for an explosion and the respective dust characteristics are assessed in advance.

As a rule, the fire triangle or even the explosion pentagon is as in Fig 1:

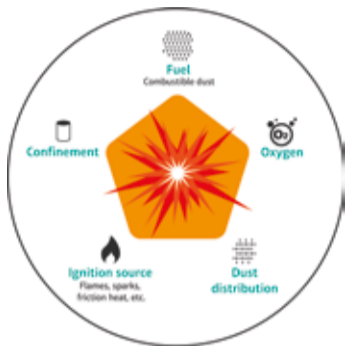


Fig 1 The five requirements for a dust explosion

Thus, in order to create an explosion inside a production facility or machine, the following parameters must be fulfilled: fuel (dust); sufficient oxygen; suitable mixing ratio (dust cloud); source of ignition which has the minimum ignition energy of the dust; and confined space.

If one of these conditions are eliminated, explosion safety has already been practiced. If, however, it was not possible during operation, the risk of explosion remains, which requires the endangered area to be declared (Zone 20, 21 or 22) and based on that other preventative or protective measures to be implemented

Typically, the first approach would be just to apply explosion protection, such as venting and explosion isolation, in order to protect the equipment from each other to save lives and limit the damage.

In principle, this thought is not incorrect: compared with the use of motor vehicles, where accident could not be 100 percent ruled out, it is mandatory to wear seatbelts and apply safety measures, such as airbags to reduce the effects of the accident.

However, if we take a step back and stay in the example, we can see that accidents are much more likely to be avoided with the help of driver-assistance systems such as braking assistants and lane keeping assist. As a result, it is no longer the

accident but instead a hazardous situation that is recognised and averted in advance.

It was the idea of Rembe's engineers to allow such hazardous situations to be also identified in the bulk solids industry and to be prevented by smart assistance and preventative systems.

Electrostatic charge

Spark discharges, propagating brush discharges, cone discharges, and lightning bolt-like discharges are capable of igniting dust/air mixtures. To prevent these, sufficient grounding of the various vessels, plants and machines must always be ensured.

When pneumatically unloading tankers, high electrostatic potential that is able to ignite explosive dust atmospheres can also occur due to the high speeds. This risk can be eliminated by grounding the silo, intake station and vehicle. As a constant grounding connection is not possible on the vehicle, smart-ground monitoring systems are used as assistance and preventative systems.

Those systems make it possible to ensure that the connection to ground is sufficiently conductive during the unloading or filling of a vehicle. The grounding clamp on the monitoring unit is connected to the vehicle and then the line resistance is measured. If this is below 10 ohms, the grounding system issues a release and the grounding process begins. Release signals can be transmitted using integrated relays.

Farado II takes things a step further. The intelligent manipulation monitoring system ensures that a pre-set object size must be connected to the grounding clamp. Object sizes are determined based on electrical capacity (measured in PF) in this case. This prevents grounding clamps from being connected to steel girders that are already earthed or small objects such as screwdrivers.

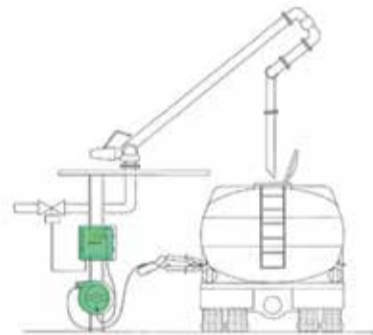


Fig 2. Grounding monitoring with Farado

Ignition hazard

A further ignition hazard that should be identified at an early stage is a temperature increase in the conveyed or processed material/product.

Friction, for example, often causes a slow temperature increase, which may eventually ignite dust clouds or at least produce glowing embers of sedimented dust layers. Depending on how the material behaves, Maillard reactions can also occur, which continue through to self-ignition.

Such temperature increases in product layers cannot be reliably detected either by spark detectors or by PT100 temperature sensors. For smart preventative assistance the use of infrared cameras with a longer wavelength is commonly applied.

Rembe's Hotspot X20 measures surface temperatures using an intelligent evaluation system, which divides the field of view into detection zones. A separate temperature threshold value can be set for each individual zone in order to tailor the detection to the process as far as possible. The Hotspot X20 can even identify small temperature increases (1degC) and enables to warn the operator of a fire or glowing embers at very early stages.

The Hotspot X20 can also be used in explosion atmosphere up to zone 20 and under high dust loads and monitors a temperature range in the standard version of 0-200degC (higher temperatures possible, but typically not required).



Fig 3. Explosion prevention with Hotspot

Before smoke develops or a fire occurs, the material usually experiences a 'roasting process', which releases various fire gases. The phase from warming through to roasting can be very lengthy and thus allows the Rembe engineers to detect pyrolysis gases during this roasting process.

Mainly hydrocarbon compounds are released when many substances thermally decompose. If there is incomplete burning without a flame and a low oxygen supply, carbon monoxide is created as well. The GSME X20 pyrolysis gas detector, for instance, has been designed for detecting these gases, even as they develop.

Alongside carbon monoxide and hydrocarbon compounds, nitrogen oxide and hydrogen

compounds (CO, HC, H2 and NOx) are also monitored. With the aid of an intelligent evaluation algorithm, a process behaviour can be ideally mapped and normal off-gassing be adopted. If a concentration increases above the usual level, the GSME X20 immediately triggers an alarm. The detector, is also suitable for explosion atmospheres up to zone 20, monitors concentration ranges from 0-100ppm.



Fig 4. Explosion prevention with GSME

After detection?

Each of the above mentioned situations requires a tailored solution of the assistance system. When the location and mounting position are ideally designed in an explosion protection concept, Hotspot X20 and GSME X20 allow explosions and fires to be prevented through early detection.

However, if a hazardous situation has been identified and operations stopped, this presents a further challenge. How can a safe environment now be restored for safe operation?

Process guidelines are a way to provide employees with fast possible actions in emergency situations. However, these must be transparent and easy to access. The Rembe iQ Safety Cockpit can help to visualise the fire and explosion protection components in an easy-to-understand way and connect various types of detectable risks with process flows and guidelines. Similar to the brain of smart cars as per the above-mentioned example, the Rembe iQ Safety cockpit acts a assistance system and navigates the operator to a safe situation.

If all of the components are connected to the network, signals can be received and resulting messages distributed automatically to various recipients (SMS, e-mail, pagers, etc).

In order to identify not only the devices, but also the dangerous areas, the Rembe iQ Safety Cockpit can also display plant and building plans.

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HXL8 Sliding Vane Pump



Repair or replace?

