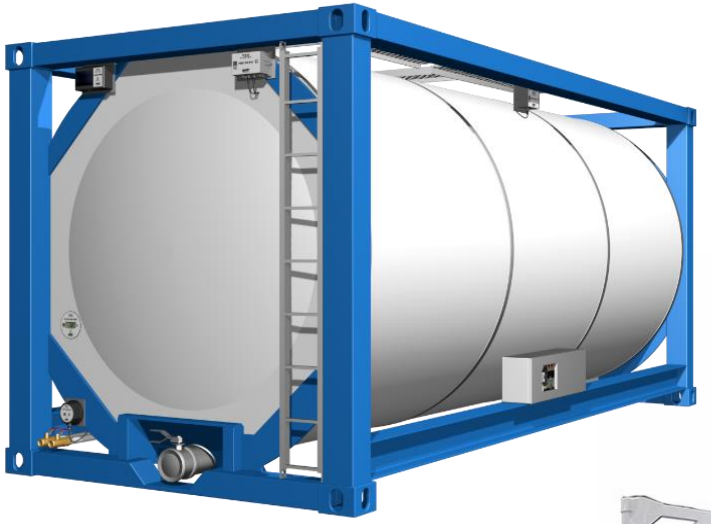


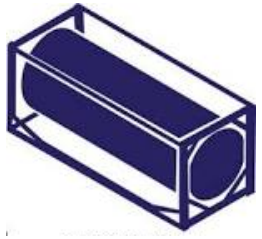
TANK CONTAINER INDUSTRY

Presented by

Harsha De Silva

BSc in Management Sciences

FICS, CMILT, IICL-USA



WHAT IS A TANK CONTAINER?

A tank container is an intermodal container for the transport of liquids, gases and powders as bulk cargo.

It is built to the ISO standards, making it suitable for different modes of transportation; as such, it is also called an ISO tank. Both hazardous and non-hazardous products can be transported in tank containers.

Constructed to an extremely high standard and thoroughly tested under ISO standards by BV and DNV GL

Non-hazardous and Hazardous Liquid
Gases & Powders as Bulk Cargo

HISTORY OF TANK CONTAINERS

In 1966 commercial production of tank containers began and in 1967, the first Tank Container constructed according to ISO Dimensions was developed.

In 1969 the ISO Tank was registered as a name by Andrews of Aintree Ltd, Liverpool. Theirs were the first ISO Container Tanks in the world to get Lloyds Register and the UK DoT Hazardous Goods Department design approvals for International Transport.

In the early 1970's the Tank Container evolved to its current form and the production was well underway.

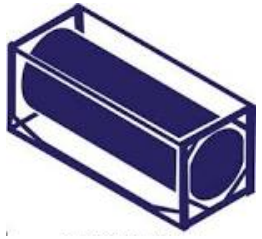
In the early days production took place in Europe.

From 2010 onwards production of ISO Tanks were mainly in China & South Africa.

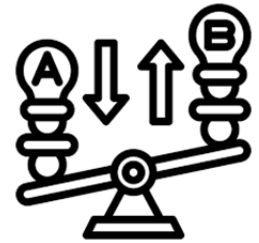
TYPES OF TANKS
FOOD & CHEMICAL GRADE
LIQUID TANK CONTAINERS

TYPES OF TANKS
20FT & 40FT GAS TANKS

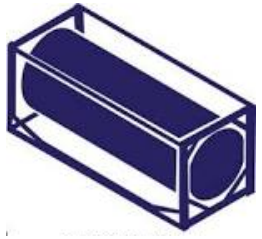
DEDICATED TANK CONTAINERS FOR PRESSURIZED & REFRIGERATED LIQUID GASES & BITUMEN



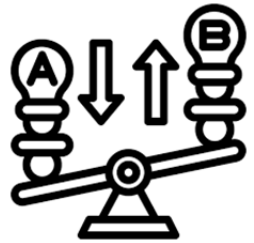
TANK CONTAINER vs. DRY CONTAINER
DIFFERENCE IN INSPECTION, MAINTENANCE & REPAIR



Due to the nature of Tank Container construction, which includes a Corton steel frame, stainless steel shell, insulation, cladding, walkways, valves, man-lids, thermostats and other equipment, the survey, cleaning, maintenance and repair procedures are very different to those of a standard dry container.



