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Tankcontainer MAGAZINE

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Some good news, at last, for Europe

After what seems like years of unrelenting bad news for the European chemical industry, 2015 seems to have started with more positive sentiment in the chemical sector, which can only auger well for tank container demand.

Yes, the Eurozone is precariously resisting another recession, there's yet another Greek financial crisis and Russia's ostracism has led to a currency collapse. But the weaker euro and rouble will boost exports and, one way or another, the EU will – as it has always – create an artful financial construct that will prevent the Greek crisis turning toxic.

Chemical exports are already responding and tank container operators are noting a surprising strength in Europe which, with 41% of the world's chemical exports, remains the world's largest exporter of chemicals.

The region produced 20% of the world's chemicals in the last reported year, equivalent to $720 billion. This was nearly 20% more than the chemicals produced by North American Free Trade Agreement countries, but only 36% of Asia's chemical production. Europe's entire chemical production was 60% that of China.

As we explore later in this issue, *Tank Container Magazine*'s 2014 Review of the Year highlights a positive year for tank containers ,with measured growth, significant reinvestment and re-financing by both operators and leasing companies, and consolidation in the leasing sector. The keynote interview with Heike Clausen, ITCO's President, describes the good work that the organisation is doing as the industry's representative body.

The 60% fall in the crude oil price from $114/barrel in June is well-reported. The benchmark Brent crude oil price hit a low for the year of $45/barrel in January but moved up to $59/barrel on 3 February 2015. US crude futures hit a near six-year low of $43.58/barrel in early February.

Whether these market gyrations represent a so-called 'dead cat bounce' or the beginning of a sustained oil price rally remains to be seen, but expect delays in the final investment decisions of several US petrochemical projects as companies seek to conserve cash in response to lower oil prices. There will be several 'capital investment reprioritisation' announcements.

Oil major Total is assuming an average price of $60/barrel for 2015 and sees oil prices staying depressed until the summer, due to weak seasonal demand, even though Saudi Arabia's strategy of curbing the output growth of rival producers might have started to achieve results.

In terms of chemicals, the collapse in oil prices has fed through to sharply lower naphtha prices. European producers have benefited and cracker margins have increased. On balance, the benefit to Europe from lower feedstocks outweighs the negative impact (for producers, not consumers) of lower prices.

Europe's competitive disadvantage, compared with the gas-based US petrochemical sector, has narrowed, although the US will sustain its competitive advantage on ethylene and methane-based derivatives.

Cost parity for chemical production between Europe and the US would only be reached if Brent crude fell to $28/barrel and the benchmark Henry Hub gas price increased to $4/million Btu. That won't happen: today, oil is on the way up, with March 2015 contracts for Brent crude at $56/barrel and the Henry Hub gas price is at $2.88/million Btu – although $6/million Btu would be a conceivable medium term forecast.

Lower crude, of course, stimulates demand for chemicals by increasing disposable income. Product prices could be reduced if manufacturers passed on their cost savings from lower-priced chemical raw materials and energy.

Manufacturers' supply chain costs also fall as bunker prices track oil prices downwards from the six-year highs of last year. An extra fillip to European growth will come from the European Central Bank, through its recently announced quantitative easing programme.

The changing macro-economic factors affect the tank container sector in many ways. Lower bunker prices should lead to lower freight rates, which should stimulate inter-regional tank container trade in the short term. But, once established, lower ocean freight costs typically offer less fertile margin opportunities for operators if they quote on a door-to-door basis. Pier-to-pier movements offer even less margin opportunity and bring tank container operators into more direct competition with freight forwarders by narrowing their customer service proposition to that of the forwarders.

Economists say the weaker euro is making chemical exports to the US more competitive – tank container movements from Europe to the north-east coast of the US are certainly the strongest they have been for some time, although there is a constant stream of empty tank containers being repositioned down to the US Gulf coast.

But don't forget, economists are said to know the price of everything and the value of nothing – successful tank container players make sure their customers don't think the same way.

Leslie McCune, Editor


B4
ITCO
International Tank Container Organisation
ITCO

Bohai Leasing buys Cronos

Bohai Leasing Company of China has announced that it has purchased Cronos Limited, the Bermuda based container leasing group, from funds managed by Kelso & Co and Transportation Capital Group.

Bohai owns Seaco Group and plans to integrate Cronos with its existing container leasing activities to create one of the largest container leasing companies in the world.

Bohai is committed to growth through quality asset based acquisitions that complement its existing businesses and is delighted to have acquired this world class leasing company.

The combined Seaco and Cronos will comprise 3.62 million CEU (cost equivalent units) or 2.18 million TEU, making it one of the world's largest container fleets. T

The company will have the most diversified container leasing fleet in the industry, with both the largest reefer and specials fleet within its wide portfolio of equipment.

Bohai and Seaco envisage that the integration process will be carefully considered, and that it will take time to optimise the strengths and synergies of both organisations. As such, there will be no immediate changes that would affect the external relationships presently maintained by Seaco and Cronos.

Each will continue to deal directly with their respective customers and suppliers and it will be business as usual, as the combined management establish the best way forward to serve the needs of customers and co-ordinate relationships with suppliers.

Gröninger system accredited by SGF

Gröninger's Cleaning Guard system for tank cleaning and tank container cleaning was recently audited and accredited by SGF.

This association is the world's leading independent industrial self-control platform for the fruit juice, fruit nectar and fruit products industry. The organisation is partner for all matters concerning quality, safety, authenticity and sustainability.

Cleaning Guard was developed by Gröninger Cleaning Systems (Schiedam, NL) and Lucrasoft Solutions (Hendrik Ido Ambacht, NL) as a specific module within their MainPro management software, which is used by many tank cleaning companies worldwide.

The development took place in close cooperation with TankCleaningEuropoort (Rotterdam, NL), a leading innovator and operator in the tank cleaning industry. Combining the expertise and knowhow of these three

leading specialists has led to a system that thoroughly validates and controls tank cleaning processes, giving customer the highest quality of cleaning.

The SGF audit accreditation report states: "The auditor concludes that the present system of Gröninger & Lucrasoft - CleaningGuard - as a third party data processing system, is robust and reliable and complies with the requirements as laid down in the SGF Control Code for Tank Cleaning. Taking everything into consideration the auditor recommends SGF International e.V. (Sure-Global-Fair) to accredit Gröninger & Lucrasoft - Cleaning Guard - as a third party data monitoring system provider.

Eurotainer joins APLA in Latin Am

Eurotainer, a global leader in specialised tank container leasing, announced that the company has joined Latin America's leading industry association for chemical and petrochemicals.

APLA members are the

most important Chemical and Petrochemical Companies of each country. APLA constitutes a Business Forum to boost and promote business in the Chemical and Petrochemical Sector.

APLA´s mission is to facilitate the sustainable business development of the Latin American Petrochemical and Chemical industry. This mission is in line with Eurotainer's objectives in the region.

As a member of the association since July 2014, Eurotainer has already participated in the 16th Latin American Logistic Meeting and the 34th Latin American Petrochemical Annual Meeting.

First Leaf awarded to Haesarts Intermodal

Haesarts joins an elite group of firms awarded a first leaf for CO2 reduction

Green Freight Europe (GFE) has awarded Haesarts Intermodal NV with its first leaf – an award given to companies that have shared CO2 data and information on policies, strategy and intentions to reduce CO2 emissions stemming from transport operations.

Other companies, including Dow Europe, Procter & Gamble and Hewlett-Packard, were also awarded the first leaf.

The first leaf is part of a four-tier labelling programme by GFE that recognises and benchmarks members based on their efforts to improve CO2 reduction measures.

Vased in Breendonk, Belgium, Haesaerts Intermodal has been a member of GFE, an industry initiative to support companies in improving their environmental performance, since 2012.

In 2015 GFE will improve the programme of CO2 data exchange. Additionally, all members have access to the GFE Sharing Platform offering expert knowledge, best practices and other information supporting the industry to further improve on their environmental performance and to intensify collaboration.

GFE will continue to raise the bar for its members but strives to recognise more members with additional leaves next year.

RSA-TALKE in key contract with Dow

Dow and RSA-TALKE have signed a contract for the storage of petrochemical products that will be marketed by Dow from Sadara Chemical Company, a joint venture of Dow and Saudi Aramco in the Kingdom of Saudi Arabia.

Huni and Van Loon in coatings venture

Hüni + Co and Group Van Loon are joining forces for tank coating repairs in the Benelux region.

A rising demand for high-quality coating repairs for tank containers in Benelux area has led to the co-operation between coating specialist Hüni, based in Friedrichshafen, Germany, and Antwerp -based tank container service provider Group Van Loon (GETS).

With the global growth of the tank container industry, the demand for specialised equipment has also risen significantly. More and more coated tanks (mainly for corrosion protection or anti-stick applications) have entered the market.

Allied to this also the demand for quality maintenance is also more important.

"A perfect application of any chosen coating system is the base for a long-lasting protection of the equipment," commented Peter Hüni, managing director of Hüni + CO. "But also quality maintenance, which includes good cleaning procedures and repairs performed to the best practices available, are the key to coating success."

Gas Equipment Testing and Services (GETS), a subsidiary of Group Van Loon offers services for specialised tank container equipment, including gas & cryogenic tanks.

"Adding coating repairs to our range of services was a logical next step in enlarging our service portfolio," added Günther Van Loon, group CEO.

"There is a clear and present demand for these services in our region, but we did not want to enter the market without being able to offer the best techniques, knowledge and quality in the market because we believe only by offering high quality can we add value to our customers' tanks."

The joint venture for chemical logistics RSA-TALKE is constructing a 10,000 square metre warehouse for petrochemical products in Dubai.

It is located on the same premises as the company's dangerous goods warehouse, which was opened in early 2014 at the Aerotropolis known as Dubai World Central (DWC).

Eurotainer celebrates a decade in China

In 2004 Eurotainer opened its first office in Shanghai and Eurotainer Tank Leasing (Shanghai) Co Ltd was established in 2006.

The company said: "Our business has grown significantly since then and a second office has been opened in Tianjin. Eurotainer has identified significant tank container leasing opportunities in North China and the Tianjin office is strategically located to target additional business growth in the region."

Eurotainer held a 10th Anniversary Banquet in the Huang Pu District of Shanghai to celebrate and to thank clients and suppliers for their support over the past decade.

The banquet was well attended with over 200 guests enjoying a dinner and night of fun overlooking the Huangpu River.

They included members of the Chinese chemical industry throughout Asia Pacific, transportation companies and service partners.

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First TWS spill trough bound for United States

The core business of TWS is the rental of tank containers for liquid products used in the chemical industry, but also for liquid foodstuffs.

Now for the first time a spill trough has been shipped to the US and will be introduced to interested customers.

For companies transporting and/or storing liquid products these spill troughs offer clear cost benefit compared with permanently installed safety equipment either temporarily or in an emergency.

The TWS mobile spill trough is a stainless-steel, custom-made, highly specialised piece of equipment designed for all common container sizes, which can be used at industrial settings for temporary storage as well as at transhipment terminals or production sites.