The ease of repairing sliding vane pumps should bring an end to the repair-or-replace argument, writes Blackmer's Chris Hordyk

There are philosophical choices that have sparked some of the great debates of our time: Star Wars or Star Trek? Thin crust or deep dish? Yanni or Laurel?

In the world of truck transport of liquid commodities such as motor fuels, heating oil and chemicals, the question that typically divides people into two distinct camps is 'Repair or replace?'

Or, more to the point, what is the best pumping technology with which to outfit your transport vehicles, one that can be repaired in the field, or one that should just be scrapped and replaced with a new model once it fails?

While both sides have their strong points – that is, after all, what makes for a good argument – the feeling here is that there is one solution that stands above the rest: outfitting your truck fleet with sliding vane pumps featuring components that can be quickly, confidently and cost-effectively replaced in the field with no unnecessary vehicle downtime.

Surveying the field

The operators of transport truck fleets have a basic choice of three customary truck-mounted pump technologies: the aforementioned sliding vane, along with external gear and centrifugal. Let's take a closer look at all three technologies:

- **External Gear:** This pump technology uses the meshing of gears to facilitate the flow of liquid through the pump at consistent volumes, which makes them a positive displacement (PD) pumping technology. They will deliver a constant amount of liquid with each revolution of the gears, while their tight clearances and speed of rotation restrict any fluid from moving backward, or 'slipping', during their operation. Since the gears are rigid, the pumps create a smooth, pulse-free flow, but also one that can handle very high pumping pressures, especially those that are needed to transfer high-viscosity liquids. However, the contact inherent in the meshing of the gears will cause them to wear over time. This wearing of the gears will compromise volumetric consistency and increase the risk that product slip will occur as the pump ages, which will result in decreased productivity over time. External gear pumps are also generally inexpensive, though they do have a relatively high number of wear parts, which will prompt many of their users to run them to failure and then replace, rather than repair, them. The cost to replace the wear items is a substantial percentage of the entire cost of the pump and directs users to scrap the entire pump for common wear.

- **Centrifugal:** This technology uses the rotational energy created by an internal impeller to 'throw' the liquid to the discharge port. Although less efficient than PD pumps (meaning they require more energy to perform the same amount of work) this method of operation produces a smooth, pulse-free flow. Conversely, to achieve this effect and the resulting operational benefits, by design centrifugal pumps are more complex, which means higher downtime and maintenance costs when they fail. Centrifugal pumps also tend to have a steeper purchase price, which can put the operator between a rock and a hard place when considering the repair-or-replace question. From an operational standpoint, while some manufacturers claim they are self-priming, most centrifugal pump models cannot prime unless they are first pre-primed. Also, they do not have the capability to fully deplete tanks during unloading, cannot strip lines for product recovery and spill reduction, and cannot run in reverse for recovery between loads. Last, centrifugal pumps must operate at a speed that requires either a hydraulic-drive system or a gearbox to convert typical PTO speeds to the required pump speed.

- **Sliding vane:** This PD-pump technology features a rotor with retractable vanes that protrude and retract as the rotor turns. This set-up draws liquid into chambers that are created by the spaces between the vanes, from where it is pushed to the discharge port. The self-adjusting vanes sustain the pump's volumetric performance, making it energy efficient while simultaneously preventing product slip. Another feature of sliding vane pumps is a lack of metal-to-metal contact, which reduces the possibility that pump friction and galling will occur. An additional sliding vane attribute is its self-priming ability and suction-lift capabilities, which allows the creation of an internal vacuum that is strong enough to strip lines and tanks. Since there is no metal-on-metal contact inside the pump, sliding vane pumps have a liquid-handling range from ultra-thin liquids (0.2 cP) all the way up to liquids with a thickness of as much as 22,500 cP.

At this point, it makes sense to acknowledge that not all sliding vane pump technologies (the same goes for external gear and centrifugal) are created equal. Knock-off models have entered the market that may look the same as a high-end sliding vane pump (while costing less), but their performance leaves a lot to be desired. Mainly, their components (vanes, shafts, bearings, seals, etc) fail quicker during normal operation. Because of their reduced purchase cost, these sliding vane pump models will more likely than not be run to failure and then replaced, rather than repaired.

Considering the variables

Taking all of this into account, we recommend that the best choice for truck transport of liquid commodities is a premium, precision-engineered sliding vane pump that can be quickly and confidently repaired without the need to remove the pump from the truck or ship it off to a service provider for the installation of replacement parts or general maintenance.

Before making that final decision, though, there are a few variables that must be considered. The first may be the most obvious – purchase price. On principal, a pump that is designed to be repaired

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will have a higher purchase price than throwaway technologies. Therefore, the developers and manufacturers of pumps that are designed to be repaired take great pains to make the purchase price as palatable as possible, knowing that any excess upfront costs – while potentially off-putting to the buyer – can be recouped on the back end via longer service life and more manageable and bottom-line-friendly repair costs.

For example, it's a fact of life that a sliding vane pump is more expensive to buy than a competitive truck-mounted external gear pump. Still, if that vane pump can be placed on a truck and only needs to be repaired two or three times over 20 years of service, while the external gear pump needs to be replaced three or four times in that time span, the higher upfront purchase cost is more than worth it.

Second, even those fleet operators who prefer to repair their external gear or centrifugal pumps when required can be better served by choosing sliding vane technology. That's because sliding vane pumps have only one major sacrificial component: the plastic vanes that will wear down over time, and when the day for replacement comes, the worn vanes can be swapped out for new ones in a matter of minutes without having to remove the pump from the truck. The pump's other wear components – gaskets, O-rings, seals, bearings, etc – can also be replaced quickly and easily without taking the truck out of service.

External gear pumps have more wear parts that will need to be repaired or replaced. The quandary that arises here is found in the fact that while the user may replace a worn or broken part, there is no way to know when any of the other wear parts in the pump will fail – it could be in two years or two days. In other words, the more components in the pump that will eventually need to be repaired or replaced, the better the chance something will break at the most inopportune time possible.

Complicated or reoccurring component repair or replacement also brings the potential for a large amount of ancillary costs to be incurred by the fleet owner. The more complicated the pump and its drive system, the less likely that fleet operators – which are quite often lean 3-4 truck operations with small staffs – will have the expertise on hand to perform repairs or preventive maintenance. In this case, an outside service provider will need to be scheduled, or the pump shipped out for repairs, which can mean excessive idle time for the truck, along with significant labour costs.