TANK CONTAINER vs DRY CONTAINER DIFFERENCE IN VALUE



Tank containers cost significantly more than standard dry containers.

Approximate prices of brand new units -

20’GP : US$2500 – US$2,600

40’HC : US$3800 – US$4,000

20’ ISO Tank (T11) – US$17,000-18,000

20’GAS Tank (T50) – US$25,000 – 30,000

20’Oxygen Tank – US$60,000

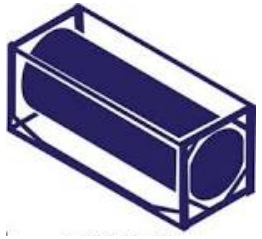
40’GAS Tanks – US$36,000

COMPARING TANK CONTAINERS WITH FLEXI-TANKS, STEEL DRUMS, IBC'S & CYLINDERS

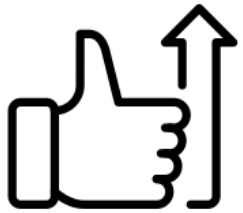
Tank Containers rarely leak.
The risk of spillage upon loading, transportation and discharge is greatly reduced when compared against flexi-tanks, standard drums and IBC's.

Tank Containers' versatility in carrying various cargo reduces the need for empty repositioning of containers and disposal.

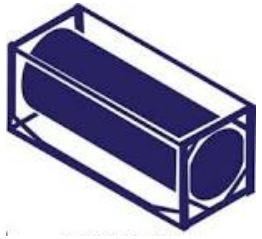
Tank Containers have a far greater life span of 20-25 years than flexi-tanks, drums, and IBC's.



ADVANTAGES OF USING TANK CONTAINERS



- Efficiency: Easy intermodal transfer (road, rail, sea)
- Tank containers can carry more liquid than a 20ft GP container fixed with a flexi-tank, or loaded with steel drums or IBC's.
- Safety: Designed for hazardous and non-hazardous materials. Reduces spillage and contamination risks.
- Tank Containers stainless steel shells with insulated protective layer ensures that the liquid cargo arrives safely and free of contamination at the destination.
- Thanks to features such as rooftop man-holes, bottom vales, steam tubes, and other fittings, tank containers are easy to load and unload with liquid cargo.
- Eco-friendly: Reusable and minimizes single-use packaging. ISO tanks are preferred for their reduced carbon footprint
- Sustainability & Cost-effective: Cost-effectiveness compared to traditional drum and bottle logistics

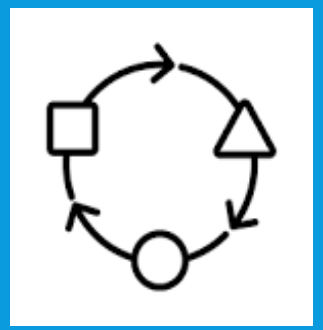


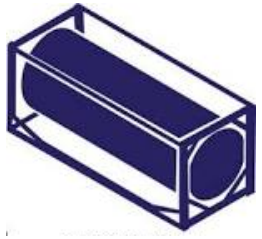
INTERNATIONAL TANK CONTAINER ORGANIZATION (ITCO)

ITCO

Established in 1998, the International Tank Container Organisation represents the international tank container industry to the public and to governmental bodies, with the aim of promoting the industry.

“Tank Containers are a safe, cost-effective, environmentally acceptable and adaptable mode of transport for liquids and gases.”





TANK CONTAINER PRODUCTION AND WORLD FLEET GROWTH (1991-2023)

This year's Survey estimates that, on 1 January 2024, the global tank container fleet stood at 848,400 units, compared to 801,800 tanks on 1 January 2023 – a growth of 5.81%.

