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Maximilian Nause, Head of Global Tank Container at Leschaco, shares his global ambitions for the company with Tankcontainer Magazine.

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Russian for the exit
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Publisher
Duvel Media
www.tankcontainermedia.com

Editor
Leslie McCune
leslie@tankcontainermedia.com

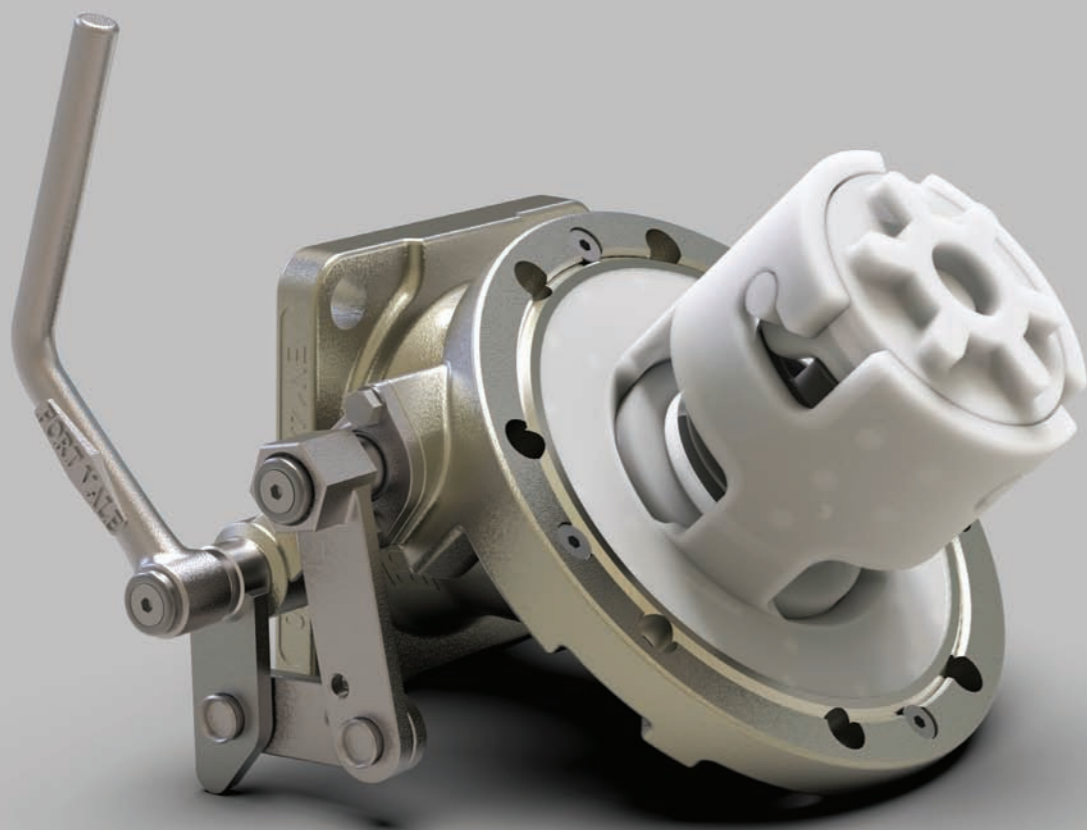
Advertising
Ed Andrews
ed@tankcontainermedia.com

Design & Production
Zai Khan Advertising
zaikhan@btinternet.com

www.tankcontainermedia.com

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Tank container market *turns*

Tasseography is the art of 'reading' tea leaves, a slightly mad way of foretelling the future by studying the patterns of tea leaves in the bottom of a cup. For all we know, there may be legions of cosmic warriors in the tank container industry but the probability is that most of us are, thankfully, broadly rationale and are more interested in forecasting the future based on the small, tangible signs of change we see in today's market.

So what are these small signs? In August, demand was buoyant for both new builds and used tank containers across all regions and for all tank types. Demand by operators and, by extension, tank leasing companies was holding up well with many taking on new equipment. Operator margins were strong despite low fleet utilisation.

Per diem lease rates were being driven up by a steady rise in original equipment costs. This, in turn, stimulated demand for ex-depot units and existing leases were being extended. (See Page ** for an example of how per diems are calculated, and how lessors calculate their key financials figures.)

Slot unavailability on ocean carriers - and landside logistics congestion - were still contributing to upward pressure on ocean freight rates, impacting operators and making it challenging for lessors to cost effectively reposition equipment to replenish stocks in the main demand locations. Conversely, lessors with good local tank container availability were exploiting opportunities where tank container operators were unable to reposition their empty equipment at viable rates.

Today, however, **the market has changed.** The General Purpose dry freight box market has declined with the Q3 peak shipping season being muted and some routes cancelled. Inflation is depressing global demand, making routes less congested and increasing container availability.

Slot availability has improved as the market has softened - freeing up tank container availability - and ocean freight rates have fallen. China-Europe **shipping rates**, for example, **tumbled** from \$7,000 to \$3,500 for a 20' move in September.

Our consistent view has been that the net profitability of the **container shipping** lines could conceivably collapse from the record \$190 billion in 2021 to **marginal profitability in 2024**, weakened by a tonnage order book that will increase the fleet size by 6% in 2023 and a further 7% in 2024. Inevitably, additional tonnage and recessionary influences will lead to much lower freight rates.

Although inevitably still reliant on the ocean carriers, any freight rate weakness in the, some say, overly-consolidated and oligopolistic liner shipping market will no doubt excite a certain schadenfreude among many beneficial cargo owners, including some deep sea tank container operators. **Lower sea freight rates** will, however, **expose the margins** of tank container operators.

The current tender season will see the more draconian contract clauses dropped by liner shipping companies as they attempt to buy the loyalty of beneficial cargo owners.

Supply chain inefficiencies over the past two years have absorbed more tank containers and boosted the need for new builds but many tank container operators now sense they have **too many tanks in their fleet** and, erring on the side of caution, have been prioritising the streamlining of their fleets to raise utilisation.

Downward pressures on rates and utilisation come at a time when tank container **manufacturing** capacity has **increased**. In September, CXIC in Changzhou was said to be restarting its line, bringing to five the number of active Chinese tank container manufacturers. This increase in capacity occurred when there was a **large stock of idle new builds** waiting in manufacturer's yards with pick-up rates being extremely low.

High stocks, combined with falling raw material costs, have forced tank container **prices lower**. Benchmark prices for standard T11s have come down to \$18,000 and weak market dynamics could drive prices even lower.

As the end of the year approaches, the global tank container market - which bottomed in 2020 with prices as low as \$13,000 for standard T11s - is past its recent peaked although niches like the cryogenic T75 tank container market remain robust for the time being (see Page ** for a guide to this esoteric market).

In the depot sector, as we alluded to some months ago, Apax Partners' interest in **Boasso Global has been flipped** after the usual limited life span of private equity ownership. Apax bought Boasso as part of its 2015 acquisition of Quality Distribution and has sold its majority interest to KKR, the world's top private equity firm, through KKR's Global Infrastructure Investors IV fund. Firms held in private equity funds will eventually be transacted as most funds have a proscribed 5-7 year lifespan.

In summary, the seasons have changed, and so has the tank container market. For the worse, not the better. ■

Leslie McCune, Editor

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01

Product

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- Electrical tank
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- Baffle tank
- AHF tank
- Hydrogen peroxide tank
- Metallic Sodium tanks
- IBC/SBC tank
- T20/T22 tank

02

Service

- Global service network

03

R&D

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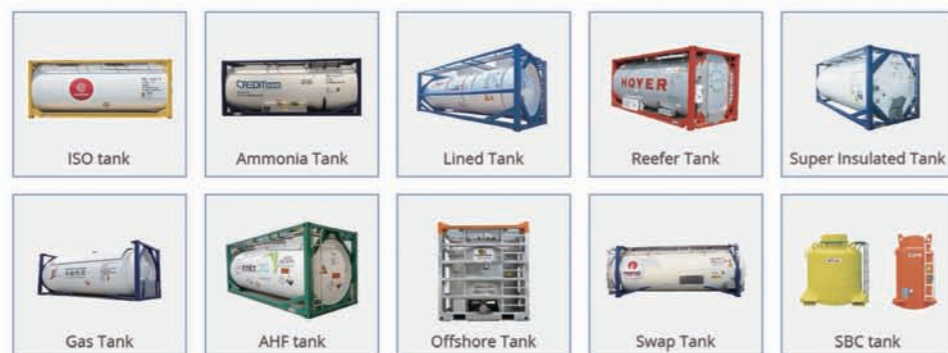


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Tank carrier Vervaeke goes hydrogen

Vervaeke, European leader in tank transportation for the chemical and petrochemical sector, has ordered its first hydrogen-powered fuel cell electric truck. This zero emission truck stands for 100% CO2 neutral transport.