All of this sounds like an argument simply to replace the failed pump with a new one, but that returns us to the first consideration of purchase cost, acknowledging again that initial cost may be lower, but over the 20-year life cycle of a high-quality sliding vane pump, an external gear or centrifugal pump need to be replaced three or four times.

The reliability of premium sliding vane pumps also allows their manufacturers to offer confidently best-in-class warranties and performance guarantees. In fact, one of the industry's top sliding vane manufacturers offers a five-year warranty for its truck pumps, along with a two-year performance-assurance guarantee, meaning that if any part fails in the first two years of operation, it will be replaced, no questions asked.

Conclusion

In general, many people take a sense of pride in keeping a piece of mechanical equipment operating over an extended period of time. Sure, that snow blower may be 30 years old, but by taking care of the impeller, it hasn't failed yet. Or there are instances of fuel-oil suppliers who will re-chassis their transport trucks but install their 10-year-old sliding vane pump on the new chassis. Sliding vane pumps have become the standard for efficient, reliable and cost-effective performance for liquid-handling on transport trucks – and their ease of part repair should put an end to the old repair-or-replace argument: Repair in a knockout!

Chris Hordyk is a product manager for Blackmer

www.psgdover.com/blackmer



Magne Sliding Vane Pump



Twin Screw S Series



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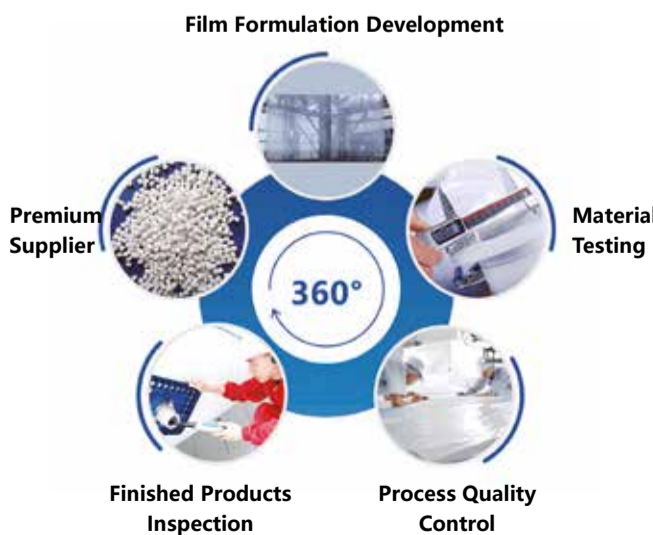
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Schütz offers multimedia experience

What constitutes the ideal packaging? Schütz will be presenting answers to this question in a visually engaging form at this year's Interpack. Under the trade fair motto 'Containing everything that matters', in Hall 10 Booth D22/E34, the packaging specialist will be highlighting current supply chain requirements and tasks, and presenting its latest product and service solutions in the field of IBCs, plastic and steel drums.

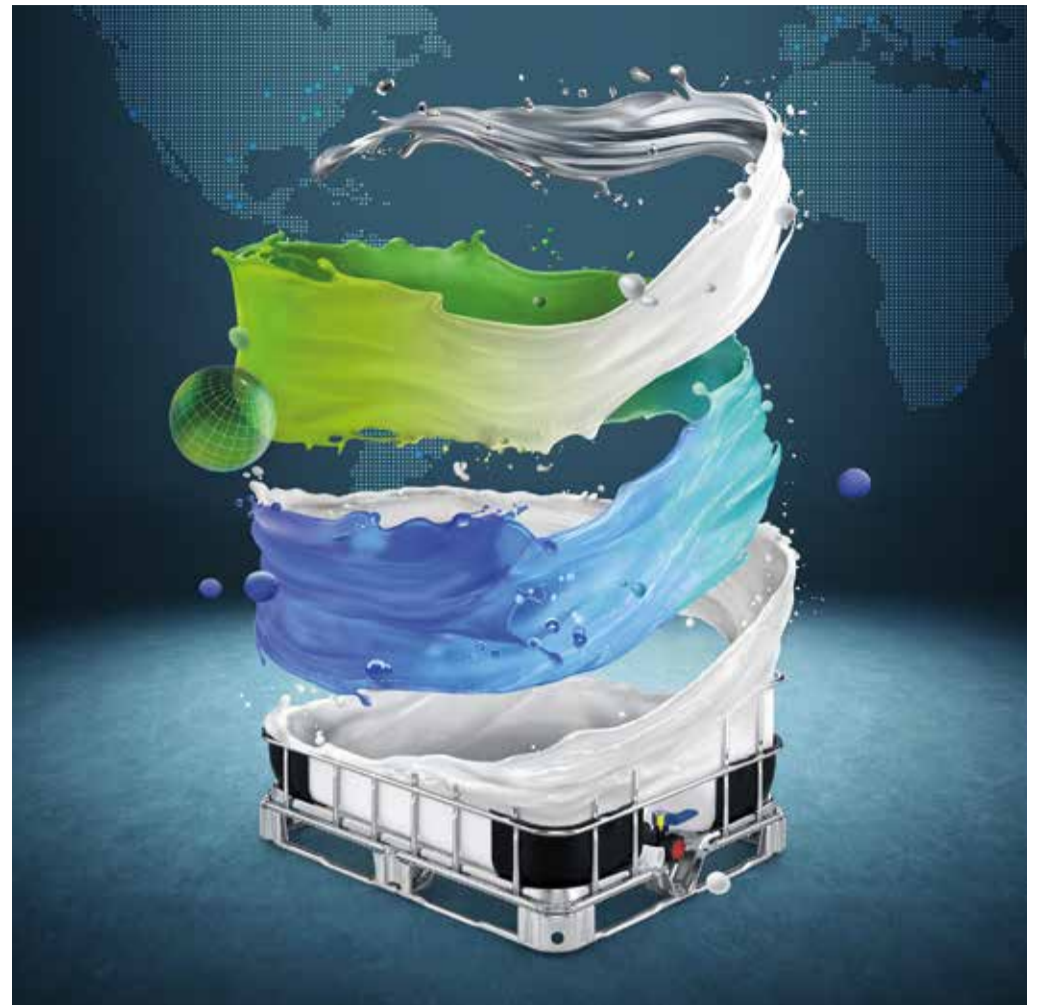
Interpack has a special significance for Schütz, and this is reflected in the elaborately designed, multi-storey exhibition booth covering more than 650 sqm. Large-scale, integrated, advanced LED technology makes the entire stand shine and metamorphose into different shapes. The technology is a defining part of the multimedia exhibit, with products and topics presented across the entire area using sophisticated 3D animations. Many of the exhibits can be experienced live in action and detailed product animations clearly explain the specific innovations.