The estimated annual tank production in 1991 was 6,500, leading to a peak production of 67,865 tanks in 2022, and 56,000 tanks in 2023.

The ability to increase economic production of new tanks has been a key driver in this industry.

Figure 5: Tank Container Production (1990 to 2023)

Tank production is largely centred in China where there are several manufacturers building tanks for the international and domestic market. Tanks are also manufactured in South Africa and Europe. Tanks manufactured in other parts of the world tend to be for local shippers and the domestic market.

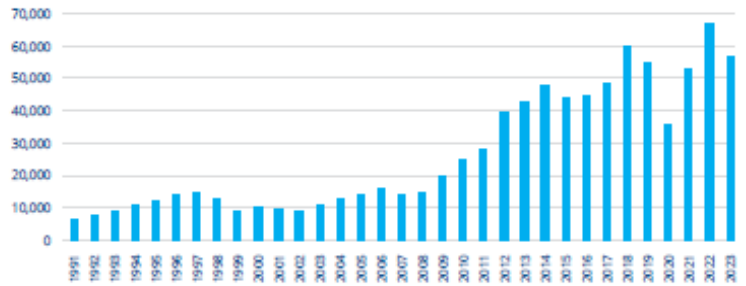


Figure 6: Total Fleet size (at 1st January of each year)

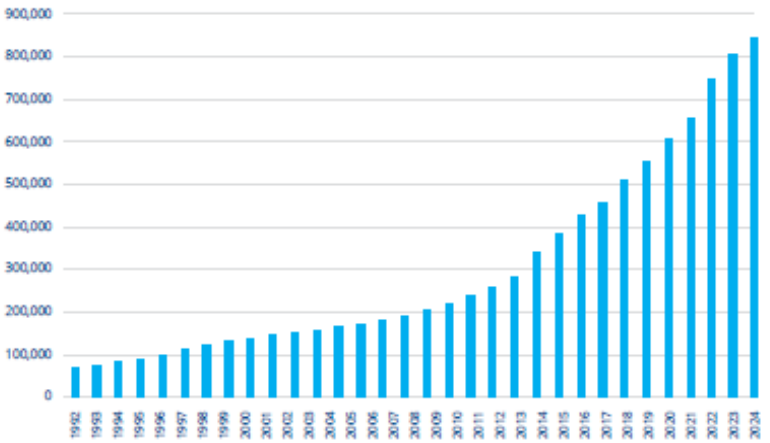
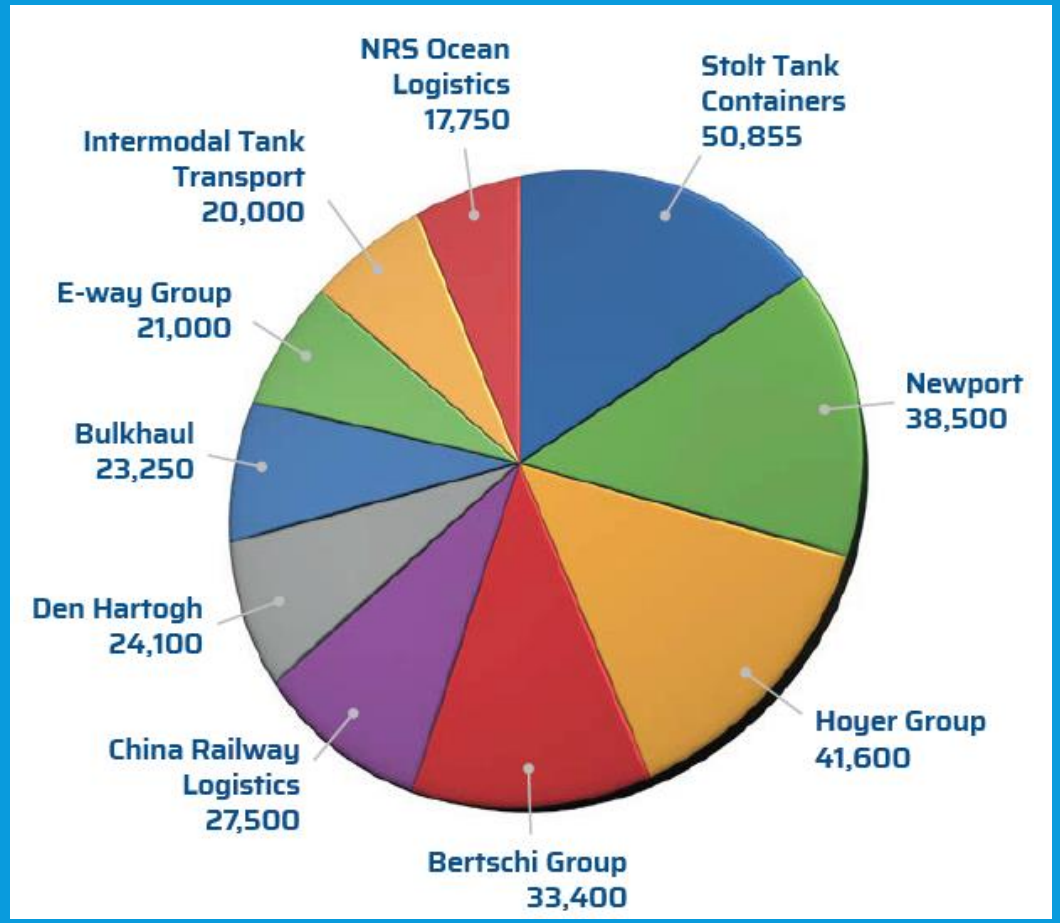