According to the Intergovernmental Panel of Experts on Climate Change (IPCC), the transport sector is responsible for approximately one quarter of global greenhouse gas emissions.

During the UN Climate Change Conference (Glasgow, November 2021), at least 13 nations committed to end the sale of fossil fuel powered heavy duty vehicles by 2040.

Hydrogen is expected to play an important role in decarbonising hard-to-abate sectors like steelmaking, chemicals and transport. The EU estimates that up to 24% of energy use could be hydrogen-based in 2050. And although electric cars are

set to dominate the market for private vehicles, hydrogen is still expected to play a key role in decarbonising heavy duty road transport.

As the new truck emits only water vapor instead of carbon emissions, it stands for zero emission. Moreover, it allows quick acceleration which means safe merging and maneuvering. While a smooth and near-silent ride let drivers focus on the road and create an important decrease in noise pollution.

This purchase is in line with the intensification of the quest for sustainable transport, in close partnership between Vervaeke and one of its largest customers. It comes on top of Vervaeke's continuous investments in the most modern equipment, the most efficient engines, partnerships with customers in environmentally friendly projects and well-trained drivers. This transition to a climate neutral fuel does not in any way imply concessions on the company's high servicing standards in terms of security, payloads and distances.

Furthermore, this project will allow Vervaeke to acquire an important experience and knowledge about the use of this new hydrogen technology. Vervaeke's intention is to train its technicians in this specific technology to enable them to execute the maintenance of its own fleet, as Vervaeke has always done and still does.

Vervaeke also promotes the use of the H2 technology for ADR approval on the UN level.

The first truck will be delivered in the first half of 2023. ■

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Apax Funds to sell Boasso Global to KKR



Apax Funds is to sell its majority interest in Boasso Global to KKR for an undisclosed sum.

Apax acquired Boasso as part of its purchase of Quality Carriers bulk

liquid transport business was sold to CSX Corp in 2021, Boasso became a standalone entity.

“Boasso utilizes its network of assets to provide essential services to operators of ISO tanks, facilitating the efficient and safe flow of chemical and

“We are very excited to begin working with Joe Troy and the rest of the Boasso team.”

Dash Lane, partner on KKR's Infrastructure Team.

food grade products that are critical to the global economy,” says Dash Lane, partner on KKR's Infrastructure Team.

“We are very excited to begin working with Joe Troy and the rest of the Boasso team. Our patient, long-term oriented capital is well positioned to support Boasso's network of facilities, its employees and its customers in their next phase of growth.” ■

Crossover Tank has relocated its offices

Crossover Tank has relocated its offices in Rotterdam and Singapore this month.

Crossover Logistics Europe, established two years ago, can now be found at Prins Alexanderplein 8, 3067 GC Rotterdam.

Crossover Logistics (Asia) and Crossover Asset Management (Singapore) will relocate next week to a new office in Ubi Techpark. Contact emails will remain unchanged. ■





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Den Hartogh celebrates telematics milestone



Den Hartogh has been installing telematics on its tank containers for the last 10 years.

The logistics company is now celebrating a major milestone as a large part of its isocyanate fleet has been equipped with this IT solution.

Den Hartogh is now able to add a broad variety of sensor information, where temperature and pressure details are vital.

Peter Boodt, technical supervisor at Den Hartogh, said: "Thanks to our innovative tank telematics solution we are able to continuously monitor our remote tank container fleet. Dedicated data centres continuously receive, store and process sensor information including location information of the remote tanks.

"Optimal transport planning belongs to today's possibilities because we are now aware of the temperature inside the tank and other sensor data. The more data we can share, the better informed our customer is."

Nils van der Poel, IT project manager, said: "Being one of the first global players in smart tank telematics gives us a leading edge. It is great to see that our customers have embraced this innovation and that they relate smart tank telematics directly to Den Hartogh.

"Innovation drives change as the system processes a large amount of data. This enables Den Hartogh to be proactive to our customers in case of deviations, which the system can automatically detect,"

"At Den Hartogh we propel our customers forward to management by exception, as the system behind the telematics now takes care of many tedious tasks. It will improve safety, cargo quality and gives better insight into transport transparency. Not only does it improve customer satisfaction, but also the quality of work of our employees." ■



Talke adds CNG-powered trucks to its German fleet



Talke has added two CNG-powered trucks to its vehicle fleet in Germany, as part of its broader aims to reduce its CO2 emissions.

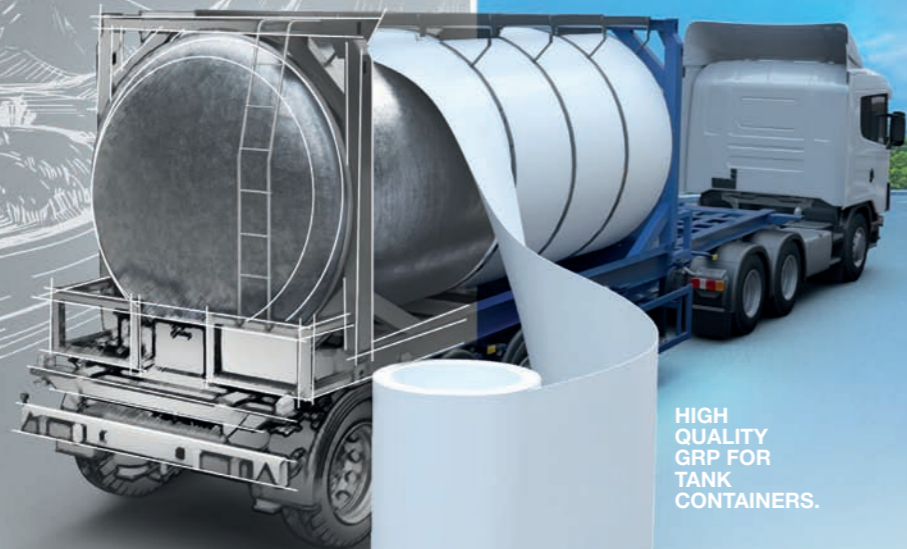
Talke says it has opted for CNG over the currently fashionable LNG option as the price of CNG is much more stable. It burns more cleanly than diesel, reducing CO2 emissions by up to 20%, while bio-CNG, which is becoming more widely available, can cut CO2 emissions by as much as 90%.

"We have been dealing with alternative drive technologies for a long time. On the one hand, we want to have a positive impact on our own carbon footprint and, on

the other hand, we want to support our customers in achieving their climate targets," says Christoph Grunert, who is responsible for sustainability on the Talke management board. "We are aware that gas-powered trucks are not yet the final solution to today's challenges. Nevertheless, CNG is indispensable today as a practical bridging technology." ■

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Van den Bosch takes over part of Gé Simons activities



Van den Bosch will take over part of the activities of fellow carrier Gé Simons Internationaal Transport in Hilvarenbeek, with effect from November 14, 2022.

The agreement was concluded between Rico Daandels, CEO of Van den Bosch, and Frank Simons, owner of Gé Simons.

Like Van den Bosch, Gé Simons Internationaal Transport was founded in 1964. Starting with one truck, the company has grown over the past decades into an internationally operating logistics service provider.

The activities include the intermodal transport of dry bulk goods with silo pressurised containers to the Italian market.

The acquisition means that Van den Bosch is further expanding its transport network on the European market.

Daandels said: "Gé Simons' strong focus on Italy is in line with our European growth strategy as an intermodal logistics service provider. The acquisition will strengthen our position on the Italian market and develop our activities further."

In recent years, Van den Bosch has

invested heavily in expansion and is now the European market leader in silo pressure container transport.

The acquisition concerns, amongst other things, the container fleet, consisting of 40 ft silo pressure containers and various trucks, trailers and chassis.

All the employees involved, both drivers and office workers, will become part of Van den Bosch.

Daandels added: "I am delighted that Frank Simons' team will stay on board and add their expertise to our organisation. ■"

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GATX Rail Europe and Trifleet transport LNG safely



GATX Rail Europe and its sister company Trifleet have developed a safe and efficient method for transporting LNG in bulk, using GATX railcars and Trifleet tank containers.

The system will allow customers to move up to 750 tonnes of LNG per block train. The need to move LNG in volume is becoming more urgent, especially in Germany, which is investing in new LNG import terminals to diversify away from Russian gas supplies.

"In the race to diversify energy sources and move toward more sustainable sources altogether, the only option left for the transport industry is to move in-step with upgraded and sustainably functional operations," says GATX. ■

Stolt Tank Containers reports operating revenue of \$662.4m



Stolt Tank Containers (STC) has reported operating revenue of \$662.4m for its financial year to end November 2021, compared to \$520.6m for previous year.