Holistic packaging

As a technology company and pioneer of the circular economy, for decades Schütz has adhered to a fully comprehensive holistic packaging concept. The demands on packaging as a logistics tool ideally matched to the respective supply chain are becoming increasingly complex, including not only the immediate product quality and performance, but also application-related criteria as well as the support of processes and digitalisation on the part of the customer.

The global availability and security of supply of their packaging solutions also play a major role for internationally operating companies. Last but not least, the economic and also the increasingly required ecological efficiency are decisive factors when it comes to the packaging type.

At interpack, Schütz will be presenting a variety of innovations. The focus is on closed packaging cycles. Among other things, the company will be highlighting the packaging in



At interpack, Schütz is presenting its holistic packaging concept under the motto 'Containing everything that matters'

Schütz's new Green Layer series. The IBC inner bottles and drum bodies in this product line are made with 30 percent high-quality, natural-coloured recycled material, which is itself recovered as part of its worldwide collection programme for emptied packaging.

In keeping with this commitment to sustainability, the company is presenting further product innovations that help to minimise the CO2 footprint of packaging through the use of

recycled material. As well as the numerous packaging innovations, trade visitors will also be able to explore the current general packaging ranges.

For example, the company will be showing its range of tight-head plastic drums in sizes between 30 and 220 litres as well as all closed-head drums and specialised versions.

www.schuetz.net



Products



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Flexicon bulk material tipper

A new high-volume open-chute tipper from Flexicon allows discharging of non-dusty, free-flowing and/or agglomerated bulk materials from multiple drums or boxes simultaneously, as well as from Gaylords, totes or bins individually.

The bed of the unit's hydraulically-tipped housing can accommodate containers from 940 to 1,115 mm in height, having an individual or combined footprint of up to 1825 x 2435 mm. Typical applications for multiple containers include simultaneous dumping of four 210 litre drums, or four boxes, each having a footprint of 915 to 1220 mm.

Pallets weighing up to 2,265kg are forklift-loaded into the three-sided unit and secured, after which a grate is lowered onto the container(s) to prevent shifting. The lifting assembly is raised to a height of 1,955 mm and tipped hydraulically, causing material to slide through a smooth, three-sided chute into receiving vessels.

Twin hydraulic cylinders pivot the platform-chute

assembly to discharge angles of 45 or 60 degrees beyond horizontal, including a motion-dampening feature at the termination of container rotation.

Impact-resistant side panels and custom guard panels with a light curtain ensure safe operation.

The tipper is available in heavy-duty, all-stainless construction to sanitary standards (pictured) or in carbon steel with durable industrial coatings and stainless steel material contact surfaces.

It is also available with optional receiving hoppers configured with Flexicon mechanical or pneumatic conveyors to transport discharged material to any plant location.

The company also manufactures other configurations of drum/box/container tippers as well as flexible screw conveyors, tubular cable conveyors, pneumatic conveying systems, bulk bag dischargers, bulk bag conditioners, bulk bag fillers, manual dumping stations, weigh batching and blending systems, and engineered plant-wide bulk handling systems with automated controls.

www.flexicon.co.uk



The high-volume open-chute tipper discharges multiple drums and boxes simultaneously

Mauser unveils new China site

Mauser Packaging Solutions is expanding its production network in China with the opening of a new, state-of-the-art manufacturing facility near Shanghai, in the Economic Development Zone of Haiyan.

The new site will address current and future market needs as the demand for industrial packaging rapidly increases across the region. The modern facility expands production capabilities of 230 litre and 250 litre plastic drums used in a variety of industries including the chemical, oil, paint, food and beverage, and petrochemical markets. It also further supports the use of post-consumer recycled plastic (PCR) in the company's Infinity Series' plastic drum product portfolio. The new facility features a multi-layer plastic drum machine to meet growing demand for products that contain recycled resin. Use of recycled resin gives plastic materials new life, reduces industrial waste, conserves raw materials, and reduces greenhouse gas emissions.

"Mauser is proud to expand our presence in the Asia Pacific region. Our approach, coupled with our commitment to sustainability, is what makes us a leader in sustainable packaging solutions today and provides opportunities for us to be even stronger in the future," said Michael Steubing, president of Mauser International.

Located 210km from the company's existing plant in Jiangyin, the new facility is also in close proximity to the Jinshan Chemical Zone of Shanghai and the city of Ningbo, in which many large industrial chemical companies have branches. The production site meets requirements for the food industry and is working toward ISO 9001 and 14000 certifications.

"With the opening of a second production facility in China we are excited to take a meaningful step forward in expanding our product offerings and increasing capacity to support the Chinese market and multinational customers now and in the future," commented Ali



Mauser's new production facility in China

Ozbudak, vice president and head of Asia Pacific.

Prior to this, Mauser expanded its product range in South Africa with the addition of a new plastics drum line at its Durban plant. The facility can now produce UN-certified, tight-head plastics drums in 210, 232 and 250 litre sizes. Mauser says the investment has also allowed it to expand availability of its Infinity Series drums that contain recyclate produced in-house from used packaging collected through its Recover Syst-M.

"Mauser Packaging Solutions is proud to expand our product offering in South Africa," says Peter Lucht, general manager. "Our priority continues to be delivering innovative and sustainable solutions to our customers. We value our partners in the region and look forward to better serving them with an expanded product portfolio."

<https://mauserpackaging.com>



Greif rebrands circularity programme

Greif is rebranding its product circularity programme, now known as Life Cycle Services by Greif.

The initiative aligns with Greif's recently announced 2030 Sustainability Targets, including a broader focus on advancing a circular economy, reducing greenhouse gas emissions, and championing diversity, equity, and inclusion initiatives. Under the Life Cycle Services brand, Greif has aligned these end-of-life services offered by its global industrial packaging (GIP) and paper packaging and services (PPS) businesses.

For years, Greif says its rigid packaging customers have trusted on the EarthMinded network of partners across the US and EMEA for collection, cleaning, recycling and reconditioning services. This partnership – now branded Life Cycle Services – will see a gradual roll out of new labelling and communications as EarthMinded is retired. These established global partnerships collecting IBCs, large plastic drums, small plastic containers and steel drums for reconditioning or recycling provide a direct benefit to the company's customers.

Plastics are recycled for reuse in Greif's EcoBalance line of products which contain a percentage of recycled plastic helping address the growing global plastic waste crisis by reducing or eliminating waste through circular solutions.