Handling is easy and only a few things need to be observed:

The ground where the tank container and the spill trough is to be stored must be level, even and suitable for supporting the total weight of a fully loaded container and the spill trough. The necessary approvals of the authorities involved must be obtained. Corrosive liquids and dangerous goods can be stored if the approvals for the tank container and the spill trough are identical and conform to the quality of the stainless steel of both units involved.

Storage with the restriction of 'explosion protection' is not allowed. The products have to be resistant to stainless steel according to the approvals. The specific gravity of any product carried is restricted to 1.2 per kg/cbm.

Before starting, the spill trough must be clean and free of pollutants or rainwater. The tank container must be placed inside the spill trough in line with the front corner castings.

The spill trough with the tank container inside must be checked every day for spillage or rainwater. In case the spill trough is filled with product and/or with rainwater the liquid can be pumped by using the dip tube of the spill trough. The container may be heated, but some special requirements have to be observed.

By using a chassis with 20ft twist locks the spill trough can be transported. The spill trough can be lifted by using a variable spreader. It is not permitted to move the spill trough with the 20ft tank container on the road as it does not have the approval for transportation under DOT/IMDG or European regulations.

VTG expands tank container operations

VTG Aktiengesellschaft, one of the leading wagon hire and rail logistics companies in Europe, has expanded its business operations through its subsidiary VOTG.

The company is now authorised to transport feedingstuffs, and has thereby succeeded in positioning itself on an even broader basis in the market. The GMP+ B4 certification ensures full compliance with the strict requirements associated with the transportation of these sensitive goods.

"The transport of feedingstuffs has been growing continuously over recent years. To this end, stringent demands have been placed on transport containers in terms of cleanliness to ensure that products do not suffer any damage.

"The certification shows that we fulfil these requirements to the fullest extent and that we are also able to respond to ever-increasing customer demands in matters of product cleanliness', said Heike Clausen, Managing Director of VOTG.

"We have set up a tank container fleet specifically for this purpose and adapted our quality and transport documentation.'

Transporting products in accordance with the GMP+ guidelines for feedingstuffs has enabled VOTG to extend its product portfolio and reduce the company's dependency on individual product groups.

The focus of the business shall remain on the transport of chemical and petroleum products. Instituting the GMP+ systems demonstrates that the company is open to new product types.

The GMP+ Feed Certification Scheme is issued by the independent organisation GMP+ International.

The system serves the global certification of feed businesses and is intended to guarantee the cleanliness of feedingstuffs and reassure consumers that the feed products are responsibly handled along the entire production chain.

The GMP+ B4 standard refers to the transport of feedingstuffs. The GMP+ certificate is location-based and monitored annually by the certification body and by unannounced audits on samples by GMP International.

The system, which was established in Mutterstadt, is also transferable to other VOTG locations.

Hoyer adds e-learning training tool for DG

Hamburg-based logistics provider HOYER has revised its ADR training.

Now, company employees can brush up on their knowledge about dangerous goods through several online training units. There is even a green side effect: by using the programme HOYER saves CO2 because trips to external training locations are rendered unnecessary.

Learning just what is important, just when it is needed. That is the basic idea behind the e-learning platform, which HOYER introduced this year. Thanks to an IT solution and to the Internet, courses take place at employees' workspaces where staff are free to pick the best suitable times for the trainings.

The e-learning programme for chemical logistics consists of six learning units and conveys the most important regulations of dangerous goods law.

No matter whether they work in the commercial or industrial areas, all of HOYER's employees profit from the web training and by constantly keeping their expertise up to date.

For the company's drivers, especially, continuously updating their knowledge is of the highest priority and has always been achieved through attending in-class courses.

Shortly, however, drivers too will be able to use the online courses.

HOYER is currently also implementing the programme in English so all HOYER employees worldwide have access to it, which will allow the training to reinforce the uniform quality standards of the company.

Additional e-learning courses about topics like equipment, handling of special products and quality standards are in the works.

Trainings at the workplace are increasingly replacing face-to-face-instructions. This way, HOYER is saving time and CO2, which is in line with the company's sustainability strategy.

"We always make sure that our employees are brought up to date", says Günter-Friedrich Maas, director Chemilog business unit.

"It is a welcome bonus that the new e-learning programme also allows us to save CO2."

State-of-the-art JV in Dubai for RSA-Talke

Chemical logistics joint venture RSA-TALKE has taken its new packed goods storage facility for dangerous & non-dangerous goods in Dubai into operation.

Located in the Dubai World (DCW), the world´s first purpose-built aerotropolis, it boasts a capacity of 19,000 pallet spaces and direct access to the Jebel Ali sea port and the Al Maktoum airport. Meanwhile, RSA-TALKE is already planning its next large-scale project: an integrated chemicals solution in Jebel Ali, the world's largest Free Trade Zone.

RSA-TALKE is a joint venture of Dubai-based RSA Logistics and the Germany-based TALKE Group. The joint venture, founded in May 2013, enables the experienced chemicals

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To order your copy please visit: **www.tankcontainermedia.com** logistics expert TALKE to provide its services to an even larger number of customers and to strengthen the Group's presence in the Middle East. Apart from Dubai, TALKE also has activities in Saudi Arabia, Qatar, Oman and Bahrain. RSA is able to offer its customers a wider range of logistics services through the joint venture and to build on the customer base that already exists.

The newly commissioned RSA-TALKE packed goods storage facility for dangerous goods & non-dangerous goods complies with the highest safety, environment protection and quality standards, such as the US National Fire Protection Association (NFPA) standards or the EU's ATEX guidelines on explosion prevention.

Furthermore, cutting-edge storage systems enable efficient and safe operations.

Khalifa AL ZAffin, Executive Chairman, Dubai Aviation City Corporation, said: "The opening of RSA-TALKE´s warehouse underlines the strategic significance of DWC in unfolding new posibilities for multinational companies as they expand their boundaries to reach out a wider customer base.

"It also demonstrates DWC´s capability to cater to the demands of divers industries and business needs through its state-of-the-art logistics infrastructure and multimodal transportation platform. We extend our full support to RSA-TALKE as they further expand in the region."

RSA-TALKE now offers its customers in the Gulf region 19,000-pallet storage places for hazardous & non hazardous goods as well as tailor-made transport solutions by road, air or sea, if required.

The storage facility is designed to store class 3, 4, 5, 6, 8 and 9 dangerous goods. It consists of seven independent chambers, four of which are temperature controlled and run at a constant 22°C.

Taking a global view

Editor Leslie McCune explores the activities of ITCO and gets the views of MD Heike Clausen on the challenges the industry faces

Leslie McCune: Congratulations - on behalf of *Tank Container Magazine* - on your re-election as President of ITCO. What were the highlights of your first two-year presidency?

Heike Clausen: The two years have passed very quickly with numerous activities. We organised again the 'ITCO 'Village' in 2013 during the Munich Transport Logistic Exhibition which was highly appreciated by the members and their customers. We had over 50 exhibitors in Munich, a number that will increase this year. The concept was also transferred to China in 2014 on a smaller scale. Both events proved to be a perfect setup for the industry to present products and services to a large audience.

While the membership traditionally met in Europe for the General Meetings, we took advantage of the request for international expansion and organised the first General Meeting in Houston in October 2013, which had an unexpectedly high number of more than 150 participants. The response was so positive that a follow-up event is scheduled for 17-18 February 2015.

In 2014 the membership met in Frankfurt for the General Meeting. For the first time, we were able to attract highly professional speakers from the chemical industry and specialised consultancies. The conference included a number of very interesting workshops and was definitely a highlight of the year with around 160 people from the industry participating.

Heike Clausen is the Managing Director of VOTG Tanktainer GmbH, based in Hamburg, a wholly-owned subsidiary of the Hamburg wagon hire and rail logistics company, VTG Aktiengesellschaft.

She was elected President of the International Tank Container Organisation (ITCO) at the beginning of 2013 and was recently re-elected President of the organisation until the end of 2016.

ITCO was established in 1998 with the aim of promoting the tank container industry. The organisation is the global representative of the international tank container industry to the public and to governmental bodies. It has around 150 members worldwide.

Our technical team kicked-off the release of the "Global Tank Container Fleet Survey" in 2013. Although we are aware that the data compilation is not yet complete, the database is improving with every year's update. We are now working on the third Fleet Survey, which is due to be released in May 2015.

We have not only worked on promoting the tank container as an asset but have also started to change perspectives from a pure 'hardware' approach towards some softer assets. In the first survey on Corporate Responsibility (CR), issued in June 2014, we illustrated that the tank container industry has already taken important steps to comply with the requirements from customers. We will build on these CR achievements.

LM: As President of ITCO, what is your overall vision for the organisation?

HC: The President is only one member of the board. Therefore, it's not my vision for ITCO but very much a joint one. We have recently started the discussion about a review of the mission statement for ITCO, which was developed 14 years ago.

I am sure that ITCO will continue to promote and represent the tank container as the safest, most cost-efficient and flexible means of transport for liquid products. In doing so, we have a strong focus on enhancing technological and business developments for the sake of quality, health, safety, environment and Corporate Responsibility in the tank container industry.

Furthermore, I believe that we must consider addressing the digitalisation of our business to fulfil the increasing information and connectivity needs.

I am confident that we will publish ITCO's new mission statement in May 2015.

LM: One of the tasks of the President is to manage the overall strategy developed by the board of directors of ITCO. What is the strategy for 2015-2016?

HC: It is our agreed objective to further change the still-existing dominant European focus of the organisation to a truly international approach. The upcoming Houston meeting will be the first event on a regional basis and this will be followed by regional meetings in Asia, the Middle East and, possibly, Latin America. Of course, these meetings will always be open to participants from all regions and will be a discussion forum for regional issues affecting the industry.

This setup will also be represented in ITCO's management structure by establishing various work groups and by adding regional representatives to the decision-making committee. These proposals, however, have not yet been finally discussed but I am confident that the membership will honour these ideas.

LM: What challenges do you see for ITCO?

HC: In the past, the membership consisted mainly of the established and well-known players such as manufacturers, leasing companies, service providers and operators. However, the number of players involved in the logistics services associated with tank container transportation has increased. As a result, it has become more difficult to embrace these parties and to create awareness with respect to the safe and efficient handling and operation of liquid transportation.

LM: How will ITCO's information resources be developed in 2015?

HC: We are working to upgrade our webpage and hope that the interactive communication on our LinkedIn platform will further increase. We will also continue to publish our regular newsletters, press releases and, of course, our extensive event programme.
As mentioned before, the update for our annual fleet report is currently being prepared and will be released in May.

LM: What are the membership benefits of ITCO?

HC: Apart from up-to-date information about regulations and standards - and exclusive access to reports and surveys - our meetings and conferences are well-perceived of as a networking platform and members can retrieve enhanced knowledge from the various workgroups, especially the highly-regarded technical workgroup. By representing the industry at various public and governmental bodies, ITCO aims to influence legislation to avoid inappropriate technical restrictions affecting the employment and transportation of tank containers.

LM: Global economic conditions will remain depressed in 2015, what do you believe are the major challenges for the sector?

HC: The unstable political situation in Russia, the comparatively low growth rate in China and the economic uncertainties in the EU don't create an optimistic scenario.

But there are also some upsides such as a growing US economy and the export stimulus that a weak Euro creates for Europe.