Operating profit reached \$81.6m, almost 60% ahead of the previous year, and net profit improved by 61% to \$58.0m.

The revenue increase largely reflected higher ocean freight costs, although profit was impacted by ongoing port congestion and operational delays caused by tight ship capacity and a shortage of truck drivers. On the other

hand, those supply chain disruptions also prompted some customers to hold onto tanks in their supply chain, generating higher demurrage revenue for STC.

“STC’s market strengthened, with rising freight rates and higher demurrage revenue compensating for rising costs,” notes Niels G Stolt-Nielsen, CEO of parent Stolt-Nielsen Ltd. “I am positive about the 2022 market outlook,” he adds. “The market for STC continues to look strong, with good demand and inefficiencies in the supply chain causing capacity tightness, improving margin per shipment.” ■



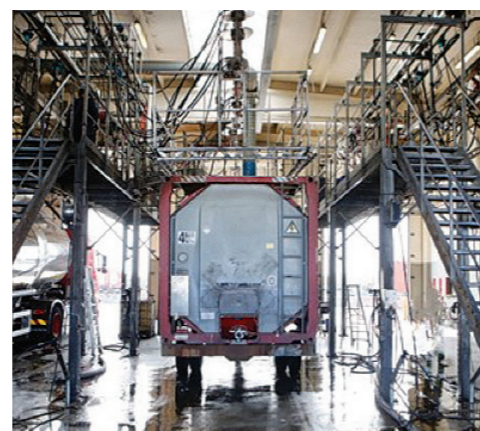
Legend Logistics (Asia) has been renamed

Legend Logistics (Asia) has been renamed Legend Tank Logistics Pte Ltd.

Legend says the name change “represents our business activities more clearly and reflects our focus on bulk liquid logistics and depot management”.

“The new name symbolizes our dedication to the bulk liquid logistics industry, providing solutions to food-grade, oleochemicals, petrochemical, and pharmaceutical product,” the company adds.

All contact details will remain the same. ■



Van Moer Logistics has achieved a golden rating from Ecovadis

Van Moer Logistics has achieved a golden rating from Ecovadis for its bulk and tank container division, reflecting its investment in initiatives to improve sustainability in its operations.

In particular, Van Moer last year spent some €2.8m in the renovation of its tank cleaning facility in Zwijndrecht, Belgium, making use of the most recent technologies to improve performance and reduce energy and water consumption.

Van Moer’s transport division received a silver rating. It is continuing to reduce its environmental impact, having introduced its first dual-fuel hydrogen truck at the end of 2021.

It now has 10% of its fleet running on natural gas, while the rest of its vehicles have Euro 6 engines. Its planning department has upgraded its planning system to minimise empty runs and introduced coaching for drivers to encourage them to work economically. ■

Goodrich’s new batch of ISO Tanks



Goodrich’s new build program is in full swing.

The new batch of 350 units of 25 and 26 cbm Industrial Grade ISO Tanks have been delivered into active service at their depots across China.

The newly acquired tanks are designed and constructed “to the highest quality and safety standards.

This investment supports Goodrich’s growth strategy, which includes

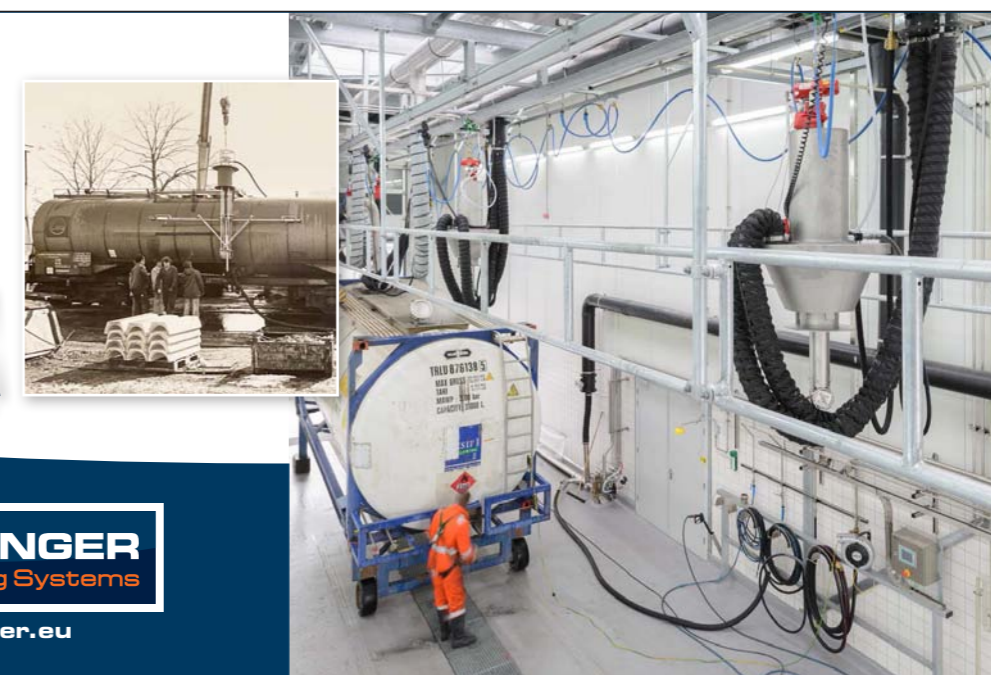
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Unitas announces appointment



Unitas announce the appointment of Al Kibbe as director, Tank Leasing Americas.

Al brings with him a wealth of experience and knowledge having worked in the Tank industry for over 20 years, most recently at Eurotainer following their acquisition of Taylor Minster Leasing where he was for 4.5 years as director prior to these holding positions at Hoover and Transamerica.

Al based in Houston will establish Unitas physical presence for the Americas, underpinning its commitment to having local people service our customers. Al brings a wealth of experience and expertise particularly in the gas and cryogenic market, which continues Unitas strategy as a niche lessor. ■



US Container Depot is expanding its two sites in Savannah, GA and Newark, NJ, to increase capacity and enhance safety in the handling of tank containers.

The company has acquired additional land in Savannah, to allow for the staging and parking of tractors and chassis as well as more storage for empty containers and a tank container maintenance and repair unit. The new space will more than double storage capacity to some 2,250 units.

At the Newark facility, work is concentrating on the installation of a fully enclosed loaded container pad for secondary containment, which will eliminate vehicle traffic in the storage area. While this will reduce the number of containers it can store, it is designed to provide a safer and more secure area. ■

Vervaeke appoints Serge de Wolf



Vervaeke has appointed Serge de Wolf as its managing director; he assumes daily management of the three Vervaeke entities in Belgium, Luxembourg and France.

The appointment is seen as part of the group's growth strategy to become one of the largest tank transporters in western Europe.

"In the current economic climate, where there is some uncertainty, it is important to be alert for opportunities and to react quickly.

In addition, our sector is facing a number of tough challenges, both in terms of retaining and attracting competent employees and in terms of innovation and sustainability," says Frédéric Derumeaux, CEO of Vervaeke. "Serge De Wolf is known as an inspiring and pragmatic leader who can bring about both tactical and strategic transformations." ■



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SINCE 1879.

Maximilian Nause,
Head of Global
Tank Container at
Leschaco, shares
his global ambitions
for the company
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Magazine.



TCM: We offer our condolences for the recent loss of Jörg Conrad, owner and CEO of Leschaco. What were his business roles in the tank container industry?

MN: Thank you for the condolences. His passing is a huge loss for the company. Mr Jörg Conrad had a major impact on the development of the tank container product at Leschaco. When he started his career in the US, back in the 80s, he touched base with the first tank container transports from New York to Japan, after which he continued to be an enthusiastic investor in tank container and related business models. His passing, however, will not change our direction and we will continue his legacy and keep the right focus on the tank container product at Leschaco.

TCM: How and when was the company established?

MN: The company was founded under the name of Lexzau, Scharbau in Hamburg in 1879 by Wilhelm Lexzau and Julius Scharbau. In 1992, Jörg Conrad became the owner and active Managing Director of the international Leschaco Group until his passing in October 2022. He drove the internationalisation of the company as well as the establishment of the tank container division as one of Leschaco's core products. With his outstanding entrepreneurial foresight, he had already started the change of generations last year, when his son Mr. Constantin Conrad, who joined Leschaco in 2019, became the Managing Director and shareholder last year with Jörg Conrad's daughter, Charlotte Palermo, as the second shareholder of the company. Both truly believe in the tank container business model and continue to support an expansion in the next years.

TCM: What logistics activities does Leschaco focus on today?