Across North America, Greif operates 19 paper fibre recycling facilities, offering complete outsourcing solutions for pulp and paper fibre procurement, transport, and administration. Approximately 50 percent of the fibre Greif collects through its recycling efforts is used to supply its own paper mill complex, where recovered fibre bales are made into various grades of recycled paperboard. These integrated capabilities allow Greif to operate as a net-positive recycler.

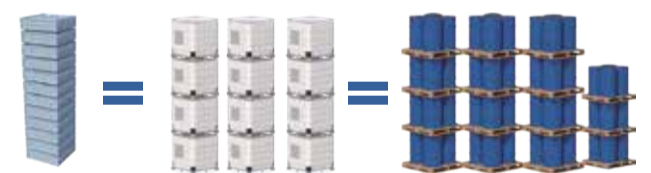
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aggregated payload capacity, space the empty collapsible IBCs occupied is less than 1/3 of that occupied by drums or rigid IBCs.



Collapsible IBC, after being folded, takes small volume, can massively reducing empty return transportation cost.

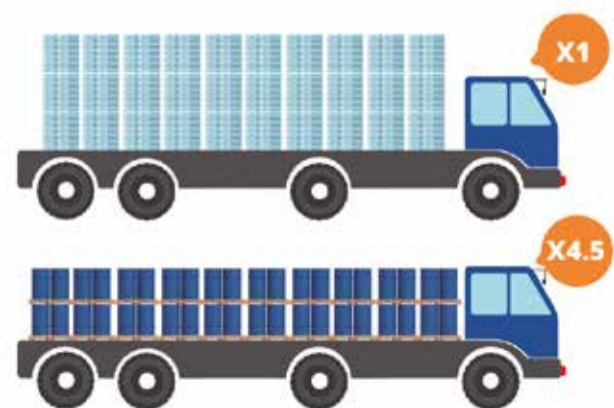
To deliver same volume liquid, compared with drums or rigid IBC, after liquid discharge, in the processing of reclaiming of empty packages, using collapsible IBCs can save 2-3 rounds of transportation.

Eco-friendly & Sustainable Development

By reducing transportation the collapsible IBCs help to reduce carbon emission directly.

Compatible Liquids

Coconut oil, liquid syrup, palm oil, fish oil, shea butter, base oils, lube, white oil, glycerin, hydraulic oil, sesame oil, fatty acids, oleic acid, plasticizers, surfactants, polyols, polyethers, herbicides, natural rubber, synthetic latex, etc.



OPTIMAL STORAGE PERFORMANCE

To store empty drums, rigid IBCs, or collapsible IBCs with the same



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Zhongtai Chemical starts bulk PTA powder containerized delivery in China with LAF silo-to-silo dry bulk logistics solution

Zhongtai Chemical, as one of the top 5 leading supplier of PTA powder in China with annual output of 1.2 million ton, used to load with pp woven sacks (25kgs) and deliver with rail wagons from Xinjiang province, the most northwestern province of China, to East China and Southwest China. It used to take a long time to make a single delivery due to the slow efficiency of woven sacks loading and unloading with rail wagon delivery within China. Huge labor cost for handling the woven bags added upto the logistics cost, has decreased the profitability for Zhongtai. At the same time, it becomes more and more difficult to find labor in China market to carry bags.

A complete solution of Silo-to-Silo Dry Bulk Logistics Solution was offered to Zhongtai Chemical by LAF after field visits and throughout analysis of the production infrastructure of Zhongtai factory. The solution put forward the idea of using dry bulk liner to transfer a 20ft container into a dry and sealed " tanker-car", that does not need any labor and can be filled quickly with an automatic handling machine, and can be easily transferred among rail, truck, and vessel.

The transfer of package from woven sacks & rail wagons into dry bulk liner & container, has brought an obvious change and benefits. A remarkable logistics cost reduce of 16%, and a great time save of 40 hours per single delivery was seen as a successful result.



Origin: Zhongtai Chemical factory, Xinjiang Province, China
Destination: Chongqing, China



01 tailor-designed dry bulk liners



02 bulk handling equipment R&D assistance



03 door to door logistics service



04 on-site training

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Shankar Packagings, LC Packaging and Buenassa will partner on the distribution and production of bulk bags in the DRC

LC in Congo partnership

LC Packaging intends to go into a partnership with Buenassa, a mining services company based in the Democratic Republic of Congo (DRC), and Indian FIBC manufacturer Shankar Packagings for the distribution and production of bulk bags in the DRC.

The Netherlands-based firm says is clearly an increasing demand for FIBCs in the DRC and specifically in the Katanga region.

The DRC is one of the world's largest producers of so-called 'green' metals, such as cobalt, which are set to play a critical role in decarbonisation of the global economy. The DRC government supports the local supply of mining-related equipment, expertise and services. LC Packaging wants to respond to this demand which requires a reliable partner in the vast African country. It also fits with its vision to support local entrepreneurship and the development of local communities in a responsible and sustainable way.

Buenassa has the purpose to develop mining-related services and products in order to improve the supply chain of critical minerals through the financing of artisanal and small scale mining operations, and the development of local processing, recycling and trading. The goal is to increase the benefit for the DRC in general and local communities in particular.

LC believes the views of both companies combined will support the DRC government's efforts to foster a traceable, ethical and responsible mining sector, focused on critical minerals and aligned with the aim of contributing to the energy transition in the context of global climate action.

Two-phase approach

The intended partnership is set to develop in two distinct stages. Phase one concerns the distribution of FIBCs produced in South Africa and Asia to large-scale, artisanal and small-scale mines in the DRC (including copper, cobalt, lithium and zinc mines). Bulk bags will be stored at a local warehouse, allowing for continuity of supply and rapid response to demand peaks.

Phase two intends to include a joint venture between LC Packaging,

Buenassa and Shankar Packagings for the purpose of creating a production facility in Kolwezi, in the Province de Lualaba. This joint venture is expected to generate employment, enhance labour skills through training and development as well as promote the use of locally produced FIBCs.

Richard Green, regional director Southern Africa at LC Packaging, is looking forward to partnering with Buenassa and Shankar Packagings. "LC Packaging has been supplying bulk bags to numerous DRC mining entities over the past 12 years. We are confident that the intended partnership for distribution and local production of FIBCs between the three of us will strengthen our position in the DRC and will contribute to the further development of the Lualaba region," he said.

Eddy Kioni, CEO of Buenassa, added: "We are delighted to join forces with LC Packaging and Shankar Packagings, two world leaders in the FIBC sector, as this is a strategic opportunity for us to position ourselves in a key market to support the activities of mining, agri-industrial and other industrial companies in the DRC by providing them with the high-quality containers they constantly need to package their products. On top of that, through the establishment of an assembly plant planned by the end of this year that will provide local employment in Lualaba, this alliance also aims to transfer know-how to an economically dynamic region that is seeking to shape its industrialisation programme."