Table 3: Tank Container Production and World Fleet (1991 - 2023)

Year	Production	Fleet at 1 January (of year shown)
1991	6,500	
1992	8,000	67,000
1993	9,000	73,000
1994	11,000	81,000
1995	12,500	88,800
1996	14,000	97,800
1997	15,000	110,650
1998	13,000	121,960
1999	9,500	129,640
2000	10,500	136,440
2001	9,500	144,140
2002	9,000	149,240
2003	11,000	157,400
2004	13,000	164,000
2005	14,500	172,000
2006	16,000	178,400
2007	14,000	190,000
2008	15,000	206,000
2009	20,000	220,000
2010	25,000	236,000
2011	28,000	257,000
2012	39,700	282,000
2013	42,620	338,260
2014	48,200	385,200
2015	43,780	427,500
2016	44,500	458,200
2017	48,500	508,000
2018	59,700	552,500
2019	54,650	604,700
2020	35,800	652,350
2021	53,285	686,650
2022	67,865	737,935
2023	56,600	801,800
2024		848,400

Data Source: tank container manufacturers, operators and leasing companies.

TOP 10 TANK OPERATORS 2023



There are over 240 operators of tank containers known to ITCO, ranging from very large global companies to relatively small niche and regional players.

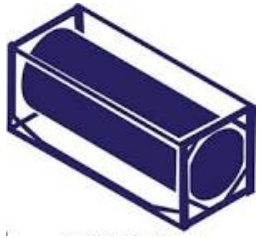
As shown by the chart, as at 1st Jan 2024, the top 10 operators accounted for over 297,955 tanks representing over 50% of the global tank container operators' fleet (587,970 tanks).