MN: The Leschaco Group is a global logistics service provider with an extensive network of 73 own offices and over 2,500 employees in more than 23 countries. Aside from being a tank container operator, Leschaco is active in the fields of sea and air freight and contract logistics, and covers all aspects of supply chain solutions.

TCM: How large is Leschaco's tank container fleet?

MN: Leschaco operates more than 5,500 leased tank containers in its fleet at present, providing a diverse fleet portfolio of standard T11 tank containers from 20m³ to 26m³ baffles to meet our global customer demand. A major part of the fleet are units of 21m³ and 25m³, together with newly-added 26m³ baffle tank containers. In addition, we plan to grow our fleet size significantly as part of our strategy →

Maximilian Nause,
Head of Global Tank Container,
The Leschaco Group

The Leschaco Group is a global logistics service provider with an extensive network of 73 own offices and over 2,500 employees in more than 23 countries

In pandemic times, the focus of most of the chemical producers shifted to a value approach instead of looking at it as a cost driver.

roadmap 2030, aiming to be one of the leading deep sea tank container operators in the market. Apart from asset growth, we are working closely with our vendors and customers to improve the fleet utilisation and turnaround times in ports and depots. Our fleet portfolio is rounded off by other dedicated equipment e.g. T20 and T22 tank containers, electric heated tank containers and lined equipment for corrosive products.

TCM: Which tank types are having highest growth, and why?

MN: Our customer base and the overall market influences require flexibility and economies of scale so we see continued growth potential for T11 standard equipment at sizes of 25m³ and 26m³ (baffle tank containers). Business models shift to local and regional buying behaviour where larger capacities are requested. Baffled tank containers are giving us the opportunity to optimise equipment flows and serving customers with specific product requirements on certain trades.

TCM: How many of Leschaco's tank containers are 'smart'?

MN: We believe in technology and the advantages of tank containers equipped with telematics. The company closely follows the development of technical specification of the solutions available on the market, and smart devices will likely play a major role in our digital transformation map in the next two years. At the moment, we have not equipped our fleet with smart devices yet.

TCM: What tank container trends does the company see?

MN: Driven by corporate green logistic targets, we recognise a conversion from, for example, flexibags and drums to tank containers. This will add to our growth potential in the years to come. Leschaco supports the defined UN sustainability goals and recently achieved the *Ecovadis* silver status again. We develop green product solutions to

strengthen our position on the de-carbonisation of supply chains. Most notably for sensitive products, real time tracking and transparency along the customer's supply chain is demanded so telematics, standardised data exchange and the integration of the vendor environment are Leschaco's key drivers to provide an end-end visibility in the future.

We invest in fleet management systems and deploy a digital customer platform to increase transparency of information. New technologies such as Artificial Intelligence and machine learning algorithms are applied to improve the overall efficiency of the business. We recently went live with the Leschaco eBL, powered by Wave BL, which enables us to offer our customers an efficient and secure digital solution for the transport of maritime and commercial documents. Fast and secure transportation of commercial documents is an essential part of the supply chain. More generally, tank container operators must have a clear strategic direction for their digital transformation to generate competitive advantages in the future.

TCM: How are customer preferences changing?

MN: In pandemic times, the focus of most of the chemical producers shifted to a value approach instead of looking at it as a cost driver. Customers are looking for operational excellence, seamless communication, reliability and equipment commitments, although margin pressure on rates is expected to return.

TCM: Where does Leschaco buy its tank containers from?

MN: Leschaco's focus always relies on the highest safety and quality standards for our customers. We therefore consciously decided to lease equipment and can therefore provide one of the youngest fleets in the market. Today we work with the world-leading leasing companies providing us the capacities and flexibility towards customers.

TCM: What effect has the recent global supply chain disruptions had on tank container operators?

MN: Tank container operators have faced an unprecedented and rapidly changing environment, especially in the last two years. Port congestion, schedule unreliability, slow steaming and restricted inland capacities resulted in highly unpredictable equipment flows.

Customers started to hold tank containers at their site to avoid the loss of production. Our dedicated global staff, in cooperation with our vendors and customers, have steered our business successfully through the crisis. In the past, higher margins and demurrage revenues compensated for the higher costs. These included increased driver costs caused by lower turnaround times, longer idle times at various places and higher positioning costs. We now face lower global demand, a shortage of people and higher inventory, and tank container operators might face other new challenges in the upcoming year.

TCM: How does Leschaco differentiate itself from others?

MN: We strive to become a leader for customised supply chain solutions by offering integrated logistics services and a full stack product portfolio. We combine tank container operations with complex inland haulage including heating, customs clearance and related freight forwarding services.

We continue to enhance our global presence in key and new markets by leveraging our expertise in chemical and dangerous goods, and for other demanding industries. Today we operate our own Leschaco offices in almost every important market in the world by using a uniformed IT framework worldwide.

Regional dangerous goods competence centres are located in Thailand, Germany, Mexico and the US and our extensive network is one of the key drivers of our success.

People are a priority at Leschaco and we invest heavily in a professional and personal growth mindset to become an exceptional place to work.

We deploy training programs on demand, regular professional webinars taking place and trainers have just started to travel around the Leschaco offices to spread tank container knowledge across our teams. In addition to our people, we believe in technology and have started to massively invest into our tank container fleet management which drives automation across our operational processes. Our in-house developed systems provide tailor-made solutions supporting our customer-centric approach.

TCM: Will there be consolidation among tank container operators?

MN: Most of the global leading tank container operators are privately owned. They are driving their own strategic direction and focusing on sustainable, organic growth so we therefore do not foresee major M&A activities. Although the global tank container fleet has grown by over 10 per cent in the last 10 years, we see the number of tank container operators has tripled. This can likely lead to a consolidation among less competitive, niche operators.

Biography

Maximilian Nause has been managing Leschaco's global tank container division since January 2022. After a five-year stay in Japan, where he drove the business expansion as the Deputy Head of Tank Container APAC and the Global Head of Sales in the region, he returned to Germany in June 2021. Previously he worked in different management roles in the headquarters in Germany after finishing his dual studies in supply chain management and controlling. ■



How are lease per diems calculated?

Leslie McCune, the independent tank container market expert and a former ING Barings equity analyst, explores the dark art of how tank container leasing companies calculate their key financial figures.

Dispassionate owners

In general terms, leasing is a flexible way for tank container users to meet short-term demand without the costs and obligations of a long-term commitment. This is an especially valuable option when market conditions are, as they are now, uncertain - the tank container market bottomed in 2020 but this year marked the end of its post-Covid recovery with most indicators now turning negative as new economic conditions take a grip. At its most fundamental level, the leasing business model is essentially a net spread between rental income (i.e. per diems) and interest expense (i.e. the cost of funding the investment in tank containers to be leased).

However, the owners of tank container leasing companies may not be particularly interested in tank containers per se. To them, they are just an asset class currently offering attractive investment characteristics for their globally mobile funds.

The main focus of owners is on minimising the weighted average cost of capital for the enterprise (to minimise the interest expense element of the net spread), analysing the business's cash-on-cash yield trend and getting the right management in place to run the company.

Long-term investors

In the dry freight sector, box leasing gives shipping lines the flexibility to deal with volatile trade volumes and the unpredictable forecasting of their port requirements. Leasing also reduces a shipping line's need to maintain surplus inventory and allows them to balance trade flows by seasonally adjusting their box fleets.

Tank containers are, in contrast, far less seasonal and have long-term leases stretching to 5-7 years, providing predictable revenue streams which can be financed by secure debt with matching terms.

Long-term investors in tank container leasing businesses include Warren Buffet, owner of Exsif Worldwide via Berkshire Hathaway's Marmon Group, and various pension funds seeking cash-yielding investments and dividend opportunities to fund their regular disbursements for their on-going pension liabilities.

Teacher's pet

The Ontario Teachers' Pension Plan, for example, took dry box operator SeaCube private and were interested in buying tank container lessor Seaco when China-based HNA, its financially-distressed owner, was struggling with China's largest corporate debt pile of \$79 billion in 2018.

The Ontario Municipal Employees Retirement System has a long-term equity position in tank operator VTG Aktiengesellschaft and will be retaining its 27.5% indirect stake following the sale of the stakes of Morgan Stanley Infrastructure Partners/Deodoro Holding BV and Joachim Herz Stiftung to Global Infrastructure Partners and a wholly owned subsidiary of the Abu Dhabi Investment Authority.

VTG's main attraction is its market leading position in Europe's private rail freight wagon leasing rather than its relatively small tank container operating business.