Keshav Pandya, vice president of Shankar Packagings, highlighted the long-term relationship between Shankar Packagings and LC Packaging: "Our association with LC Packaging goes back more than 20 years. Since 2012, we have been producing FIBCs for the Southern African market at LC Shankar, a joint venture between Shankar Packagings and LC Packaging. Achieving a local presence in the DRC is a great way to expand our global reach."

www.lcpackaging.com
www.buenassa.com
www.shankarpack.com

Well-labelled

Reliable labels for packaging are much in demand, Respecially for hazardous goods.

TWith the labels and labelling systems made by Herma, the packaging of chemicals can be traced. They use a QR code which contains all the important product information, and which is applied to the lid of the packing system as a label. This way, each individual unit can be identified and located along the supply chain and transport route.

During filling, the code also helps users to ensure that the packaging being used is really suitable for the filled goods. However, the label with the QR code must also be damage-resistant in the event of hot-filling.

Together with Boxlab Services, a start-up founded by BASF, Herma recently made the acquisition and use of labels for hazardous goods safer, less expensive, quicker and better for the environment. This is because, in spite of their safety-related function, labels for hazardous goods are still a continual source of risk in many companies.

"Labels for hazardous goods have to adhere firmly to very different types of vessels, like barrels, vats, containers, IBCs, big bags and



bottles, but also to pallets wrapped in plastic stretch film – and that means a multitude of different surface materials," said Sven Pleier, key account manager at Herma.

Depending on their intended use, they must be resistant to chemicals like acids, alkalis and solvents, dirt, grease and oil, environmental effects like heat, humidity, cold and UV radiation. The special labels for hazardous goods are delivered on single sheets or on a roll. The siliconised carrier material is taken back and reintroduced into the recycling circuit.

www.herma.com

Aeler's all-in-one container

Shipping liquids in flexitanks is seen as a key target market for Swiss logistics technology firm Aeler

In autumn last year, Lausanne-based start-up Aeler officially launched its new generation container, Unit One, following an initial funding round of CHF7.5 million. More than 80 Unit One containers are already in use on global container trades and the company believes it can now see rapid growth in 2023.

Co-founder David Baur has long been convinced of the potential to revolutionise standard steel containers. In his Master's project at the Swiss Federal Institute of Technology's Laboratory for Processing of Advanced Composites, Baur began developing and testing a framework made of glass fibre-reinforced composites.

In particular, Baur saw that the standard ISO container, which has remained essentially unchanged for decades, gains its structural integrity from its frame rather than the corrugated side walls. However, this corrugation reduces the available space for cargo. It might be marginal, but in freight shipping every cubic centimetre counts.

Instead, Baur focused on the inherent strength of composite material to provide resilience to the container walls. And, because the walls of the Unit One are flat, there is more cargo space within the box.

More payload

As an example, Aeler states that a flexitank in a standard 20ft container can carry the equivalent of 32,000 bottles of liquid, whereas the Unit One can safely ship up to 37,300 equivalent bottles.

To put it another way, the suggested maximum payload guideline for flexitanks in standard containers is 24 tonnes, while a Unit One can safely load close to 28 tonnes – a 17 percent increase – thanks to its stronger side walls. All this means fewer CO2 emissions per litre shipped over a given distance.

But Aeler also points to other benefits of the Unit One, including increased safety.

Many shippers and forwarders the company has spoken with said they had issues with transporting flexitanks, notably bulging of the container side walls being the top concern.

Bulging happens because the liquid inside a flexitank moves freely and this sloshing movement can create severe hydrodynamic forces on the side walls. Bulging also makes it more difficult, or even impossible, to load or discharge a container.

Moreover, container vessels are designed to pack the boxes tightly against one another. So, during handling operations, a bulge may catch, or be caught by, another container, cutting into its side and leading to cargo loss and equipment damage.

And importantly, rail operators will likely not take the risk of carrying a bulged container and so will refuse onward carriage.

Smooth sides

A standard container also needs extra fittings, mainly to avoid tearing or puncturing the flexitank. These entail additional costs in time and money, and are rarely re-usable.

But Aeler says this is a key difference with the Unit One as the inner sides are smooth so there is no need to 'dress' the container.

Better insulation is a further benefit as the Unit One nullifies the big variations in internal and external temperatures. Thanks to the composite walls' insulative properties, the container acts more like



More than 80 Unit One containers are already in use on global container trades and the company believes it can now see rapid growth in 2023



Because the walls of the Unit One are flat, Aeler says there is more cargo space within the box

an unplugged reefer unit, but without the major cost of refrigeration genset and extra space.

Connectivity

Being a completely new design, Aeler says the Unit One can more easily leverage technology solutions. With the rise of 'logtech', Aeler wanted to open the Unit One containers to new possibilities for connectivity, automation and security.

Instead of attaching sensors and other telematics devices to a standard ISO container these devices are embedded in the Unit One to let operators see exactly what is going on inside the container.

The system's artificial intelligence (AI) programs can make sense out of large amounts of data so that expeditors can make faster,

better-informed decisions about optimal routes planning, etc. This brings cost savings as well as environmental benefits. Aeler's system also includes an application for tracking input from the embedded sensors as well as a fleet-management program.

Unit One is offered in conjunction with Aeler's Container As A Service (CAAS) which gives customers simple, flexible and worry-free access, even for short periods of time or one-way trips.

Customers just pick up their containers at an Aeler depot, use and track them via the company's Control Tower platform. When finished, they simply return them to an Aeler depot, and the company takes care of the rest.

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Rachael Budd

The year of the unknown

Is your business supply chain ready for what 2023 might bring?

supply chain would return to its pre-COVID state of play. But it is becoming increasingly clear that global logistics has forever changed, bringing with it a new world of shipping.

According to Rachael Budd, CEO of Australian bulk liquid logistics specialist Transolve Global, this new world is best described as an ecosystem characterised by 'consistency in inconsistency'. An environment in which the overall state of the international supply chain landscape is relatively calmer as goods move more freely and demand softens, but one where things are still extremely unpredictable due to a multitude of contributing factors.

Budd elaborates: "The global supply chain is facing three main challenges in the period ahead: the slowdown of international trade and overall global economy, a fall in container freight rates, as well as increased capacity created by the large number of ships being built.