The challenges for the tank container industry are, to a certain extent, 'home-made'.

The steep rise in transportation volumes in 2010 came as a surprise after the financial crisis of 2009 and triggered the perception that such growth rates would be sustainable. The low purchase prices for containers, abundant availability of 'cheap money' and absence of alternative interesting investment opportunities attracted investors. This enabled tank container industry players to expand their capacities and led to huge growth expectations for the global trades.

Volumes, however, did not grow as expected. This caused over-capacity, leading to a deterioration in transport prices – a situation which is similar to the experience of the shipping line industry.

In addition to declining transport prices, the global imbalance of trade flows, the rapidly-changing supply and demand patterns and increasing restrictions (such as pre-product selection) create challenges with regards to reliable and resilient transportation concepts.

LM: Where do you see the pockets of opportunity for the tank container sector?

HC: Large volumes of chemicals are still transported in drums or intermediate bulk containers. With the increasing awareness for sustainable logistics, I expect a shift from such packaging modes to tank containers.

LM: How is ITCO promoting the benefits of tank containers in the BRIC countries - Brazil, Russia, India and China?

HC: We have numerous members from these countries and in particular from China, where we

Source: VOTG

organise the ITCO Village during the Shanghai Transport Logistic exhibition and take an active part in various conferences.

An increasing number of members have joined ITCO from India and Russia although Brazil is still under-represented. We want to open the doors by organising an ITCO presence in Sao Paulo during the Intermodal show in April 2016

LM: What trends do you see among tank container operators and leasing companies?

HC: From my point of view, there is no single trend but a variety of approaches; internationally-acting operators and leasing companies are obviously focusing on capacity expansion. Gaining size, along with the standardisation of equipment and processes, is seen as means to adjust to the comparatively low income.

Recently established collaboration arrangements may be a promising way to optimise capacity utilisation and avoid empty repo legs, although it is probably too soon to describe this approach as a trend. Such concepts are based on the neutrality of a 4PL service provider, which connects and leverages the strengths of a number of transportation companies. The aim is to create a so-called 'win-win' situation for customers as well as logistics companies.

LM: The tank container leasing sector has consolidated lately. Do you see this as a sign of industry weakness or strength?

HC: Looking at the shares of the largest leasing companies, the recent acquisition does not appear to drastically change the landscape. I wouldn't regard this as either a strength or a weakness of the industry.

LM: Many major tank container customers are chemical companies, which have clear statements and action plans associated with their commitment to Corporate Social Responsibility. To what extent is the tank container industry responding to these obligations?

HC: ITCO started a survey in 2013 asking members about their level of compliance with Corporate Social Responsibility. The outcome was very positive. We found that the majority of the responding companies are committed to their social responsibility.

It is therefore no surprise that we were able to motivate senior managers and employees from all sectors to participate in a work group dedicated to further enhancing the awareness for these requirements in the whole industry.

LM: The 'Together for Sustainability' (TfS) initiative was founded by six multinational chemical companies in 2011, all of which are major tank containers users. Its aim is to implement a global audit programme to assess and improve sustainability practices in the chemical industry's supply chain. Is ITCO, or its members, contributing to the initiative?

HC: ITCO has monitored this initiative since it was communicated to the wider public in 2013. The objective of TfS was well understood, but it was clear that the majority of the requirements were already covered within the scope of the SQAS and Responsible Care programmes. By adding the missing elements to the SQAS questionnaire, a mutual recognition was achieved thanks to the efforts taken by CEFIC.

LM: How is VOTG's joint-venture in China – Cosco VOTG Tanktainer – developing?

HC: It has developed very well and meets all my expectations. Apart from the typical import and export activities, our colleagues are successfully taking part in the development and use of existing intermodal structures for domestic supply chains.

This strategy reflects our corporate ambition to reduce carbon dioxide emissions by using rail, barge or short sea transport concepts instead of trucks.

Tank Container Magazine's review of the year 2014

Editor Leslie McCune reflects on a year of growth, consolidation and intensified competition in the tank container sector

There was much for the tank container industry to be satisfied with in 2014. Yes, growth could have been better, margins could have been stronger and competition could have been less intense.

But there was particularly strong growth in certain regions of the world and for certain types of tank containers, the margins for many established tank container operators and lessors were acceptable enough to justify re-investment in assets and no one tank container operator or tank container leasing company offered all the solutions for every customer.

Most importantly, the tank container industry's safety record remained excellent compared with its own historically high standards and those of the competing modes of moving liquid hazardous and non-hazardous liquids, foodstuffs and gases. The most directly competing modes against tank containers were drums, IBCs, flexitanks, road silo or barrel tankers and chemical parcel tankers.

At the macro level, demand growth for tank containers is driven by gross domestic product (GDP) and the substitution activity between tank containers and other small lot size alternatives, principally drums and chemical parcel tankers (the competitive tension between tank containers and product tankers, with their small number of higher-cube coated tanks, is very weak).

Global GDP growth in 2014 was 3.3%, unchanged from 2013. However, GDP growth is forecast to strengthen to 3.5% in 2015 and 3.7% in 2016. The recent collapse in the price of oil is expected to add a full 1% to global growth rates.

Looking beyond the headline growth, the increase in GDP in advanced economies is forecast to be only 2.4% in 2015 and 2016. These regions are where the necessary infrastructure for tank containers is most well-established and where the use of tank containers is most widespread.

GDP growth in the so-called 'emerging markets and developing economies' is forecast to be 4.3% in 2015 and 4.7% in 2016. These regions represent the growth opportunities for tank containers, driven by market demand and the build-out of the infrastructure for intermodal activity.

As a rule-of-thumb, tank container demand increases by a multiple of 1.5 times the rate of GDP growth. The underlying market demand, therefore, looks supportive.

In the meantime, the relative immaturity of the supply chain in the emerging markets and developing economies generates attractive incremental revenues from the increased dependency on tank containers for storage and from the demurrage created by congested ports and protracted clearance processes. Lower chemical production rates tend to lengthen the time customers retain tank containers, leading to further demurrage revenue benefits for operators.

Unique benefits

The more specific and unique benefits of tank containers continue to appeal – their multimodal characteristics mean they can be easily transported by road, ships and rail; their safety credentials for carrying hazardous products are strong; they offer compelling economics, based on shorter just-in-time, door-to-door transit times (resulting in lower supply chain inventory and reduced working capital intensity); tank containers offer greater efficiency, with two-thirds more cargo than the 72-80 drums stowed in 20' General Purpose (GP) dry van box containers; safety and guaranteed product integrity are key features, especially for hazardous products; supply chains are given greater flexibility; tank containers are re-usable and/or can be recycled.

As an asset class, tank containers offer long-dated, robust cash flow yields with a degree of inflation protection – an ideal profile for institutional investors, pension funds and those looking to securitise the dependable cash flows that are generated by the 5-year leasing periods that are typically associated with leased tank containers.

Other factors make tank container investment attractive - finance is freely available and low-cost, terminal values for stainless steel tank containers are forecast to be strong (based on the fundamentals of the futures market for nickel), 'second-hand' and re-conditioned tank containers values are firm and there is significant over-capacity among manufacturers - many of whom are aggressively looking to build market share.

No surprises, then, that several tank container leasing companies have recently re-financed, bringing the weighted average cost of capital down for some to less than 4%.

Terminal values are driven by the price of the nickel in stainless steel, which is the largest material cost component in stainless steel but which is a commodity with high price volatility. Nickel prices peaked at over $50,000 per tonne in 2007 but collapsed to under $10,000 per tonne by 2010. The current nickel price of $14,400 per tonne can be used to back-calculate the value of any standard tank container.

But tank container manufacturers have adapted - the use of low-nickel stainless steel alloys has increased significantly. The 316L (1.4404) stainless steel used for tank containers typically contains 10.1% nickel - newly developed low-nickel grades have 8.6% or less and have higher molybdenum and chromium content. These tanks offer higher strength and increased corrosion resistance against aggressive products such as acids.

In theory, the use of low-nickel stainless steel should result in lower and more stable prices because the nickel content, with its volatile pricing, is reduced. Current prices for standard T11 tank container are $17,000-$17,500 a tank, although prices will clearly depend on the numbers being purchased and the manufacturer's need to fill the higher capacity that is now available on many production lines, especially in Asia.

The tank container quality from the major manufacturers is said to be consistently and uniformly high. A clear manufacturing trend over recent years has been the much-improved capability of high volume tank container manufacturers - especially in Asia - to deliver tank containers with very customer-specific and technically-demanding features. The stereotype of this being a uniquely European or South African capability has long since been disproved.

Trends

Industry consolidation is another of the trends of 2014. As in many sectors, Chinese companies have been instrumental in restructuring the tank container leasing sector and have taken a major equity position in a major tank container operator.

Bohai Leasing, part of China's HNA Group and a leading China-based public company listed on the Shenzhen stock exchange, owns and manages a number of specialised lending and leasing businesses in the transportation and infrastructure sectors. In December 2011, HNA and Hong Kong-based Bravia Capital acquired Global Sea Containers Ltd, the Bermuda-based holding company of Seaco (formerly GE Seaco) for a reported $1.05 billion. The deal was backed by debt financing from Deutsche Bank and ING. Seaco's lease tank fleet of 15,100 tank containers represented 8.5% of the worldwide leased fleet in 2014.

On 27 January 2015, Seaco announced its acquisition of San Francisco-based Cronos, a rival with a 2014 fleet of 20,100 tank containers (11.4% of the global leased tank container fleet) and $2.5 billion invested in container equipment. Bravia Capital arranged the transaction and the funds were managed by Kelso & Co and

Transportation Capital Group.

A Memorandum of Understanding to acquire 80% of the Cronos was agreed last July and an unnamed minority investor has acquired the remaining 20%.

The acquisition and amalgamation by Bohai of Seaco and Cronos will result in a combined fleet of 3.4 million 'Cost Equivalent Units', making it one of the largest container leasing companies in the world. The combined entity's 20% share of the global tank container leasing fleet will place it in second position, behind Exsif but ahead of Eurotainer.

Trifleet Leasing, in fourth position in tank container terms, remains the world's largest privately-owned and independently-managed global tank leasing company. In 2013, Trifleet Leasing signed an agreement with Bermuda-based Textainer Partners under which Textainer was to invest in new intermodal tank containers to be exclusively managed by Trifleet.

The move of Textainer - with 2.8 million TEU, the world's largest lessor of intermodal containers - into the tank container market indicates the sector's attractiveness and, perhaps, starts a trend. Other GP box containers lessors have entered the tank container segment. TAL International, for instance, re-entered the tank leasing market in 2007, having sold its original tank container division to Exsif in 2000.

The entry of incumbents in one container segment into another has been a feature of the overall container market before - GP box container companies, for example, previously entered the refrigerated container segment, albeit with mixed success.

For both lessors and operators, the use of tank containers for storage remains strong and demurrage revenues add a useful fillip to turnovers. Movements based on pier-to-pier commercial

terms, which offer the lowest margin opportunity for operators, appear to be a reasonably stable customer preference while there is anecdotal evidence that the number of door-to-door movements is increasing. For operators, these are more desirable because they offer higher margins.