Positive investor sentiment

Pension funds, and other long-term investors, are attracted to tank container leasing because it is asset-backed; the leases typically offer long-term income to match the long-term liabilities of institutional investors; the de facto US\$-denominated operating currency of the sector can be hedged; market fundamentals are strong; there is room for further consolidation and the sector is an effective hedge against higher interest rates and commodity price inflation (given the raw materials for tank container manufacturing are commodities such as stainless steel - comprising 8% nickel - and molybdenum).

Positive investor sentiment is also underpinned by tank containers being highly regulated assets which must conform to stringent standards of construction and operation, including mandatory periodic inspections.

Tank containers have a low obsolescence risk and attractive residual (or terminal) values at the end of their 20-year useful economic life (UEL), which can be extended when well-maintained. They are as likely to be rendered obsolete by their cargo capacity as by their age.

The re-lease potential for equipment is also important for owners of lessors. Leases typically last five years but lessors will seek to build a portfolio of leases with staggered maturity dates and off-hire possibilities at desirable locations i.e. where tank container depots have the necessary inspection levels and full service Maintenance & Repair capabilities, and where re-lease opportunities are good.

Contractual renewal rates are high - typically, well over 80% - and therefore attractive to investors, while the ease with which a leasing business can be scaled up is also appealing.

Critical Success Factors for lessors

The three critical success factors for the owners of tank container lessors are the weighted average cost of capital, the accounting policy assumptions made on depreciation and the credit worthiness of customers.

When compared with the operator segment, there are more private owners in the tank container leasing sector so lessors are inevitably subject to less public scrutiny and therefore, some argue, less rigorous financial accountability.

Cost of capital

A lessor's cost of capital is a crucial competitive advantage. Since the cost of capital is one of the two major cost components in deciding per diem lease rates, a low cost of capital will either give a lessor the commercial strength to drive rates lower to gain market share or, alternatively, will drive profitability.

The cost of a credit facility for European lessors is often based on the 1 month EURIBOR (Euro Interbank Offered Rate) base rate - currently 1.39% p.a. - to which is added a typical margin of 2.1%, giving an effective interest rate of 3.49% p.a. The interest rate on revolving credit facilities can also be based on LIBOR (London Interbank Offered Rate) for Eurodollar rate loans, plus a spread of 1.25%-1.75% p.a. →



LEASING

Depreciation

Depreciation is the other key component determining per diem lease rates. It is an accounting method for allocating the reduction in value over the useful economic lifetime of a tangible asset (like a tank container) due to wear, tear and obsolescence.

Depreciation is a line item where tank container lessors have a high degree of discretion. Their accounting treatment of depreciation can, quite legitimately, be either prudent or aggressive and can be structured to generate a more attractive EBITDA (Earnings Before Interest, Tax, Depreciation and Amortisation) if, for example, the company is grooming itself for sale.

Depreciation expense will vary over time based on the number and purchase price of the tanks in a lessor's owned fleet. Those bought at the market peak in 2008 - especially more highly specified units costing over \$30,000 - have burdened balance sheets ever since.

Cost and residual values define depreciation

Much depends on the residual, or terminal, value attributed to the tank containers in a fleet. There are usually differences - and different motivations - about how to define residual values. Tank container lessors currently depreciate on a straight-line basis to fixed residual values. These vary from a prudent 10% of Original Equipment Cost (OEC) to an aggressive 45% of OEC for standard T11 tank containers. Higher residual values imply a lower depreciation cost, which boosts EBITDA and a company's value.

A residual value of 10% of OEC is conservative for tank containers since the scrap value of their stainless steel historically averages over 40% of their OEC.

Higher projected residual values imply that less depreciation is being forecast and, since depreciation is an important cost

element that has to be factored into per diem lease rates, it offers management the freedom to undercut the per diem rates of those competitors with more conservative depreciation policies.

Unsurprisingly, those lessors allocating high residual values to their fleet tend to be those looking to build market share quickly by offering low per diem lease rates. This is a strategy deployed

by some private equity shareholders, who typically look to exit investments in 5-7 years.

If high residuals are not eventually achieved, the company's value suffers as impairments must be registered as an expense in the P&L/Income Statement and the value of the impaired asset reduced on the balance sheet.

In today's market, lessors look to lengthen minimum initial lease terms to mitigate the residual value risk they incur when buying higher priced new-build tank containers.

Credit worthiness

The customer portfolio of most lessors is substantially made up of major chemical producers and tank container operators, both of which have strong credit ratings. Payment collection is therefore very reliable and minimal provisions are needed by lessors for bad debts.

Passionate management

Compared to their dispassionate owners, the managements of tank container lessors are, understandably, very interested in the operational specifics and day-to-day financial performance of their tank container assets.

The critical decisions they face are not so much focused on how to finance the fleet and its support infrastructure but on how to deliver the company's financial and operating performance objectives. To achieve these goals, their key operational responsibilities are to select the right strategy, fleet size, equipment type and specification, per diem lease rates and contractual terms and conditions.

Lessor strategies

When it comes to their fleets, tank container lessors have the choice of three potential strategies:

- a low cost business model based on high numbers of lower value standard T11s
- a specialised fleet (focused on, say, T75 cryogenic tank containers)
- a mix of both standard and specialised tank container types

Years ago, US-based Exsif Worldwide operated the low cost/high volume model but, while still keeping very tight control of the way the business is run and managed, it now offers a highly diversified fleet. Neil Finn, the new President of Exsif Worldwide, has a background in business control and treasury in Berkshire Hathaway's Marmon subsidiary and will no doubt continue Exsif's close attention to costs.

In contrast, Paris-based Eurotainer focused on the more differentiated "standard + specialised" business model, partly reflecting Europe's greater product diversity and complexity.

The low cost business model is typically more highly leveraged i.e. debt is used to expand a firm's asset base, amplify its potential return on the risk capital invested and increase shareholder value. Debt, with its tax-deductible interest expense, is cheaper than raising capital through equity shareholders, which must be funded by post-tax dividends.

Cash-on-cash yields

Cash-on-cash yield is a key financial metric for evaluating the value of tank container lessors. It is the ratio of annual pre-tax cash flow to the total amount of cash invested and is a standard measure of evaluating cash flow from income-producing assets.

Although cash-on-cash yields for tank container lessors have fallen over the past decade, the global weighted average cash-on-cash yield for new-build tank containers was nearly 13% in 2019, a level at which the cash cost of purchasing a tank container would be repaid by roughly a third of its useful economic life.

Calculating per diems

Lease rate per diems are inexorably linked to two criteria - the global cost of money (as expressed through interest rates) and the accounting treatment of depreciation.

Per diems generate the income component of the income/interest expense net spread but fleet utilisation is an important secondary driver. Inactive, off-hired tanks not only fail to generate revenue but also incur storage costs at depots.

There is therefore a strong financial incentive to lease out equipment. Lessors occasionally accept below-market per diems to avoid depot storage costs and new-build equipment is often left in the manufacturer's yard at no cost as part of the overall commercial package. Idle inventory are to re-leased, repositioned, reconditioned, re-purposed or scrapped.

How are per diems calculated? The over-riding factor determining per diems is the degree of competitive intensity. However, as for all businesses, a lessor's business will be unsustainable if it consistently operates below its cost base. Two lessors - both backed with private equity - were said to be offering unsustainably low \$3/day per diems at the bottom of the market in 2020 as they sought to boost turnover and utilisation in an attempt to improve company value.

Depreciation, on the other hand, is an item over which lessors have a wide degree of flexibility, as noted earlier, and impacts a business's EBITDA. EBITDA is widely used to compare the profitability of different companies in the same industry but, even though it can eliminate flattering financing effects and questionable accounting, it is an incomplete measure of sustainable profitability, not least because companies often change the items included in their EBITDA calculation from one reporting period to the next. EBITDA/Revenue ratios of 10% or over are typical for tank container operators.

Per diem: Worked example

Assuming the above interest rate of 3.49% p.a. (see above), the cost of capital component in the per diem rate for a \$20,000 tank container will be $(\$20,000 \div 365) \times 0.0349$ or \$1.91/day.

The other major ownership cost component, depreciation, is also easily calculated. Assuming a 40% residual value after 20 years (7,305 days), the depreciation component will be $(\$20,000 - \$8,000) \div 7,305 \text{ days} = \$1.64/\text{day}$.

In this simple example, a per diem rate of \$3.55/day (i.e. \$1.91 + \$1.64) will cover a lessor's two largest cost components.

Given a current lease rate of, say, \$6.5/day, a fleet of 45,000 leased tank containers (i.e. the average fleet size of the top five global lessors) will therefore generate a contribution of \$48 million a year, assuming they are fully utilised, to cover the lessor's other costs and profitability i.e. $((6.5 - 3.55) \times 365) \times 45,000$. Lessees, of course, are usually liable for operating costs such as SG&A, tank storage and testing.