"Compounding these challenges are further contributing factors such as ongoing inflation, the continuing Russia-Ukraine war, other geopolitical tensions and extreme weather events. In addition, market indicators reflect the fact that trade volumes are sitting at or below pre-pandemic

levels as importers undergo an inventory correction, especially in Europe and North America."

As stated by Budd, all these factors, which are fundamental drivers of the shipping industry, are becoming more challenging. In addition, the industry itself is also facing accelerating paradigm shifts driven by the combination of supply chain fragmentation, geopolitical instability, economic and market influences, all of which indicate that a return to normal consumption, which is integral to the shipping industry, may prove elusive this year.

Future proof

Given the new landscape, how can businesses future proof their business supply chain? Based on her extensive experience navigating the global supply chain landscape, Budd argues the most important thing for businesses to do is be proactive, continually review and refine their supply chain and streamline operations where possible.

In fact, according to Budd there are several areas businesses should focus on in order to optimise and future proof their supply chain.

"First and foremost, it's vital to review, forecast and optimise inventory management regularly. Businesses who can accurately forecast and plan across their supply chain will have ample opportunities in the year ahead to capitalise on a softer market."

Strategically selecting suppliers is also critical as they are central to a successful supply chain. As explained by Budd, a positive collaborative working relationship delivers numerous benefits including increased efficiency and streamlining alongside reduced costs, as well as the ability to work cohesively during periods of volatility and uncertainty.

Businesses need to be responsive and agile so they can respond to changing customer demands. Budd adds: "Those who strike the right balance of stock on-hand while being agile enough to change in response to customer needs, will have a strong competitive advantage when it comes to satisfying market demand as and when it fluctuates."

Research indicates that visibility is one of the most significant drivers of competitive advantage

as the presence of any data silos negates the ability to run a lean and optimised supply chain.

Budd elaborates: "As businesses continue to grapple with challenging external factors removing any inefficiencies across the supply chain is integral so businesses can better combat market volatility. Using a supply chain management platform or integrating all data into a single platform are just two ways to achieve better transparency which helps to minimise mistakes and miscommunication while streamlining operations across the board."

Crossroads

According to Budd the industry is at a crossroads where internal industry challenges and disrupted supply chains intersect with market demands, creating a situation where businesses must simultaneously address issues such as cost, efficiency and sustainability.

She elaborates: "One of the most effective ways to do this is to review how goods are transported in order to ensure the intermodal transportation process is as efficient as possible.

"Considering solutions such as ISO tanks and flexitanks for bulk liquid transport can increase container payload by maximising container weights and reduce shipping, transport and handling costs up to 30 percent. In addition, with up to 70 percent of consumers opting to buy from environmentally aware businesses, these transport options are ideal as they are zero-waste, recyclable and sustainable due to their longer life span of up to 35 years, helping to reduce the overall carbon footprint of a business."

Budd expounds: "It's clear that the supply chain is not a standalone process and cannot operate at maximum efficiency without the 'buy-in' of all relevant parties – from internal team members through to external suppliers, nor without consideration of all its components. Hence, a transparent working culture combined with clear communication across your supply chain will optimise its efficiency and ensure that all stakeholders are working collaboratively and are on the same page, resulting in an efficient, resilient and agile supply chain process."

www.transolve.com.au

It was just a few years ago that the global supply chain was considered a background mechanism in business. One that was reliable, predictable and smooth in its *modus operandi*.

However, this transformed with the onslaught of the COVID-19 pandemic. This unprecedented event brought the sheer significance of the supply chain to the forefront, as businesses had no choice but to prioritise their supply chains in order to survive this period of disruption and upheaval.

Fast-forward to today, with the worst of the pandemic passed, many assumed that the global



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The industry is at a crossroads where internal challenges and disrupted supply chains intersect with market demands

Stolthaven in battery power project



Stolthaven Revivegen Kaohsiung Terminal (SHRVK) will meet growing customer demand for high-quality bulk liquid storage in the region

Stolthaven Terminals and XL Batteries have signed a memorandum of understanding (MOU) for the development of a flow battery with industrial-scale electricity storage capability. bulk wine is at the heart of the wine trade.

The partnership brings together XL Batteries' expertise in flow battery technology and Stolthaven Terminals' global presence in providing bulk liquid services.

A flow battery is an electrochemical energy storage device in which two chemical solutions are pumped on opposite sides of a conductive membrane. Ion transfer across the membrane allows electrical energy to be either stored or used. XL Batteries' breakthrough chemistry provides a highly stable, efficient and sustainable solution at low cost, the company says.

As well as developing the technology, the companies will explore opportunities to apply it in the port and industrial sector. This includes the potential to support Stolthaven's ambition to make its primary activities carbon neutral and the

potential decarbonisation of surrounding industrial and residential areas by providing local energy storage. In the future, flow battery technology also offers the potential to provide shore power to ships calling at its terminals.

Stolthaven president Guy Bessant said: "While there has been significant focus on renewable power generation there has been less focus on long-term energy storage, which is critical for the global transition to 'greener' energy alternatives. Stolthaven has been working on finding a partner in electrochemical storage and in XL Batteries we have found one that shares our vision to use innovation and skills partnerships to develop energy solutions for the future."

Founder and CEO of XL Batteries, Tom Sisto, added: "We are excited to work with Stolthaven Terminals to help its transition to green-energy usage. Our plan to deploy XL batteries at Stolthaven Terminals represents a huge win for carbon neutrality, and we appreciate Stolthaven's recognition of XL's product differentiation and potential. Compared with other technologies, such as lithium-ion, vanadium flow and iron-air, XL's flow batteries are safer, more cost effective and a better overall fit for long-duration energy storage, which is critical for fully enabling renewables and carbon neutrality."

Taiwan

In Taiwan the joint venture between Stolthaven and Revivegen Environmental Technology was made in January at a ceremony with Taiwan Cooperative Bank in Kaohsiung.

Stolthaven Revivegen Kaohsiung Terminal (SHRVK) will meet growing customer demand for high-quality bulk liquid storage in the region and introduce more international trade to Taiwan.

The two companies formally entered the joint venture to develop a new greenfield terminal in Kaohsiung Port, after signing a letter of intent in April 2019.

Together, they plan to develop integrated storage, drumming, warehousing, and distribution solutions for chemical and bulk specialty liquid

customers. The terminal is also well positioned to provide storage to support the transition to greener energy and fuel alternatives, including ammonia. This aligns with the Taiwan government's strategy towards net-zero emissions by 2050, which includes ambitions to cut carbon emissions by 20 percent by 2030 (compared to 2005 levels), introducing low-carbon industrial processes and building a zero-carbon fuel supply system.