1) Stolt Tank Containers – 50,855 Tanks
2) Hoyer – 41,600 Tanks
3) New Port – 38,500 Tanks

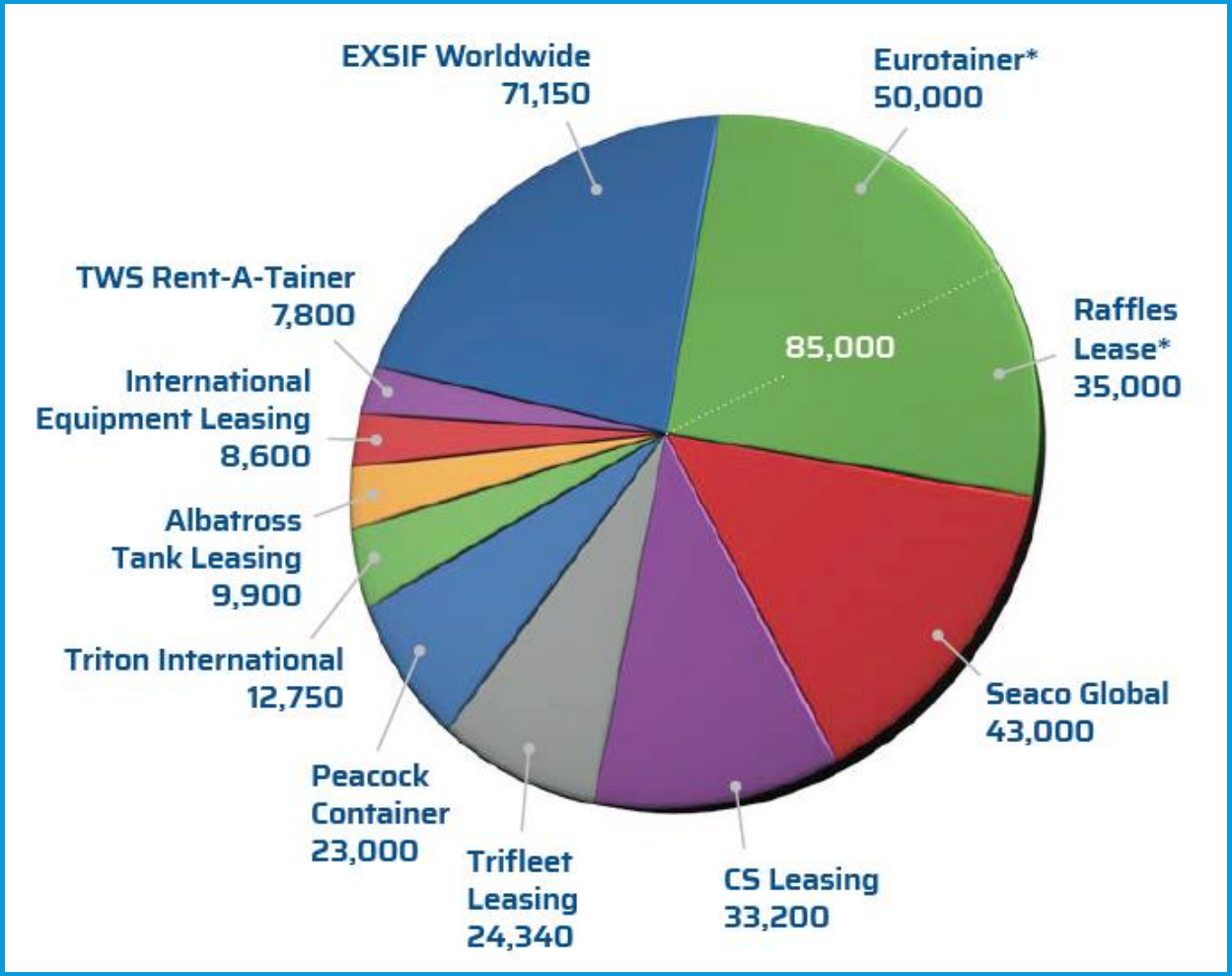
LEADING TANK CONTAINER OPERATORS

TANK OPERATORS FOCUSING ON INDIAN SUBCONTINENT, MIDDLE EAST, & SOUTH EAST ASIA SECTORS

ASIA



TOP 10 TANK CONTAINER LEASING COMPANIES



At least 38 companies worldwide provide tank container leasing services.