Post-tax profitability (alternatively referred to as net income) for some tank container lessors was over 25% pre-Covid in 2019. ■

Contact: lm@chemicalmanagement.co.uk



LEASE AGREEMENT
CONDITIONS APPROVED
THIS AGREEMENT ARE:
(in this lease the term "Landlo
AND
either the own
the "Tenant/s"



“Always a smart move with TALKE and IMT”



“Always a smart move with TALKE and IMT”

TALKE is one of the world’s leading providers of logistics solutions for the chemical world. With the new motto “Always a smart move” announced with the 75th anniversary of the company, TALKE wants to emphasize its entry into the digital age. An important contribution to the digitalization of all processes in the TALKE fleet is the implementation of the telematics solution from Intermodal Telematics (IMT) for the entire fleet.

André Van den Broek, Director Transport at TALKE: “We see the collection and intelligent use of data along the value chain as a key success factor. By increasing transparency across all processes, we significantly increase our customers’ efficiency as well as our own.

This implementation will allow TALKE to act on temperature status information in real time. It will also enhance the process of tracking equipment and capacity planning. The fast search possibility of the assets and the transfer of the information to TALKE’s customers, is one of the key benefits.

Since we strive for quality leadership in chemical logistics, we have very high-quality requirements for our partners. IMT has fulfilled these through appropriate certificates as well as the successful passing of the Proof of Concept.”

“Telematics is an essential building block for us to increase transparency along our customers.”

During the Proof-of-Concept TALKE tested IMT’s telematics for more than one year on different types of fleets with 100% reliable results.

André Van den Broek, adds: “Important was a simple and understandable documentation for the installation of the transmitters in German language as well as the fact that the installation is fast and easy. With the self-explanatory IMT pairing app we can connect all IMT devices in just 4 steps. We also appreciate the intuitive operation of the IMT platform.”

André Van den Broek: “Telematics is an essential building block for us to increase transparency along our customers’ supply chain and digitize processes. By collecting and intelligently linking the data generated at the various points, we create added value for our customers and for ourselves. It was important to us at TALKE that with the selection of the telematics provider all measurement data obtained can be connected via interfaces with our already existing logistics and controlling software and that a data exchange will take place automatically. With IMT, we have found a strong partner who meets exactly these requirements.”

TALKE will equip their entire fleet of approximately 2000 assets with IMT’s telematics; the solar-powered Communication and Location Terminal (CLT20-Ex) and Temperature Sensor (WT22-Ex).

About TALKE

TALKE is one of the world’s leading providers of logistics solutions for the world of chemistry. More than half of the world’s top 50 chemical companies already rely on the services of this family-owned company, founded in 1947. TALKE unites 4,600 people on three continents under its roof. With pioneering spirit, expertise, and dedication, they turn chemical logistics into a catalyst for future success. Responsibility and safety are key drivers: TALKE thinks and acts in terms of generations - for a better society, for a sustainable environment, and for healthy and satisfied employees. Today’s core competencies are transport, packaging, storage and handling of hazardous and harmless substances of all aggregate states. TALKE also advises on, designs and implements logistics processes, buildings and facilities. Digital services round out the portfolio of customized customer solutions. Offering all these competencies from a single source along the entire supply chain is a unique selling point and a key competitive advantage for TALKE.

About Intermodal Telematics

IMT is the world leading independent telematics solution partner for the tank container and rail wagon industry. Intermodal Telematics offers a full range of smart sensors and a web-based application with extensive functionality, for all involved parties like fleet owners, lessors and shippers. We provide a complete solution for asset management and product monitoring to increase control, efficiency, product quality and safety. IMT is by far the biggest supplier of telematics technology for the tank container sector and a major player in the railway business. With our team of 50 hardware, firmware and software engineers and our own in-house assembly line, IMT assures you the best cutting edge telematics solutions with the highest quality. We set the standard in smart sensor technology. IMT’s sensors and platform:

- ✓ Improve operating efficiencies
- ✓ Secure quality of cargo
- ✓ Provide track history of all relevant data of each container / wagon; location, temperature, pressure, heating, load-unload etc.

Not a company to rest on its laurels, **Gröninger Cleaning Systems** is continually looking at ways to **help its customers enhance their operations**, whether in terms of **providing optimum unit cleaning, reducing their energy costs** or offering them **invaluable management data**. *Brian Dixon* discusses the options with **joint managing director, Joost Kasbergen**.



Since its founding 75 years ago, Rotterdam-headquartered Gröninger Cleaning Systems has built up an enviable reputation as a world-class provider of high-end tank cleaning systems. With around 80 per cent of its business stemming from the logistics sector, ranging from big-name global tank container operators to domestic trucking firms and third-party cleaning stations, the company works closely with its customers to develop bespoke systems to meet their individual, and often highly demanding, needs.

Priding itself on its technical ability and cradle-to-grave approach to business, complete with extensive after-sales services, Gröninger has to date designed, delivered and installed cleaning systems for users across some 50 or so countries worldwide. Its fully-automated steam cleaning systems provide its customers with a pivotal link in their logistics chains, enabling the continual and contaminant-free movement of a whole host of hazardous and non-hazardous goods, ranging from cocoa to chemicals.

Energy hikes

Joint managing director Joost Kasbergen reports that the food-side of the market remains "more or less stable", reasoning that we all "keep on eating" regardless of the wider economic environment. He notes, however, that other sectors have undoubtedly had a slightly more turbulent 2022. With energy costs skyrocketing to as much as eight times their 10-year average following the Russian invasion of Ukraine in February, many players within the chemical industry, one of the most energy-intensive sectors anywhere, have understandably cut back their production. This has been particularly so in Europe, where the European Chemical Industry Council (Cefic) reported in October that, for the first time ever, chemical imports into the European Union outweighed exports in terms of both volumes and value, resulting in a trade deficit of some €5.6 billion for the first half of this year.

Consequently, with fewer chemicals being produced and transported, there is a corresponding reduction in the need for tank container cleaning, leading to what Kasbergen describes as a degree of "hesitation when it comes to new investments" in the field. After all, the decision to commission a new tank cleaning station is not one taken lightly even at the best of times due to the capital expenditure investment required on equipment, together with the associated land, construction and legal costs such a move can incur.

That said, the construction of a new cleaning station is not something that is done overnight, with potential lead times of several years depending on permits and permissions. The true impact of this year's energy shocks might therefore not be seen for some time to come, if indeed they are seen at all. As history shows, wars can rage on for years or, equally, can end very rapidly. Consequently, it is not inconceivable that the current situation could well prove to be little more than a blip, although whether things will ever return to how they used to be in terms of energy use as a whole remains questionable.

Environmental concerns

In addition to the invasion of Ukraine, there is another factor at play and one that may well prove to be much more longer-term in nature: growing environmental concerns and the ensuing national and international regulations that are making it increasingly less

attractive for industry to rely on traditional hydrocarbon fuels. "We see a lot of requests for alternative energy," Kasbergen says. As a result, he continues, Gröninger is currently conducting "a lot of research" in order to develop new ways of generating the steam and hot water needed by customers to clean their tank containers and other units.

While the quest for suitable alternative forms of energy presents an array of technical and business obstacles, Gröninger is nonetheless keen to take up the challenge, with the company already having undertaken a number of such projects for its customers. A case in point is that for Boonzaaijer Ede in the Netherlands, which uses solar panels to power the first fully electric tank cleaning station in Europe and which sees the generated electricity converted into hot water that is then stored in a buffer tank for subsequent use.

Gröninger is also conducting tests to see how effectively tank containers can be cleaned at lower pressures and lower temperatures. "Having a tank cleaned at 70°C instead of [the current] 85°C saves you 15°, which is a 20 per cent reduction in fuel consumption," Kasbergen notes. Such a saving is obviously going to be music to the ears of any company's finance department. In an age of growing corporate social responsibility (CSR), it also generates benefits beyond the bottom line.

Waste water reuse

But reducing the consumption of energy is just one of Gröninger's objectives, with the company also keen to ensure the most efficient use of water. "There is a lot of hot water that is being produced and then disposed of, but there's a lot of potential energy that's still left in that water," Kasbergen states, explaining that even after treatment the residual water from a wash can have a temperature of around 25-30°C. Rather than simply making this water safe for disposal, though, Gröninger's waste water treatment systems go one better by also making it safe to be used again.

"We can reuse 70 per cent of the water back into the system," he says. This has two clear benefits. Firstly, by reducing water consumption it helps keep operational costs down, especially in countries where this essential ingredient for life is at a premium. Secondly, it means overall energy consumption is further reduced as it is far more efficient to generate steam from water that is already warm than is the case with water that is fresh to the system and cold.