Meanwhile, Stolthaven's focus on the digitisation and automation of its terminals will bring increased innovation to the existing terminal industry in Taiwan.

Guy Bessant said: "We are delighted with the addition of the SHRVK terminal to our global network, which enables us to increase the reach of the supply chain solutions that we can offer our customers. The partnership also opens up Taiwan to our broad customer base and the integrated services we can provide in collaboration with our sister companies Stolt Tankers and Stolt Tank Containers.

"Together with Revivegen's expertise and local knowledge we will deliver a terminal that focuses on the safe and efficient handling and storage of chemicals and industrial gases for local and multinational companies. And we will use our experience in innovative sustainability projects to support Taiwan's progress towards its carbon-reduction ambitions."

Chairman and general manager of Revivegen Environmental Technology Cheng Yu Chung said: "Establishing a joint venture with Stolthaven allows Revivegen to enter into the chemical storage industry and gain more exposure to international business and digitisation, which creates a win-win situation for both companies. This joint venture is also expected to elevate the status of Kaohsiung Port as a global storage and distribution hub."

www.stolthaventerminals.com
www.xl-batteries.com
www.revivegen.com.tw

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Stolthaven's ambition to make its primary activities carbon neutral

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Looking into a UK H2 supply chain

Greenergy and Hydrogenious LOHC Technologies have agreed terms for a joint pre-feasibility study on the development of a commercial scale hydrogen supply chain.

Under the terms, the aim is to ship low-cost green hydrogen from Canada to the UK.

Hydrogenious' liquid organic hydrogen carrier (LOHC) technology enables hydrogen to be chemically bound to a thermal oil for safe storage and bulk shipping, leveraging the existing infrastructure for liquid fuels. Temporarily absorbed to the LOHC the hydrogen can be transported and handled safely and easily in ports and in urban areas. On arrival and discharge at the import location the hydrogen will then be released from the liquid carrier for delivery as pure green hydrogen to end users.

Step forward Greenergy, a transport fuel supplier, which access to large terminals said to ideal for the importation, release and distribution of hydrogen using the LOHC. Navigator Thames terminal has already been identified as a strategic location to meet expected demand for hydrogen in the South East of England.

Greenergy's distribution network and customer base will also enable delivery to a broad range of industrial and commercial customers across the UK.

"Working with Hydrogenious is an important step in our strategy



Navigator Thames

to offer cost effective hydrogen to our customers using existing storage and delivery infrastructure," said Christian Flach, CEO of Greenergy. "Delivering hydrogen is an important goal in supporting the energy transition."

Shipping hydrogen over long distances on an industrial scale in its pure form, either under high pressure or liquefied at extremely low temperatures, is both costly and complex. The conversion of hydrogen into ammonia and its shipment would have significant disadvantages in terms of safety in urban ports.

As an alternative, hydrogen can more easily be stored in and

released from an LOHC called benzyl toluene, a thermal oil which enables safe and convenient hydrogen transport.

This specific LOHC has particularly positive properties as a hydrogen carrier for handling in ports and urban environments, since it is a non-explosive, flame-retardant oil. It can easily and safely be transported from the hydrogen source to the receiving country over long distances in the existing liquid fuel infrastructure, shows low boil-off losses of hydrogen, and does not require low temperatures or high pressures, making it more cost effective and flexible to handle. Once imported, hydrogen can then be released and distributed to customer sites.

Green hydrogen is expected to play an important role in meeting the UK's net zero targets, and hydrogen imports to the UK can bolster its energy infrastructure. In the UK Government's Hydrogen Roadmap, it is estimated that total demand could be 20-35 percent of the country's final energy consumption by 2050.

Canada is already one of the world's top 10 hydrogen producers, with an annual production of 3 million tonnes of (grey) hydrogen. By the year 2050, Canada aims to be one of the world's top three producers and a major exporter of green hydrogen.

"North America will soon be a key market for large-scale clean hydrogen exports to Europe," commented Dr Toralf Pohl, chief commercial officer at Hydrogenious LOHC Technologies. "The UK is committed to hydrogen consumption, and together with Greenergy, we will now be exploring the possibility of establishing a LOHC-based hydrogen supply chain, including constructing storage and release plant assets in Canada and the UK capable of handling more than 100 tonnes of hydrogen a day, while leveraging the existing infrastructure for liquid fuels in ports with our LOHC technology."

www.greenergy.com

ICTSI's big plans for Melbourne

International Container Terminal Services Inc (ICTSI) has outlined a significant proposal for the expansion of the Victoria International Container Terminal (VICT), its 100 percent owned subsidiary in Port of Melbourne, Australia.

The proposal would dramatically increase efficiencies and pave the way for larger ships to berth at Australia's pre-eminent port.

ICTSI could invest over A\$500 million (US\$343 million) in addition to the more than A\$700 million it has already invested in Victoria since the establishment of VICT in 2014.

Under the proposal, ICTSI would undertake a phased development of the Webb Dock North Container Terminal and integrate its operations with VICT. The design would deliver higher operating efficiencies at a lower development cost and, importantly, with a significantly reduced environmental impact compared to competing proposals.

The development would increase VICT's container capacity to 3.7 million TEU, allowing for four container berths with the ability to service vessels up to 14,000 TEU and up to 367m in length.

ICTSI's executive vice president Christian Gonzalez said the company is the ideal long-term strategic partner for Port of Melbourne to ensure it can meet the growing demands of Australia's busiest container port.

"Victoria's growing economy presents the Port of Melbourne with the opportunity to consolidate its position as Australia's number one container port," Gonzalez said.

"ICTSI is keen to solidify its partnership with Port of Melbourne to deliver the lowest cost, most efficient and environmentally sustainable solution. Our vision for this operation is in lockstep with that of Port of Melbourne's own vision as it examines strategies to expand capacity and facilitate the growth of Victorian economy."

Jacobs Engineering undertook a detailed technical assessment, including estimates of construction costs, while Boston Consulting Group focused on market and economic assessments.

The external reports conclude that ICTSI's proposal could deliver cost savings of more than A\$240 million and spread the timing of spend over a longer time period while introducing significant capacity.

ICTSI has made it clear that it is ready and confident to test its proposal in any competitive process that the Port of Melbourne requires under its plans for the future of Webb Dock.

"We believe we can partner with Port of Melbourne to deliver the superior proposal for Webb Dock and in turn, lock in further economic prosperity for Victoria. We look forward to sharing further independent analysis of our proposal alongside all details with the Port of Melbourne and other key stakeholders in due course."

www.vict.com.au

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