Success factors

The critical success factors for the global market leaders include having the right density of tank containers in their network; the business intelligence systems and customer mix to minimise repo costs and maximise tank utilisation; and the right market knowledge to develop the business. Operating profits of 13% were achieved in 2014.

Those focused on regional markets, and especially those dependent on the very weak polymer producers in Europe, were far more exposed.

Regional demand varied – the US was strong, driven by the needs for fracking chemicals of the 55 wells-a-day that were drilled in the US in 2014. 2 million wells have been fracked in North America so far. The numbers of tank containers used was reported in a previous issue of *Tank Container Magazine*.

European demand remained weak but with useful growth in eastern Europe.

Middle East demand for tank containers was strong with one new petrochemical project requiring 80,000 container movements a year, according to the quarterly Middle East Tank Container Market Review.

Asia demand was also strong with intra-Asian movements being particularly robust.

The International Tank Container Organisation (ITCO) continued its excellent work as the industry's representative body on safety, regulatory, technical and corporate responsibility issues (see this issue's feature article). ITCO's fleet survey defined the global tank container fleet as 394,000 units with 2014 new builds accounting for 12% of the global fleet.

Many tank container operators and leasing companies have been taking advantage of current market conditions to increase their fleets.

An ancient Arabian proverb says: 'Three things can never come back: a word, once spoken; a past, once lived; an opportunity, once neglected'. The tank container industry is rich with opportunities - its winners will be those that see and seize the opportunities; its losers, those that are neglectful.

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Nine months to make a wish list come true

When Crane Composites introduced its new tank cladding line three years ago, it knew the composite product would take time to catch on, writes Dan McCue

But the company also knew that history was on its side.

"As with any other product on the market, people get used to their choices and fall back on time-worn options, even after something better comes along," said Rodolfo Martinez, vice president of international sales for the Channahon, Illinois-based firm.

The key was to spread the gospel of fibreglass-composite materials to an industry traditionally reliant on aluminium tanks. But then, encouraging customers to think differently has always been one of Crane's core objectives.

Founded as Kemlite in 1954, Crane Composites is a subsidiary of Crane Co, an American industrial products company that has prospered in niche markets for 160 years. That approach - finding materials-based opportunities that others had overlooked - has served the company well.

In a resolution drafted on July 4, 1855, RT Crane vowed "to conduct his business in the strictest honesty and fairness; to avoid all deception and trickery; to deal fairly with both customers and competitors; to be liberal and just towards employees; and to put his whole mind upon the business".

"We win when our customers grow and are successful. You don't get to remain, let alone thrive, in business if you don't treat your customers well and your products don't perform," Martinez said.

Kemlite became Crane Composites in 2006. During its first five decades, its reputation in logistics was based primarily on the fibreglass-reinforced plastic (FRP) composite panels and linings it crafted and continues to sell to the trucking and shipborne container industry.

Its products, like ArmorTuf®, a high-impact resistant composite panel, gained a foothold in the supply chain community due to their high strength-to-weight characteristics and resistance to damage and staining.

It followed those successes by developing a line of FRP panels for refrigerated seagoing containers. To date, Martinez said, there are over 8,000 of these composite-lined containers plying the world's shipping lanes.

But the vice president of international sales, who joined the company in 2013, said it was a clamour in the tank container industry itself that pushed Crane Composites toward its latest innovation.

"A key element of our Crane Business System is voice of the customer. As a result, we're always talking to our customers, looking for new applications and new markets, and it was during one of these conversations - several years ago - that one of our customers in Asia said they had a problem we might be able to address," Martinez said.

Rodolfo Martinez, vice president of international sales

Put simply, the tank container sector was heating up in Asia, and the rise of activity was accompanied by the firm's tanks getting damaged more often and costs, both in downtime and repairs, were rising steeply.

"They asked us, do you have something better, or could you develop something better?" Martinez said.

The first conversation was followed by others, and soon Crane Composites' engineers were talking to several of the company's clients in the sector, collecting very specific suggestions on what they needed.

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The result of all that input was Crane Composite's newest FRP cladding product, AXSG, which can best be visualised as a cover jacket for insulated tank containers. Made from a specially formulated polyester resin, the cladding has all the strength benefits associated with its ArmorTuf® line, and its gel-coat surface makes it both scratch and corrosion-resistant.

"It took us about nine months to develop our improved tank-cladding product, and then we put it through a series of technical and performance tests," Martinez said.

"Even with that, and even in light of the fact it was developed with significant customer input, it was initially met with a level of scepticism.

"As I said earlier, people have a natural inclination to say, 'This is new. I want to stick with what I know.' But when you're in business as long as we've been, you expect that and respond," he continued. "In our case, that meant putting it out there on a trial basis, and sure enough, people liked it."

Among the first companies to embrace Crane Composite's new cladding were Hoyer, in Germany; CIMC in China; and South Africa's Welfit Oddy.

Word in the field, Martinez said, is that the new, engineered-composite cladding is far outperforming all other claddings in the market today, not only reducing downtime - and those associated costs - but also because AXSG is lighter than other materials currently in use, helping to make the operations more fuel efficient.

"And that's very important in a day when everyone is consciously trying to take costs out of their operations while reducing the fuel emissions they produce," he said.

Martinez said that from a conceptual manufacturing perspective, there's not much difference between the container and tank cladding side of Crane Composite's business.

"The one big difference is that, on the tank cladding side of the business, we pay a lot more attention to UV protection," he said. "These tanks, after all, are exposed to a lot of sunlight so we want to make sure our formulation provides a level of protection that prevents tank discolouration over time."

"It's a cliché on a certain level, but it really is true that every customer is different and what they want out of your product is unique. For some customers, reducing fuel consumption is extremely important; for others, the big thing is durability," he said.

"That's why we offer the cladding in two different thicknesses - thinner for those whose priority is fuel efficiency; thicker for those who need a tough, durable cladding."

""We also acknowledge that our customers are trying to find ways to differentiate themselves in the market, either through a brand name or through a specific colour of cladding," he continued.

Martinez said Crane Composites expects the tank container market, both food and non-food, to grow by 3%-5% a year for the foreseeable future.

"Whether you're talking about transporting wine, juice, milk, water or oil, we see consistent growth in all of our customers transportation networks," he said.

With the strong response of international carriers, Crane Composites is increasingly turning its attention to the domestic US market.

"They are starting to give us a try," Martinez said. "And that's all we ask ... that they give us a try and experience the benefits of the new product. If they do, we fully expect to be the supplier of their choice.

"When it comes to our tank cladding product, 2013 was a year of gaining acceptance, 2014 was marked by us gaining new customers while also gathering repeat orders, and we are very optimistic that this trend will continue in 2015 and beyond as we bring innovations that help our customers be successful."

A polished performance

Dutch tank container cleaning and repair specialist NTC Tankcontainer Services is celebrating its 25th anniversary this year. Katerina Kerr reports

NTC has expanded considerably since Managing Director Eric van Halewijn established the business in 1990. Its tank container cleaning division, NTC Tankcleaning BV, now has one of the largest operations in Europe.

"I started NTC as a company that specialised in the difficult cleaning of latex and resins from tank containers. At that time, we didn't have the option of chemical solutions as we do now so all cleaning was done manually by polishing the tanks," recalls Halewijn.

The company was located in Pernis and also offered mobile cleaning services for its customers in Antwerp and Hamburg. It was only later that it began offering repairs and testing of tank containers.

As the quantity of tank containers in operation continues to increase Halewijn believes that most of NTC's growth will come from the operators. "We are focusing on bigger volumes and fast turnaround times in order to become the preferred cleaning and repair depot for them.

"We are also looking to combine our services with transport in the future. The key words for us are efficiency and cost reductions, which keeps you creative."

The company is strategically-located in the middle of the chemical cluster in the port of Rotterdam, enabling it to tap into the large flow of tank containers that transit the port heading to and from the hinterland.

The Botlek site has capacity for 2,500 tank containers and the maximum technical capacity of its cleaning station is 250 cleanings a day. However, Halewijn notes that in order to keep operations running smoothly and quickly, the company aims to complete a daily maximum of 200.

The NTC group now has 250,000sq metres of land in the port and with its Moerdijk depot, NTC now employs 65 people.

When making a decision to open the Botlek facility, Halewijn placed considerable emphasis on the need for versatility.

"We knew that it could only be successful if the depot was combined with a cleaning station, as most of the cleaning facilities in the area are owned by the larger transport companies," states Halewijn.

"It was a logical step to build our own cleaning station, which enabled us to provide a full package of services as an independent service provider."

NTC Tankcleaning's facility in Botlek provides 14 cleaning positions, expandable to 16 if necessary. By separating supervised and unsupervised cleaning, NTC guarantees good turnaround times.

NTC's Botlek operation has an inventory of hi-tech equipment and services for specialised cleanings."As both continuity and quality are crucial to a cleaning company, the use of best-in-class equipment is essential," says Michael Bosch, director of cleaning for NTC Tankcleaning BV.

Tank containers can contain a diverse range of products, from foodstuffs to corrosive chemicals and lubricants. The responsibility lies with the tank container cleaning facility to ensure the interior and exterior surfaces are properly cleaned and sterilised in order to prevent any cross-contamination between products.

The speed at which a tank container is cleaned is also an essential factor in a successful cleaning facility. Downtime for operators must be minimised whilst quality of the clean maximised.

Because of this need, NTC has taken care to ensure all of its equipment is of the highest quality and standard. High-pressure

pumps increase the rinse water pressure for cleaning container surfaces to a level of 2,900 psi towards water-propelled and heavy-duty motor driven spindles.

Low-pressure pumps inject the specified detergent(s) required for cleaning the product into the rinse water, which is then disposed of using NTC's own on-site purification system.

"The condition of the potable water used for cleaning containers receives the utmost care and is controlled by filters supplied by Lubron," says Bosch.

Heat exchangers increase the rinse water temperature to 95°C (203°F).

"Volatile, toxic and obnoxious vapours released by cleaning are vented via a closed circuit towards an air purification unit, which lowers the pollution grade close to zero," explains Bosch.

The facility also boasts reefer and glycol departments that are STEK-approved and the dedicated Food Bay is attracting more reefer units that need to be maintained.

Due to the vast range of products ISO tank containers can hold, cleaning methods vary considerably.

Bosch explains: "Products differ in the way they respond to water, many are soluble, some remain inert while others reacts vigorously with highly dangerous and hazardous vapours.

"Products may require hot water or steam but others may react with hot water. Instead, these may have to be cleaned by using cold water.

"Products may be toxic, flammable and/or corrosive. The majority of products demand the application of a specific cleaning detergent [caustic, acid, degreaser, hydrogen-peroxide].

In order to achieve a "kosher clean", the container must be put through a further process with the use of strong caustic detergent followed by steaming of the

The speed at which a tank container is cleaned is also an essential factor

internal area for 30 minutes. The European Cleaning Document (ECD) will note the EFTCO code: P26 Kosher Procedure.

The speed of a tank container cleaning procedure depends on whether it is an accompanied or unaccompanied cleaning. The former is driver-accompanied and is often scheduled for direct departure. The cleaning is therefore performed immediately. The latter concerns containers taken into the storage depot where lead-time may be less than an hour to several days, depending on the agreements with the customer.