Then there is the matter of air pollution, which is of particular concern when it comes to cleaning tank containers used to

transport a range of noxious substances. To deal with this, Gröninger's cleaning stations can be readily installed with integrated air purification systems that use carbon filters and/or air scrubbers to keep fumes at bay. This is not only good for the environment as a whole but also for cleaning station operatives, especially should they choose not to make use of suitable personal protective equipment (PPE) as might be the case in some countries.

A wealth of data

But growing environmental considerations are not the only matters making their mark on industry at present. So too are digitalisation advances, something that is certainly not new to Gröninger, a company which has been designing and delivering fully-automated PLC-controlled cleaning systems for the past three decades. "What we have seen over recent years is that customers want more and more information out of the system," Kasbergen says, pointing out that data pertaining to inter alia how much water, energy or chemicals are being used, and when, can prove an invaluable source of information from which to make more informed management decisions on costs, prices and efficiency.

Fortunately for customers, such detailed information is not only readily available from the company's cleaning systems themselves but also via Gröninger's Cleaning Guard Connector software module, which links to a secure online portal where a full set of data can be readily accessed and analysed. What's more, the system can also interface with various external software programs, including Excel, meaning it can be smoothly integrated with a customer's own IT systems as required.

But that is certainly not the end of the matter. At present, Gröninger's cleaning systems can all be monitored from the company's headquarters in Rotterdam, meaning that the company can rapidly pinpoint issues and offer advice should anything arise at a customer's site so as to minimise costly downtime. Should a situation require physical intervention, Gröninger can quickly send out service teams from its strategically-located network of offices in Europe, the Americas and Asia to deal with matters on the ground.

For many, such after-sales care might seem more than adequate. For Gröninger, though, this is just the beginning. "At the moment, our service department is very reactive," Kasbergen says, revealing that the company is working to develop data-driven predictive maintenance services by which it will be able to alert customers to potential problems before they actually happen. "We want to be more proactive when it comes to service," he states. "Fix it before it breaks. That's our goal." ■

Joost Kasbergen,
joint managing
director, Gröninger
Cleaning Systems

ADDED VALUE CLEANING

CRYOGENIC IMMERSION

The **cryogenic tank container market** is a **complex, high growth, niche market** requiring **highly specialised** equipment, **management expertise** and **market knowledge**. *Tankcontainer Magazine* provides a guide to the essentials.



T75 cryogenic tank containers account for 1% of the global tank container fleet but have attracted an increasing amount of interest. They are designed to move refrigerated gases and chemicals under pressure and are fundamentally different to the T50 gas tank containers used to transport *non*-refrigerated gases and chemicals under pressure.

Cryogenics is a branch of physics dealing with the science of very low temperatures, usually assumed to start at temperatures below -153°C .

T75 tank containers are essentially double-walled vacuum flasks with their super-insulation created by the vacuum between the inner and outer walls. They include expensive and highly specialised cryogenic valves that are designed for extremely low cryogenic tank container operating temperatures. These can be as low as -196°C . Their exceptional vacuum capabilities and super-insulation combine to minimise any evaporation - and therefore product loss - of the cryogenic cargo.

The design, specification and manufacturing of cryogenic tank containers is particularly complex and technically challenging due to the plethora of differing market demands and respective design options. In addition, cryogenic equipment is subject to a greater number of mandatory approvals than other tank containers.

\$100,000 prices

Cryogenic tank containers require more high levels of management and technical expertise, specialised maintenance and repair capabilities, and additional fittings such as complex and costly cryogenic pumps.

Unsurprisingly, the price of a cryogenic tank container is high and varies according to the liquefied gas carried and the unit's configuration - prices of \$100,000 are not unusual. Each cargo type requires a specific design with the main difference between designs being the maximum allowable working pressure.

Cryogenic tank uses

The vast majority - approximately 85% - of T75 cryogenic tank containers are used to transport Liquefied Natural Gas (LNG). Carbon dioxide is the second most transported cryogenic gas with so-called 'air gases' (nitrogen, argon, helium and oxygen) and nitrous gas, ethane, acetylene, ethylene and R23 trifluoromethane accounting for most of the remaining cargoes. Hydrogen and helium are even more specialist market niches within the cryogenic sector with prices up to \$1,000,000 per tank container.

These cryogenic gases are used in a variety of sectors, including electronics and semiconductors, food and beverage (carbon dioxide), mining, oil and gas field operations (off-shore and enhanced oil recovery) and health applications.

There are different value chains - and therefore logistics requirements - for each of the main cryogenic product categories carried.

LNG tank containers

LNG is typically moved in 40' T75 units while 20' tank containers (and, very occasionally, 30' in Europe) are used for liquefied air gases such as oxygen and nitrogen. The global move to gas,

especially in Asia, is stimulating the building of smaller LNG networks and distribution centres. These should support demand for T75 tank containers despite cryogenic tank containers being a very expensive, inefficient and energy-intensive way of transporting LNG.

The number of LNG filling stations and LNG marine bunkering locations is increasing and being integrated into intermodal supply chains, stimulating the demand for flexible transport and storage equipment like tank containers. As this infrastructure expands, LNG becomes more viable as an alternative for freight forwarders to ordinary diesel trucks.

Cryogenic market is small

Cryogenic tank containers have come a long way - ten years ago, Stolt Tank Containers, the market leading tank container operator, had only 22 T75 cryogenic units in their fleet of 24,700 tank containers. Today, there are a number of very capable cryogenic tank operators, including Hoyer, Den Hartogh and Suttons, and a number of lessors, including Paris-based Eurotainer, US-based Exsif Worldwide and Trifleet in Dordrecht. There is only one independent leasing company exclusively focused on cryogenic tank containers.

Overall, the market is still small in absolute unit numbers and relatively immature relative to the overall tank container sector. Eurotainer, the world's leading tank container lessor had, at one stage, half the T50 gas tank container market. However, it only began offering T75 cryogenic tank containers a decade or so ago because the market was considered too small and specialist. Van Hool delivered the first 40', 46,000 litres cryogenic LNG tank container at the end of 2013.

CIMC dominate manufacturing, as usual

Some of the earliest cryogenic units were built by Welfit Oddy in Gqeberha (formerly Port Elizabeth), South Africa for an Australian customer of Taylor Minster Leasing. Welfit Oddy no longer makes cryogenic tank containers although another South African-based pressure vessel company manufactures and repairs gas and cryogenic tank containers in small numbers.

CIMC Enric, with its 22 manufacturing sites and R&D centres in China, Germany, Holland, Denmark and Belgium, is by far the world's largest tank container manufacturer. It developed its own design and manufacturing technology for T50 gas and T75 cryogenic tank containers only two years ago and is now China's market leader in LNG cryogenic tank containers, cryogenic liquid transport semi-trailers and medium-pressure gas tankers. There are over 30 other cryogenic tank container manufacturers.

Limited number of depots

The highly specialist nature of cryogenic equipment means that not all depots are capable of maintenance and repair (M&R) work. The valves and vacuum holding system, for example, are quite different to other tank containers.

Unusually, tank container manufacturers own some of the M&R depots and the technical cryogenic expertise necessary is focused on these locations. These depots often offer both T75 cryogenic and T50 gas tank maintenance and repairs as well as undertaking modifications and the mandatory 2½ and 5-year periodic inspections (which are more rigorous for cryogenic tank containers). Degassing scrubbers are needed in some countries. →

Safety the top priority

T75 cryogenic tank containers are much more sensitive and capital intensive than other tank types. They require the utmost attention to vehicle safety and accident prevention. In road traffic, drivers are advised to avoid sudden stops, sudden acceleration and sharp turns. Movement monitors are installed and the internal pressure of the tank container is constantly monitored during vehicle travel, making sure it does not exceed the maximum operating limits.

Identifying any pressure build-up is essential - if the pressure inside an LNG tank container needs to be released to avoid a dangerous pressure build-up, the tank container can vent to atmosphere a limited amount of gas. There may, however, only be a limited number of designated facilities to vent discharge and these may not be close. Ocean carriers, for example, will immediately re-route to the nearest port in the event of a T75 cryogenic tank container venting due to leakage or pressure build-up. This might incur considerable costs, which would include port dues, and would have to be settled by the nominal owner/shipper of the tank container.

Long hold times broaden sales reach

The LNG tank container trade tends to be regional as global back hauls are uneconomical due to high ocean freight rates and the technical limitation of the 'hold time', i.e. the length of time a tank container can contain a cryogenic gas without it boiling off and venting as a result of ambient heat input.

Lengthening these hold times can reduce storage costs and enables cryogenic products to be shipped in tank containers either over longer distances and/or shorter distances at slower steaming speeds.