"The next decisive time parameter are the characteristics of the product; is it an easy to process product – eg, a highly water-soluble liquid or a water-insoluble viscous product, dangerous with a strong odour, etc." explains Bosch.

There are a number of challenges still facing the cleaning industry, including maintaining low costs whilst completing cleans correctly on the first attempt.

"We try to operate in a lean manner," says Bosch. He notes that a constant focus on health and safety of people, and the minimisation of negative environmental impacts, is at the forefront of the business. The facility undergoes monthly safety checks from an external safety advisor.

Most of NTC's customers are from Germany, the UK and France, but it is seeing more Asian and Russian operators entering the market

Despite a growing geographical market, challenges are also evident on a macroeconomic scale. Halewijn explains that, at this moment, it is difficult to forecast future growth due to economic and political circumstances in Europe.

"The impact of US shale gas and the developments in the Middle East – where huge investments have, and will be, made in petrochemicals – has impacted the transportation of products through Europe.

"At the same time, Europe has seen a significant number of petrochemical plants close, and more will soon close.

"However, with 741 million people in Europe, there are still many opportunities in the future"

Innovation and flexibility the focus for Van Hool

Europe's tank container industry may have lost out to volume producers in China, South Africa and elsewhere, but it remains an important and active manufacturing region

The initial design and construction of intermodal tank equipment was developed and expanded in Europe during the 1970s and the region is, even today, still at the forefront of some significant product research and development.

Heading the small band of European companies that are still serving the mainstream market is Belgium-based Van Hool, which has been producing intermodal tank containers for over 40 years.

It originally started operations in 1974 and, although the company's main business has always centred on the construction of municipal and commercial vehicles and trailer bodies, it has a sizeable production facility dedicated to intermodal tank and dry bulk/silo containers.

Van Hool's plant at Lier-Koningshooiet, close to Antwerp, remains one of the biggest in Europe with a dedicated annual capacity of over 2,000 tank (or related) units. This makes it one of the largest tank container builders outside China or South Africa.

Van Hool is one of only a few factories anywhere in the world that is able to fabricate both stainless steel tanks (for bulk liquid or gas carriage) and aluminium tanks (for dry bulk powders) in the same workshop. It also manufactures complementary tank chassis equipment.

Up to seven tank (or bulk-silo) containers are built each day, equivalent to over 1,500 units a year. Although many are standard ISO types, a growing share of production is represented by swap tanks or other specials, including the dry bulk range. Specialisation has long been viewed by Van Hool to be the best approach, given the volume manufacturers outside Europe.

Many tank containers are custom-built to precise customer requirements and for the dedicated transport of specific products. Tank container use has grown at the expense of other transportation modes.

Van Hool's large and diverse customer base includes many top European providers of bulk logistics services, including Germany-based Hoyer Group and Netherlands-based Van den Bosch), as well as major tank lease companies. The leading French tank container rental company, Eurotainer, is a recent customer, having taken delivery of a number of 35,000-litre, high-capacity tanks.

Helping Van Hool's competitiveness as a key European tank container manufacturer is its focus on cost efficiency, innovation and production flexibility, plus an increasingly favourable euro/US dollar exchange rate.

In addition to offering IMO 1 tank equipment for chemicals transport, Van Hool also serves the growing bulk foodstuffs market

The use of tank containers to move LNG is a fast-developing market,

with models for a diverse range of products, including chocolate and beer (including Foster's lager).

Other, more specialised, versions can carry bitumen and compressed carbon dioxide. The company's silo containers are designed to be light weight and are adapted to take denser, powdered, or granulated products. They include special pressurised versions of ribbed cylindrical design to provide additional strength.

The intermodal transportation of sensitive – and high-value – dry bulk commodities has grown significantly in recent years, as operators have realised the efficiencies and potential cost savings offered compared with more conventional silo-trucks or smaller unit-loads.

The intermodal transportation of sensitive – and high-value – dry bulk commodities has grown significantly in recent years

Van Hool's range of cryogenic gas tank containers has been expanded over the years, with the company's own design of 20' twin-walled container gaining in popularity.

This model, which is able to carry compressed gases at controlled temperatures down to -200oC, operates in a similar way to a Thermos® flask, in that the vacuum between the inner and outer tank-wall layers creates a very high level of insulation. The double-wall structure can also absorb any expansion or shrinkage in the steel body.

The tank is made from stainless steel, which requires an extremely stringent degree of finish and has to undergo strict testing.

The company has more recently patented a higher-capacity 20' gas tank design, offering one of the largest volumes available on the market, and a new style of tank-frame suspension for its swap tank range. The latter has also resulted in a lower tare weight and improved insulating performance.

Work is also continuing on the development of 'over-size' cryogenic tank containers (UN T75), of 40' and 45' length. One 40' model has gone recently to Hoyer.

Another has been customised for LNG (Liquefied Natural Gas) transport and has been supplied to Nijman Zeetank in the Netherlands, who specialise is the international transport of petrochemicals, fuels and other gases. The unit has a capacity of 57,500 litres of LNG at a maximum 7.0-bar rating.

The use of tank containers to move LNG is a fast-developing market, with natural gas production in many parts of the world out-stripping the available pipeline infrastructure.

This often leaves producers with few alternatives, other than to liquefy the gas at the point of production.

Strengthening the supply chain backbone

With the GCC infrastructure in constant evolution, the supply chain industry is in the process of transformational change.

New ports, terminals, storage facilities, industrial zones, rail networks and intermodal capabilities are forging integrated trade networks within the Arabian Peninsula, thus developing flexible import/export tradelane alternatives with key global markets.

The GPCA estimates that petrochemical producers in the Arabian Gulf will increase their capacity by 45% over the next four years, reaching 200 million tons by 2018. In 2020, the GCC is projected to be a US$2trn economy, providing nearly one-quarter of the world's oil supplies as well as increasing quantities of petrochemicals, metals, fertilisers and plastics.

The GCC's geographical location, and its cultivation of diplomatic and trade links with key Asian and African states, suggest that it is in a strong position to benefit from expected growth in the developing world. GCC states are already developing their trade and investment in these regions and seeking to build stronger links with key economies

Themed "Strengthening the Supply Chain Backbone – Paving the Way Forward for 2020", the 7th GPCA Supply Chain Conference will offer attendees the opportunity to explore in detail the strategies that the regions governments are implementing and looking to implement in order to improve accessibility to and from the region and

to meet the GCC's economic development goals for 2020.

Supported by leading organisations in the industry and in the region, the 7th GPCA Supply Chain Conference will focus on effective supply chain management strategies that are vital to the petrochemical and chemical companies across the region and provides a platform to facilitate discussion on key industry trends and growth opportunities. The conference will help examine these increasing demands on the supply chain and help determine the direction the industry is heading towards.

The conference will be delivered by renowned industry professionals, with speakers including Mohammad Husain, Chairman GPCA Supply Chain Committee and CEO Equate; Dr. Alaa Nassif, CEO Royal Commission at Yanbu; and Dirk Van Den Bosch, Vice President Trade & Development DP World.

In addition, the 7th GPCA Supply Chain Conference will cover in-depth sessions on regional ports and dry ports backbone; human resources in 2020 – women in the supply chain; the importance of customer intimacy in the future; project updates on the GCC Rail – Gulf SQAS and dangerous goods transportation; and sustainability and green supply chain.

In addition, the conference includes workshops and a visit to DP World.

The conference will be attended by 400+ supply chain and logistic professionals and will provide delegates with knowledge sharing and networking opportunities within the region.

Lessor sector report

The oversupply of leased tank containers is putting leasing rates under pressure. Felicity Landon finds out how some of Europe's major players are responding

Speed of reaction, good technical support, contract flexibility and 'out-of-the-box' thinking: just a short list of what customers are asking for, according to Fred Bras, CEO of Taylor Minster Leasing (TML).

"We help our customers by constantly monitoring the performance of our equipment and TML's technical team has regular meetings with our end users – often on site, to discuss our equipment performance in the logistics chain. Where improvements are required, TML will invest," he says.

TML, set up in 1975, was the subject of a management buyout by Fred Bras and his wife in 2012. Richard Goldstein, a previous shareholder, has a wealth of experience in the industry and is still on the board of directors. He runs the UK facility.

After the MBO, the company's head office was relocated to the Netherlands – significant growth has been happening since then and TML has just moved offices to allow for that expansion.

"In the last two years, the company has grown from four to 12 full-time employees" says Bras. The new office is on the same industrial estate as the old one, in Spijkenisse.

This year TML celebrates its 40th anniversary – Fred Bras says: "We are proud to be one of the remaining independent leasing companies. We pride ourselves in providing strong technical support, speed of reaction, a diverse fleet and in having longstanding relationships with customers worldwide."

The company has a fleet of about 5,000 tank containers covering a wide range of capacities and types, for foodstuffs, general and specialised chemicals and liquefied and cryogenic gases.

In 2013 it made its first investments in 40ft LNG tanks and last year TML entered the small bulk container (SBC) market with the purchase of its first 100 T14 tanks. It is investing in further equipment - including ten CO_2 tanks to be delivered in the third quarter and 30 LIN/LOX/LAR tanks, ordered to maintain TML's strong position in the cryogenic lease market.

"We want to be able to react to just-in-time demands from the industry and have the equipment available for lease, be it long or short-term," says Bras. "Another niche for us was the start of our activity in the SBC market in 2014. A further investment in SBC tanks is budgeted for the third quarter 2015."

He says overcapacity in the production of tank containers for leasing is putting lease rates under pressure for standard equipment.

"The global economic situation, as well as political instability in certain regions, does not help, and we do not see this changing very quickly," he says. "As far as TML is concerned, being a family-owned company, we respond to the changing market by a strategy of diversification – we are doing some R&D on some niche markets but standard tanks will still remain our main source of income."

Fred Bras, CEO of TML

With customers under pressure operationally, environmentally and often financially, TML tries to support them as much as possible, he says.

"As a global leasing company, TML has its own offices in Spijkenisse (Netherlands), Houston (United States), Singapore and the UK and offers service centres through sub-contractors

Overcapacity in the production of tank containers for leasing is putting lease rates under pressure for standard equipment

worldwide. These sub-contractors maintain and repair the tank containers in their geographical region, saving the customer downtime and dead freight."

France's Modalis was created 13 years ago as a specialist for leasing intermodal equipment. Its fleet includes tanks (ISO and swapbodies), although not exclusively – the fleet also includes dry boxes, tautliners, dry bulks and special swapbodies.

"We currently have 300 tank containers – gas and liquid – and most of them have special fittings or linings," says Guillaume Tron-Lozai, the former technical director and current adviser to Modalis.

The company's main activities are renting, consultancy and training for the intermodal market, he says: "Our position in the market is rather atypical, in that our strategy is to provide special equipment to carry special products. Our customers are either industrial or transportation companies."

Modalis, headquartered in Aix en Provence, has worldwide coverage, with customers in Europe, the Middle East and Asia. It has recently strengthened its commercial team in order to develop its presence in the tank container market. Tron-Lozai says the key to Modalis' approach is that 'the commodity is special and requires special equipment'.