However, there is always a risk that the hold time may be exceeded due to ship or port delays, ship rotation and rescheduling, or leaving behind a tank container on the dock. Hold times vary according to the tank container specification and the type of gas - argon, oxygen and nitrogen have hold times varying from as short as 41-59 days while ethane's hold time is over 300 days.



Eurotainer T75 Cryogenic Tank Container

High depreciation. High per diems.

Due to the intensity of their operational systems, T75 cryogenic tank containers depreciate more rapidly than standard equipment resulting in low residual or terminal values. Similarly, their rate of technical obsolescence is more rapid than for standard tanks.

The high cost and rapid erosion in the value of T75s is reflected in the lease rates for cryogenic tank containers. Per diems are approximately \$80-a-day and are driven by the high original equipment cost; the weighted average cost of capital supporting the enterprise; the average lease length; the lessor's accounting treatment of the asset's depreciation expense; the cargo's market prices and the capabilities of customers - and their supply chain - to handle T75 cryogenic tank types.

Conclusion

Cryogenic tank containers are highly specialised and expensive assets requiring specific maintenance, management expertise and market knowledge but even modest growth in the dominant LNG market will increase the utilisation of the relatively small global fleet and encourage expansion. ■



T75 Cryogenic Tank Containers Delivered by CIMC

RUSSIAN FOR THE EXIT

Russia's tank container market is experiencing a painful transition as it seeks to replace western markets by those in the east.

The Russian tank container market is undergoing a painful transformation, switching to new suppliers and alternative logistics routes as old ties and its previous trade routes are severed with the West.

The ongoing military conflict in Ukraine has resulted in the imposition of unprecedented sanctions on Russia, significantly complicating operations on Western logistics routes both for Russian tank container operators and shippers.

The 4th International Tank Container Forum - one of Russia's most important industry events - took place in Moscow on 3 November. According to official market statistics announced during the event, the Russian tank container market had a substantial decline this year.

Eastern trades partly replace western

Leonid Freiman, Deputy Executive Director of the Russian Union of Chemists (RSKh), told the Forum that, in the first eight months of this year, the year-on-year turnover of the industry fell by 15%. Tonnage declines were seen both in exports (decreasing by 15%) and imports (falling by 4%). Freiman also added that the decline in imports could have been deeper were it not for supplies from China and Turkey, which partially replaced import volumes from the European Union.

The biggest decline was on Russian transport routes with the Baltic States and Finland. In addition, the cost of transportation for shippers increased by 20-30% while carrier costs increased by 40-50%, putting further pressure on market players.

Exports grow in value terms

More positively, there was growth for Russian tank container exports in value terms in 2022, primarily due to rising prices for caustic soda, ammonia and mineral fertilisers. For example, enterprises of the chemical complex in the Volga Federal District (VFD) shipped products worth more than 1.7 trillion rubles from January-August, up almost 30% year-on-year.

The main volumes of shipped chemical products were accounted for by the central regions of Russia where Russia's large industrial and chemical enterprises are located. VFD, for example, accounts for almost half of the country's production of caustic soda (422,000 tonnes were produced in the first eight months of 2022) and close to 70% of the country's soda ash production (1.6 million tonnes). VFD also accounted for 37% of all ammonia production (4.1 million tonnes), 94% of potash fertilisers (6.7 million tonnes) and 34% of all nitrogen fertilisers (6 million tonnes).

Russia's tank container fleet shrinks

In addition to the decline of transportation this year, the industry has seen a significant reduction in the local fleet of tank containers, caused by the exodus of European tank container operators from Russia. ➔



Tulupova Nadezhda, head of sales, Baltica-Trans LLC 31

Tank container shortage

Due to the closure of European markets, local Russian players have switched to Asian import/export routes but expansion of these trade routes has been hampered by a serious shortage of tank containers in Russia.

Today, many Russian chemical cargo transportation specialists are facing the problem of attracting equipment and tank containers for their needs. According to market players, it is currently very difficult to rent or lease the required number of tank containers of a certain type due to the limited supply volumes. Lease and rental rates have also increased, partly due to the significant rise of prices for stainless steel in Russia and the global market in the last three years.

Spare parts scarce

There is also a severe problem with spare parts. According to Maxim Kireev, Director for Production Infrastructure and Chief Engineer of JSC SG-Trans, one of Russia's leading tank container operators, about 20% of the company's fleet of T50 gas tank containers is equipped with fittings from UK-based Fort Vale. After the imposition of sanctions, prices charged by Fort Vale increased by an average of 30%.

Russian stocks are seriously limited so Russian companies are urgently looking for alternative suppliers of similar spare parts. The main demand is currently for fluoroplastic sealants.

Local tank container production prioritised

In a move to reduce Russia's dependence on imports, companies are paying particular attention to the localisation, within Russia, of the production of tank containers. The local ContainerRemService and NPK Shelf have, for example, designed a prototype T50 gas tank container for the transport of liquefied hydrocarbon gases. It is made entirely from domestic raw materials.

ContainerRemService is not the only Russian company to design its own tank containers. The Uralkriomash company is part of Uralvagonzavod, the largest tank container manufacturer in Russia. It has certified a new generation tank container design for the transportation and storage of liquefied natural gas (LNG), ethylene and ethane.

Russia plans for a major increase of LPG and LNG exports to China and other Asian countries in the future so most analysts say that the start of the commercial production of tank containers is an acute need for the country and its chemical sector.

In addition to the domestic production of tank containers, some leading local operators have already announced their plans for expansions of their existing tank containers fleets.

SpetsTransContainer - part of TransContainer, Russia's largest rail car container operator - has, for example, recently announced its plans to expand its tank container fleet to almost 1,400 units this year.

"Chinese state subsidies make tank containers cheaper"

As Boris Borisov, SpetsTransContainer's CEO, said in an interview with Argus Russia, that currently Russian tank container manufacturers still lose out on price to Chinese manufacturers. This, he claimed, was mainly due to the Chinese state subsidies provided to domestic Chinese manufacturers. However, Borisov said the situation is different in the T50 gas tank container segment, where Russian and Belarusian manufacturers have a stronger position than foreign rivals.

Traditionally, Western markets have accounted for more than 80% of Russian chemical exports. Russian chemical producers plan to re-direct at least 30-40% of this volume from Western markets to those in the East in the mid-term. Implementation of these plans will, however, depend on the building, capacity expansion and modernisation of Russia's eastern-facing transport infrastructure.

Chemical exports redirected to Russian market

Another option being implemented is the re-orientation of part of Russia's chemical exports to the domestic market. This has already resulted in an increase in the transportation of chemical cargoes within Russia.

Most market players expect that the current crisis will lead to a transformation of the industry. Nadya Tulupova, head of sales of Baltica-Trans LLC, one of the leading tank container operators in Russia and the former Soviet region, said that while the market does not face a massive exodus of players, certain western European operators have decreased their presence due to uncertainties and the significant reduction of trade between Russia and Europe on short sea lanes.

Nadya Tulupova commented: "Southeast Asian operators are now actively substituting all those who are reluctant to provide their equipment to Russia. Local demand for tank containers remains high due to the fact that Russian chemical trades had to change geography, and the decrease of volumes is over-compensated by an extended roundtrip time".

Tulupova does not expect the entire collapse of the industry. She continues: "It is not likely that the Russian tank container transportation market itself is falling into a deep crisis. Obviously, it is in a process of major changes and challenges for all its participants but, on the other hand, it certainly allows new chances and opportunities. As long as trade and production keeps on running, all advantages that tank containers are providing as the most efficient transport equipment for liquid goods, remain highly demanded by the customers".

Despite the current problems of the industry, SpetsTransContainer's Borisov remains optimistic, believing that the industry has a chance of further development with much depending on the rate of growth of the chemical sector in southern Russia and the development of the chemical industry as a whole.

Russian oil and gas cost-advantaged

In addition, lower gas and oil prices in Russia put it at a competitive cost advantage to Europe and are a significant factor in the development of the chemical industry in the country in the near future.

Moreover, there are also opportunities for an increase in Russian tank container movements in the short term. Olga Gopkalo, chief specialist of Morstroytekhlogiya LLC, the Russian engineering company specialising in research and design in the field of maritime transport, says the largest export flow of liquid chemical cargo from Russia at the moment is ammonia with a volume of about 4 million tons per year. Prior to the 24 February invasion of Ukraine by Russia, most ammonia trade volumes were transported by pipeline through the Baltic ports of Sillamäe in Estonia and Ventspils in Latvia. However, since the beginning of the war, these channels have been blocked or severely limited. The use of tank containers as an alternative could be considered as one of the ways to solve the problem, says Gopkalo. ■



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