"Our customers require technical advice – that's a niche market. What Modalis offers is high-level technical assistance and a closeness that major companies do not offer any more. Our range of tanks is wide – from T14 to T22 and T50 – with various internal linings. The tank container market is more and more a commodity market; our commercial positioning is different and focused on industrial and niche markets."

Another smaller player is the UK-based company GEM Containers, which was started up in 2012 by longstanding associates from the shipping, logistics and financial sectors.

"We set out to create a specialist tank container management company that would be defined by solution-based transactions and recognised for its customised and personal service," says Managing Director Heidi Sommerville.

"Our focus has always been on developing partnerships with our customers over the long term to add value to their business by understanding their requirements and adapting to these as they evolve over time.

"Just as importantly, we have also invested in building the relationships with our suppliers and service partners, to ensure that we can offer quality products and services to our customers."

GEM has a small fleet of 150 tank containers, with orders pending to significantly increase the fleet size.

Sommerville says: "The economic climate and performance commitments to our equipment funders influence our fleet expansion policy. We have been conservative with our growth strategy at what has been a challenging time in the leasing market with overcapacity and reduced rates.

"We have invested in GEM for the long term and our approach is to build responsibly and at a sustainable level. We have worked hard to establish a diverse funding base that will enable us to take advantage of opportunities in a rate-competitive market."

How does GEM set itself apart in such a tough market? Sommerville says it is "all about personality and professionalism".

"We operate in a very competitive environment where it is often difficult to distinguish between product quality and pricing," she says.

"For me, it is all about offering flexible solutions that are designed to meet the specific requirements of our customers. These may be governed by rate, production factors, geographic considerations, technical matters or more complex logistic solutions.

"To understand the specific requirements, it is essential to have good relationships and open dialogue with the technical, operational and commercial divisions of our customers' business."

Certainly the leasing market has changed over the past few years, says Sommerville.

"Transactional lease business is increasingly being replaced with solution-based leasing projects which are required to meet the specific logistics and storage needs of the customer. Equipment specifications have become less generalised, with the ever-increasing refinement of products for carriage and the regulatory developments in respect of health and safety. This requires more technical expertise and support from the lessor, from equipment selection, design and production throughout the ongoing operation in the field. Costs govern the logistics supply chain and our customers expect us to provide transactions which will improve their overall efficiency and add value to their business."

Does size matter? Although it matters more where transactions are volume-based and dictated mostly by rate or immediacy of availability, GEM works to structure transactions to limit these factors, she says.

In the early stages of GEM's business development, its leasing activity focuses more on the European and US-based customers, although those customers' operations are international and GEM's equipment is utilised across the globe. GEM currently has representation in Denmark, India, Saudi Arabia and Brazil – "and we are increasing our global reach with new appointments as demand develops", says Sommerville.

She adds: "GEM is working on a number of exciting opportunities. We are currently developing strategic partnerships with funding providers to increase the fleet and expand our leasing operations.

"We recently appointed a new leasing representative in Brazil and look forward to serving this developing region. Our focus is to grow the fleet and expand our leasing capacity."

Ovinto Sat Monitoring Services brings space technology to the tank container business

Ovinto (founded by Frederick Ronse) is a specialist in telematics with substantial know how in Machine to Machine (M2M) telemetry applications. Ovinto has a long experience in Track & Trace, GSM and GPRS technology, but also with satellite communications such as Globalstar and Iridium.

Based on this experience, Ovinto noticed that no solution on the market until today allowed frequent messaging from all over the globe on a battery lasting for several years.

In response to this need Ovinto decided to develop its own unique technology, 'Ovinto Sat'.

Ovinto Sat provides a unique combination of telemetry and space technologies, resulting in a solution consuming several hundreds of times less energy than traditional tracking or monitoring solutions based on GSM/GRPS technology.

The Ovinto Sat solution was developed entirely in-house and is protected by two international patents (pending).

The advantage of this extremely low power consumption is that all critical parameters such as mileage, temperature, pressure, leakage, shocks, roll-over status etc, can be measured every five minutes and all the gathered data can be transferred every two hours, 24/24, always and from everywhere on the globe.

Even when communicating and transmitting so frequently, a single battery can last for several years, including when operating in very harsh and extreme environmental conditions.

This gives the Ovinto Sat a substantial operational autonomy without the need to recharge or replace the battery at regular intervals.

An additional advantage of this low-power consumption is the fact that the solution is certified up to the highest ATEX (explosion safety) level, allowing it to function in direct contact with the most explosive substances known on Earth, such as hydrogen and acetylene.

The Ovinto Sat uses satellite communication to ensure worldwide coverage. As long

as there is a little bit of sky in view, the Ovinto Sat unit will be able to transfer the data to the Globalstar constellation of Low Earth Orbit Satellites.

In all areas and regions where traditional telecoms coverage is poor or patchy, the Ovinto Sat will be able to implement a reliable data transfer, contrary to GSM/GPRS-based technologies.

Next to being able to communicate from all over the world, the Ovinto Sat technology is also certified for a worldwide implementation, including FCC CE, IC, IECEX, UL, Gozpromnador etc.

Practically, the Ovinto Sat solution can help you in reducing maintenance costs and operational burden. It will also help upselling, help improving your margin and your ROE by sustaining your competitive advantage in the market.

Frequent where-about messages as well as notifications when a tank container left/arrived in a user-defined zone allow for a quicker validation of your planning and facilitate the operational burden of managing a large pool of tank containers.

For maintenance planning and damage allocation, alerts are triggered when accidents occur (roll-over sensor, shock detector) or, for example, when temperature and pressure are out of bounds.

The improved visibility and reliable frequent status updates of your containers' vital parameters reduce the maintenance cost of your tank container fleet and allow a better allocation of damage inflicted on your assets.

Better planning can result in increasing round trips per container per time period, combined with reduced demurrage for your customers.

The increased internal capacity will improve your margin while real-time follow-up, ETA validation and other extra services to your customers open the possibility of upselling.

Reduced costs and the possibility of offering additional services with the potential of generating extra revenue, result in a better ROE, as well as an improved customer services offer.

The use of space technologies to improve safety and also resulting in operational benefits with extra returns has drawn the interest of the European Space Agency (ESA), which assessed and validated the Ovinto Sat technology.

Ovinto and ESA have joined forces to lower the risk, via satellite monitoring, in extremely hazardous transports in unpowered transport assets. The joint project is called SaMoLoSa (Satellite Monitoring for Logistics Safety).

The technology validation by ESA has proved that the solution not only works perfectly, but also that it improves the risk management in hazardous goods transports.

Reference users like Den Hartogh, Evonik, Sabic and Ineos have been involved to enlist all requirements and expectations users might have from this solution.

ITCO Tank Container Village at *transport logistics* keeps on growing

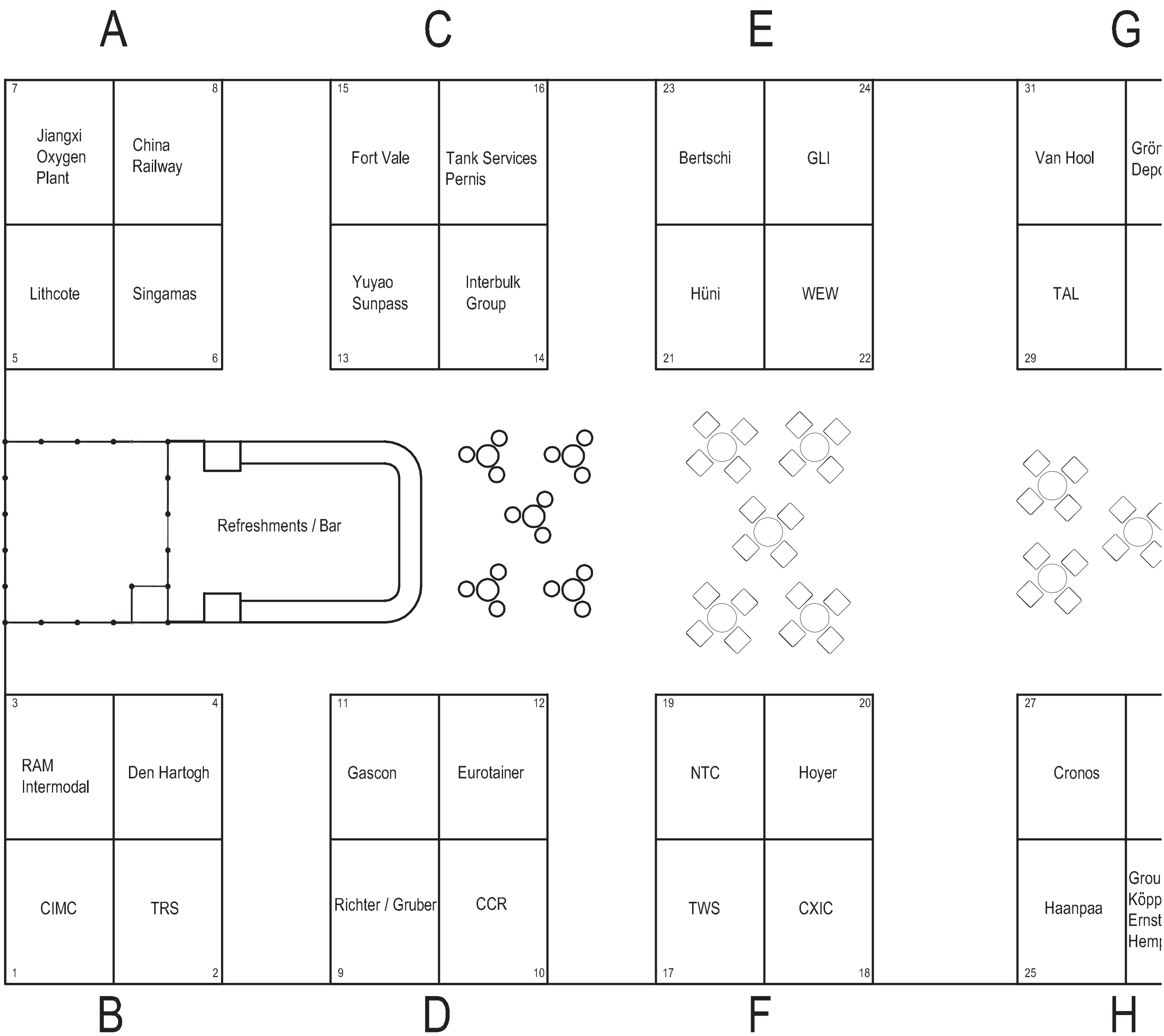
With 60 members exhibiting, this year's ITCO Tank Container Village will be bigger than ever

This year's ITCO Tank Container Village– organised as part of the *transport logistic 2015* exhibition taking place in Munich, Germany, in May – is set to be the biggest one so far arranged by the Association.

Comprising 56 exhibition stands and over 60 ITCO members in total, the 2015 Village represents a 15% increase over 2013, which in turn was 20% larger than in 2011.

Located in Hall B4 of the New Munich Trade Show Centre, the 2015 Tank Container Village will again offer ITCO members, exhibitors and visitors an important opportunity to meet their customers and partners in a dedicated and professional environment.

ITCO members exhibiting in the Village will be displaying a



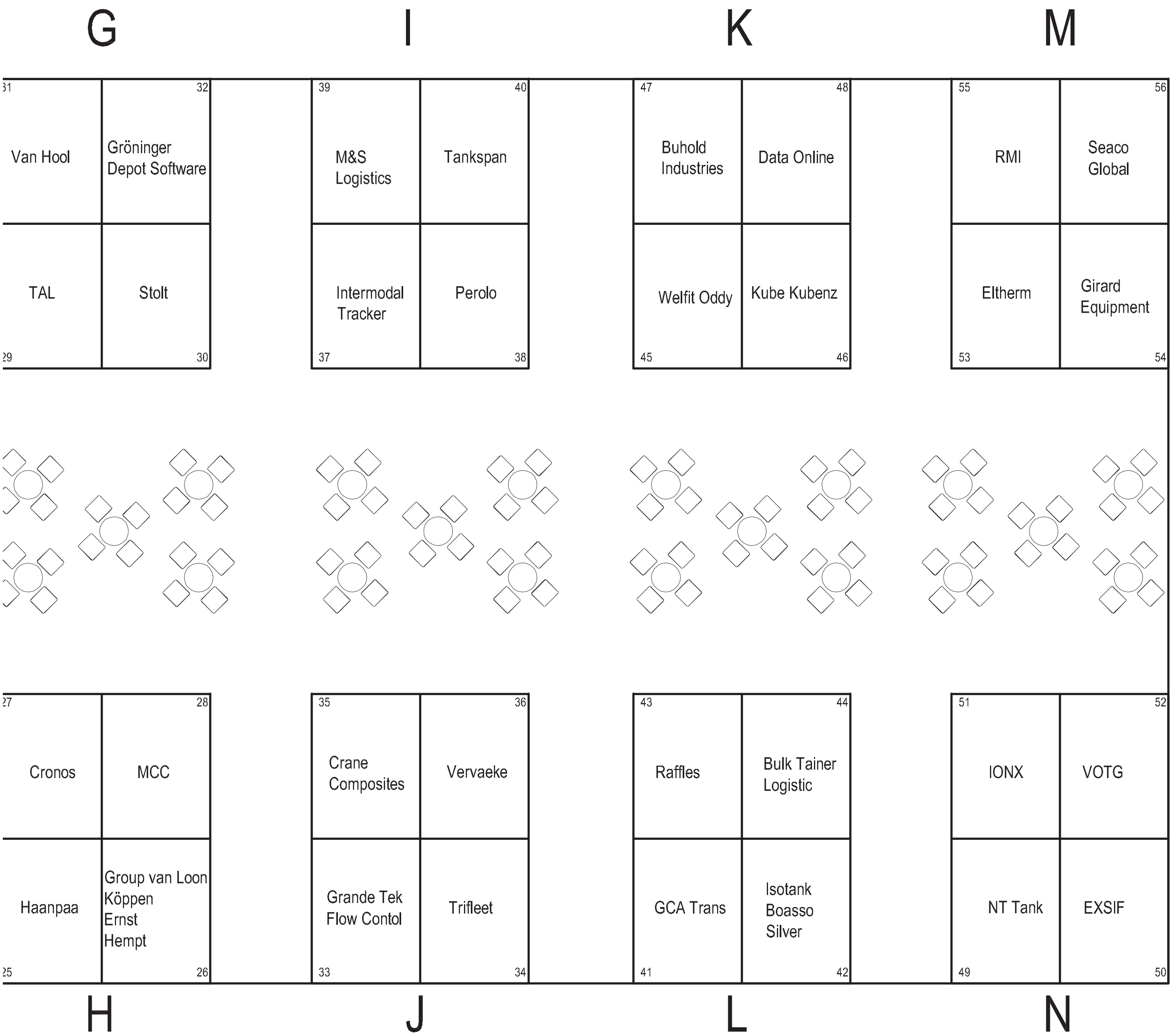
wide range of equipment and services, with the majority of the world's leading tank container operators, leasing companies, manufacturers and component suppliers taking part.

In addition, there will be tank container surveyors and inspection companies, together with a number of leading tank cleaning and repair facilities. Health, safety, quality and environmental concerns are top priorities for ITCO members. Technical innovations and improved operational efficiency support those priorities.

The growth in the size of the exhibition reflects the growing range of products and services that ITCO is offering to its members – and also the increasing membership of the organisation.

ITCO will be showcasing a number of initiatives that it has been developing over the past year. These include the development of an e-learning course to be launched during 2015, the establishment of a Work Group focusing on "Corporate Responsibility in the Tank Container Industry" and the planned publication of "Recommended Guidelines for Tracking Systems on Tank Containers".

In addition, prior to this year's *transport logistic*, ITCO will publish the latest version of its annual "Global Tank Container Fleet Survey", providing an unequalled resource for all



industry stakeholders, giving detailed data about the size, ownership and growth of the world's tank container fleet.

ITCO will also be re-launching its website, in time for the show. This will include a new ITCO mission statement, reflecting the ongoing growth and modernisation of the organisation.

Commenting on the ITCO Tank Container Village, Heike Clausen, President of the International Tank Container Organisation notes: "This year we will be hosting 56 exhibition stands in the ITCO Tank Container Village at transport logistic. From one trade show to the next, ITCO can announce one record year after another.

"I'm sure that this will also result in a record number of visitors from the chemical, food grade, and pharmaceutical industries, as well as representatives from operators, forwarders and logistics companies."

The Tank Container Village at transport logistic offers plenty of opportunities for customers and exhibitors to meet – either at the exhibition stands, or in the central bar and meeting-lounge area.

Two evening receptions are being organised: the traditional ITCO Welcome Reception on Tuesday 5th May at 6pm; and the Wine-Tasting Evening, sponsored by Perolo, which is on Wednesday 6th May. Visitors are warmly invited to both events.

ITCO members exhibiting

Bertschi, www.bertschi.com	Switzerland
Boasso America Corporation www.boassoamerica.com	USA
Buhold Industries www.buholdindustries.com	South Africa
Bulk Tainer Logistics www.bulktainerlogistics.com	UK
CCR www.ccrcontainers.com	France
China Railway Multimode Transportation	China
CIMC ENRIC Holdings www.enricgroup.com	China
Crane Composites www.cranecomposites.com	USA
Cronos Containers www.cronos.com	UK
Curt Richter www.curt-richter.de	Germany
CXIC www.cxic.com	China
DataOnline www.dataonline.com	USA
Den Hartogh Logistics www.denhartogh.com	The Netherlands
Depot Software www.depotsoftware.nl	The Netherlands
Eltherm www.eltherm.com	Germany
Eurotainer www.eurotainer.com	France
EXSIF Worldwide www.exsif.com	USA
Fort Vale Engineering www.fortvale.com	UK
Gascon www.gascon.co.za	South Africa
GCA Trans www.charlesandre.com	France
Girard Equipment www.girardequip.com	USA
GLI International www.gli-gaz.com	France
Grande Tek Flow Control www.tkguard.com	China
Gröninger Cleaning Systems www.groninger.nl	The Netherlands
Group van Loon www.vanloon.be	Belgium
Gruber	Germany
Haanpaa International www.haanpaa.com	Sweden
HOYER www.hoyer-group.com	Germany
Hüni www.hueni.de	Germany
InterbulkGroup www.interbulkgroup.com	UK
IntermodalTracker www.intermodaltracker.eu	The Netherlands
IONX (an Amsted Rail company) www.amstedrail.com/IONX	USA
Isotank Services www.isotankgroup.co.uk	UK
Jiangxi Oxygen Plant www.jopm.cn	China
Köppen www.koeppen-du.de	Germany
Kube&Kubenz Internationale www.kubekubenz.com	Germany
Lithcote Europe www.lithcote.com	Belgium
M&S Logistics www.tankcontaineroperators.com	The Netherlands
MCC Tiangong Equipment www.mcctank.com	China
Nantong Tank Container www.nttank.com	China
NTC Tankcontainer Services www.ntcbv.nl	The Netherlands
Perolo www.perolo.com	France
Peter Hempt www.hempt.de	Germany
Raffles Lease www.raffleslease.com	Singapore
RAM Intermodal Software www.ramintermodal.com	UK
RMI Global Logistics Services www.rmi-global.com	The Netherlands
Seaco Global www.seacoglobal.com	UK
Silver/CIMS LLC Inspection Service www.tankcontainer.com	USA
Singamas www.singamas.com	China
Stolt Tank Containers www.stolt-nielsen.com	The Netherlands
TAL International Container www.talinternational.com	USA
Tank Services Pernis www.tankservices.nl	The Netherlands
Tankspan Leasing www.tankspan.com	UK
Trifleet Leasing www.trifleet.com	The Netherlands
TRS Energy Systems www.trs.eu	The Netherlands
TWS Tankcontainer Leasing www.,tws-gmbh.de	Germany
Van Hool www.vanhool.be	Belgium
Vervaeke www.vervaeke.com	Belgium
VOTG Tanktainer www.votg.de	Germany
Welfit Oddy www.oddy.co.za	South Africa
WEW Westerwälder Eisenwerke www.wew.de	Germany
Wilhelm Ernst www.ernstlogistik.de	Germany
Yuyao Sunpass International www.sealings.cn	China

An inspector calls

Inspection and certification bodies are playing increasingly important roles as the tank container industry continues to grow, writes Ben Thomas

Tank containers are designed, built and maintained to very high standards to withstand the rigours of the physical supply chain.

UN and IMO intermodal portable tanks are required by various laws and codes to obtain type-approval for their design and construction - via competent-authority approval, traditionally a designated body or classification society – to be legally authorised to carry dangerous goods.

For tanks to continue in hazardous materials transport service, they must be inspected every 2.5 years by a competent-authority authorised inspection company.

"Approvals/certifications follow national regulations and are specified in law," said Andreas Hübner of classification society DNV GL. "The work of inspection and certification bodies is divided into different main steps: the design approval, the type approval, the witnessing of series production including individual initial inspection and, for in-service containers, periodic inspections – 2.5 and 5-year surveys."

James Silver, president of Silver/CIMS Inspection Services

Specific requirements in the various design and construction codes must be followed by a certification applicant, depending upon the products the tank is designed to carry. James Silver, president of Silver/CIMS Inspection Services, explained that the design, construction and inspection requirements go far beyond the requirements for standard liquid hazmat tanks and must include x-rays of all vessel welds and the installation of hermetically-sealed safety relief valves.

Conversely, non-hazardous products may not require pressure vessel code design review but if the container is shipping internationally, the framework would require Container Safety Convention (CSC) certification. This includes stacking ratings as well as racking, lifting and stacking tests – to be carried out and witnessed by an inspection company with competent-authority delegation of approval.

Standard portable tanks, for example T11 to T14, for dangerous goods shipping will require CSC provisions, and other demanding stipulations.

"Tank container certification is needed to fulfil legal requirements," said Hübner. "DNV GL executes compulsory period inspections but is not active in segments such as off-hire inspections. As far as we can tell, this applies also to most of the other classification societies."

While the major classification societies play a key role in shipbuilding, offshore oil field construction and other large industries, Silver suggests they typically overlook smaller sectors such as portable tank containers.

But Silver/CIMS has a global inspection agreement with DNV GL, which, according to Silver, has made it the market leader in IT systems development specifically designed to improve the inspection process and industry operational efficiencies.

"We are the only UN/IMO portable tank inspection company using handheld devices in the field for real-time reporting on a global basis," he said. "The handhelds improve report accuracy and eliminate reporting delays allowing tank owners and operators to return the tanks back to service faster, which helps improve tank utilisation rates.

"Any class society inspector can witness a periodic test but, in many cases, you won't see a final report for a week or two so your tank may be sitting on the dock because that 'ship has sailed'."

Rijk Clement, owner and managing director of Tank & Container Survey Europe BV and owner of Tank & Container Survey Europe Pte Ltd in Singapore, says the scope of his companies' services is wider than most because they focus on on/off-hire inspections, act as a classification company representative, and as a representative of a worldwide insurance broker.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"The advantage of representing the insurance broker is that after our inspection, we immediately authorise the repairs to the depot. The administration involved in such claims is reduced to a minimum and the depots do not have to handle the tanks several times before another party eventually authorises the repairs. We also differ from other tank container inspection companies by means of offering full maintenance and repair services."

India-based SeaMarine Surveyors and Assessors offers periodic inspections in India, the UAE and Saudi Arabia, acting on behalf of Silver/CIMS under its agreement with DNV GL.

"Periodic inspection is important, and mandatory as per the ASME standard, to make sure the tank container has maintained its design specification, as well as being leak-proof and capable of withstanding the load test – i.e. 1.5 times the working pressure," said SeaMarine's Sanjeev Bose.

"In addition, this inspection makes sure any damage to the frame, as well as to the barrel and steam tube, are repaired and bought up to design specification. This also ensures that all the fittings, including safety relief valves, are in serviceable condition."

Clement also emphasises the importance of the mandatory periodic inspections. "It is very important that the classification inspection is carried out every 30 months," he said.

"Also the lessors, lessees, operators and insurance companies must be certain that the tank is released and controlled by the third party.

On-hire survey is valuable for all the parties involved, so they have a report with all details mentioned on it, and they also have all the pictures on file that can be used during the off-hire survey."

This point was echoed by Silver. "On-hire and off-hire inspections are useful to both owners and operators of tank containers as the inspection and associated report confirms the tank's fitness for service," he said.

"Additionally, the on-hire report documents the 'as-is' condition at the time of inspection, which is necessary to assess and properly assign the off-hire cost allocations to the appropriate party – normal wear and tear to the lessor and physical damages to the lessee."

Of course, like every growing industry, the certification and inspection of tank containers faces challenges, according to Hübner. "The globalisation of the shipping and container markets requires inspection companies to enlarge their service networks in order to fulfil customer needs worldwide.

"Additionally, we have to be very flexible and adjust our capacities respectively. Therefore, we work with sub-contractors."

He also alluded to the growing challenge of price sensitivity among customers, as well as a lack of well-educated staff. "The tank container industry is a special niche. It doesn't attract a lot of young professionals," he explained. In addition, he said that surveyors have observed the move to thinner shells.

Bose said that inspections for the classification society and the inspection companies are exacting. "Tank containers are

designed to carry different type of hazardous, toxic, corrosive and inflammable cargoes in a corrosive sea atmosphere.

"This means the inspection needs to be carried out minutely to make sure the design parameters are intact and to avoid any untoward incidents during transit with loaded cargo," he explained.

All inspections need to be done on time but in accordance with regulations. According to Clement; "Most of the time, tanks will be repaired at the moment they are needed. To avoid items being missed, depots have an independent inspection company to do the last check before releasing the tank to the customer."

According to Silver, inspection companies are faced with an ever-hanging array of regulations. "Proposed regulatory changes may be helpful to the industry and general population if the new or revised rules improve the safe operation of the equipment. Unfortunately, some regulations are written without a thorough understanding of the benefits or costs involved and may, in fact, impede the proper flow of goods or add an unnecessary cost burden.

Silver believes there is a tendency to overreact to a localised problem and he referred to the failure of a series of road tankers after an alleged oversight by a classification society regarding vessels design pressure.

"The local competent-authority has now implemented additional rules and regulations that affect not only the road tankers, but portable tanks too," he explained.

"There have been no reports of UN portable tanks leaking or failing due to improper design calculations. Tanks have a very high safety record and IMO portable tanks still remain the safest method to transport hazmat shipments in bulk."

Anecdotal evidence suggests some parts of the world are more challenging than others to operate in, either because of burdensome regulation or, occasionally, a lack of regulation or enforcement.

Whilst declining to comment on particular areas, Hübner said: "Generally, we often see a lack of regulation in Asia, whereas Europe is, if anything, over-regulated, which can reduce flexibility."

Clement commented that it was a challenge to expand his European business without diminishing the quality of inspection.

After working for a long time with a subcontractor in Singapore, it impacted client confidence, which led him to establish his own Singapore branch company with qualified inspectors.

Bose acknowledged that Saudi Arabia, the UAE and Asia, where the market is growing tremendously, are highly regulated jurisdictions. "In these areas, our surveyors are specially trained not only for technical inspection but also in the local law of the land," he said.

Silver singled out Brazil as a market with challenging barriers to entry that, he said, will limit the need for international portable tanks due to its domestic regulatory burdens that steer the market toward domestic road tankers.

"Similarly, there are challenging operational burdens in some local ports that incorrectly limit tank stacking to minimal levels – one or two high – even though the units are designed for 9-high stacking," he said.

"The cost burden associated with single stacking is wasteful. These ports would be better off training their lift operators for proper stacking and safe operations, rather than assessing higher costs to the tank operators."

To fight such operational burdens, Silver/CIMS maintains an active role in industry organisation including ITCO, ATCO, TC104 committees, Canadian Standards working groups and Dangerous Goods Advisory meetings.

Container Safety Convention (CSC) certification includes stacking ratings as well as racking, lifting and stacking tests

Putting safety first

The tank container revolutionised the shipping of hazardous chemicals and is the safest way to transport chemical products by sea – but accidents can happen, reports Mike Wackett

The advent of containerisation did much to create greater security for drummed hazardous chemicals in transit but, given the requirement for deck stowage, the level of risk was still not ideal - standard 20′ or 40′ containers could still be lost overboard.

There are numerous casualty reports documenting ships that have given up to the seas containers laden with hazardous chemicals.

Leaking tank containers can lead to widespread disruption and significant additional costs.

The advent of the ISO tank container revolutionised the shipping of hazardous chemicals and is widely acknowledged as the most efficient and safest manner for sea transportation of small lot size chemical products.

There are estimated to be up to 455,000 tank containers in operation globally, with year-on-year growth of 10%.

But the inherent risks of transporting dangerous goods cannot be completely eliminated – among them is the risk associated with the shipment of undisclosed or mis-declared cargo.

'Declared' dangerous goods containers account for approximately 2.5% of all containers on board vessels. This is equivalent to 150 containers on a single 6,000 TEU vessel.

The so-called container ship 'arms race' has seen the size of the largest container ships more than double in a decade.

The largest is 19,200 TEU *MSC Oscar*, which took over from the 19,100 TEU *CSCL Globe* at the beginning of 2015.

There are reports of orders from Asian shipyards of 20,000 TEU ships. The design for a 22,000 TEU container ship is said to waiting for classification approval

The commercial advantage of these behemoths is their greater economies of scale, but the sheer size of these ocean carriers – and value of the cargo onboard - means that the associated risks are increased. One of the new 20,000 TEU vessels could carry 500 'declared' dangerous goods containers.

SOLAS requires that 'the carriage of dangerous goods in packaged form shall be in compliance with the relevant provisions of the IMDG Code'.

The International Maritime Dangerous Goods (IMDG) Code contains detailed technical specifications to enable dangerous goods to be transported safely by sea.

However, the majority of the IMDG Code applies to tasks done ashore by 'cargo interests', not the shippers.

MSC Flaminia caught fire in mid-Atlantic en route to North Europe from the US Gulf after an explosion in its cargo hold

On deck or under deck stowage, ventilation, condensation, heat protection, temperature control, segregation and documentation all have to be considered by the crew.

The catastrophic consequences which can arise were seen in the *MSC Flaminia* disaster.

In July 2012, the 6,750 TEU *MSC Flaminia* caught fire in mid-Atlantic en route to North Europe from the US Gulf after an explosion in its cargo hold.

The burning ship was abandoned by the master and crew. Tragically, the incident cost the lives of three seafarers.

It was feared that the ship would become a total loss but, after several days of fire-fighting, salvage crews were able to extinguish the blaze. Substantial damage had been caused to both cargo and ship.

The badly burnt out and listing vessel was eventually towed to a safe port at Wilhelmshaven in Germany, after being refused entry into several other ports in the Channel and North Sea due to safety concerns.

Extensive specialist salvage work was required to discharge the charred remains of the containers stowed in the mid-ships of the vessel and the water damaged cargo in other holds.

General Average was declared by owners with the salvage bill running into hundreds of millions of dollars.

A painstakingly thorough investigation by the Bundesstelle fur Seeunfalluntersuchung (BSU) - Germany's federal maritime casualty investigation bureau - found that establishing the cause of the incident was difficult due to the destruction of hold number 4 and the number of different dangerous cargoes in the hold.

However, the BSI concluded that three tank containers of divinylbenzene (DVB) were 'more likely than any other substance' to be the cause of the fire.

According to the report, the 80% grade DVB polymerised after the tank containers reached sustained temperatures of considerably more than 30°C, allegedly causing the chemical to 'self-heat'. This led to the emission of flammable vapours, culminating in the explosion.

Safety information in the manufacturer's material safety data sheets (MSDS) for packing, stowage and temperature monitoring was not provided to the vessel. This meant that the container was stowed below deck and, whilst not in direct sunlight, was located near heated fuel tanks and near containers carrying diphenylamine, that give off heat.

The BSU also found the IMDG Code classification of divinylbenzene to be inappropriate.

The MSC Flaminia was around one third of the size of the newest ultra-large containerships being delivered from the shipyards of South Korea and China.

Pound Gates' Rob Thacker

Such was the industry concern about mis-declared, incorrectly packed or leaking box containers compromising the safety of ships and crews that a group of the biggest container carriers combined their resources to launch the Cargo Incident Notification System Network (CINS).

CINS was developed to increase safety in the supply chain, reduce the number of on board cargo incidents and highlight the risks caused by certain cargoes and/or packing failures.

CINS has been a difficult project, given that cargo and commercial information is jealously guarded by the fiercely competitive box-carrying industry. In some trade lanes, of course, discussion between container lines is prohibited by anti-trust legislation.

'But what else needs to be done?', asks Pound Gates, UK-headquartered tank container insurance broker.

Pound Gates is a leader in the field of niche marine insurance and has many years of experience in covering the risk for tank containers. It works closely with the TT Club, an international transport and logistics insurer, and other stakeholder insurers to maintain quality control and seek out recommendations for improvements.

Continuing research needs to be conducted into the safe carriage of dangerous goods, the results of which should be carried through into changes to transportation codes which are then properly enforced.

Better communication is also needed between carriers and 'cargo interests' to ensure compliance with the Codes.

And should harsher fines and penalties be considered to force adherence to the Codes?

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