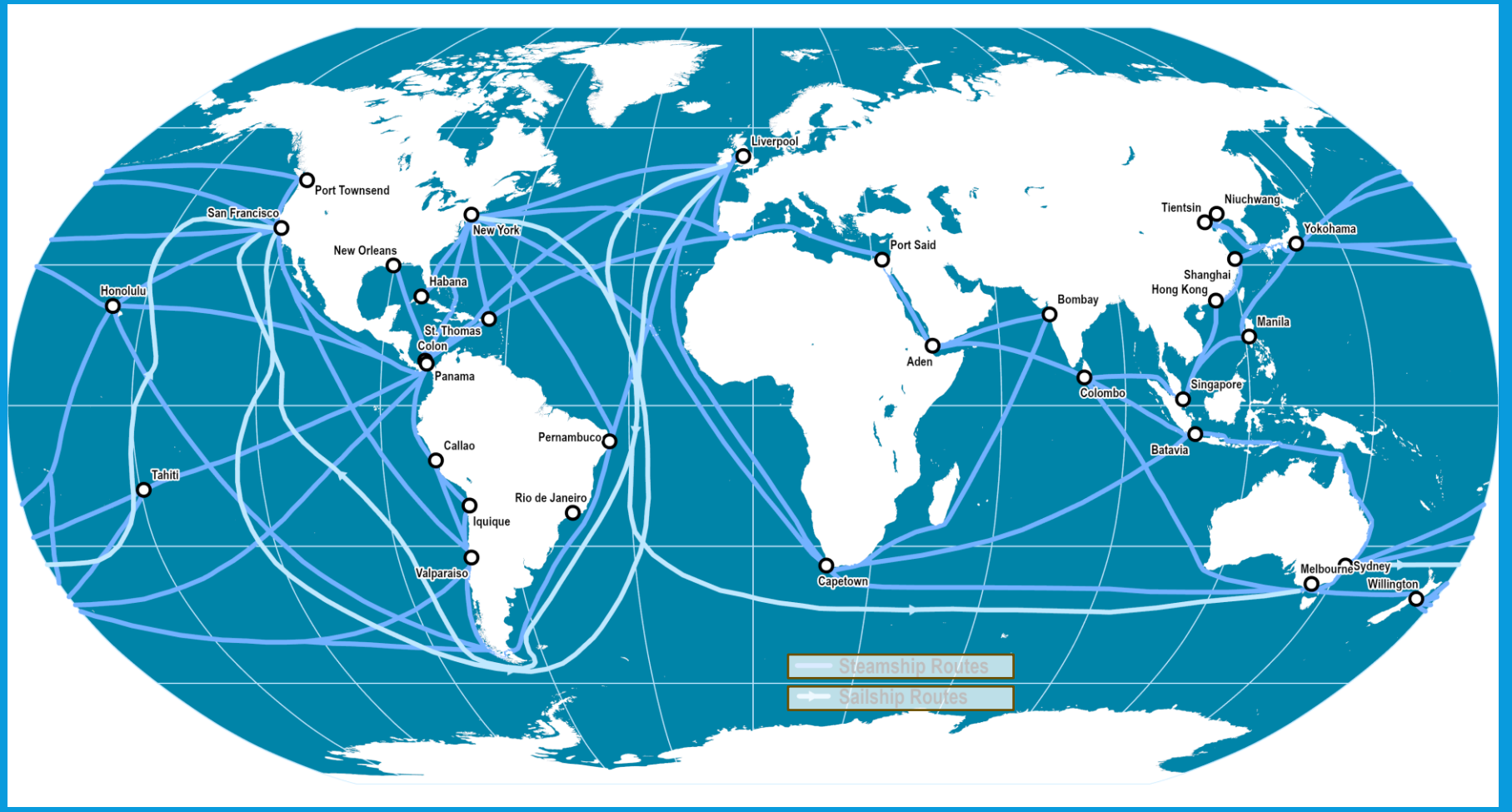
These range from large global lessors to regional and local companies.

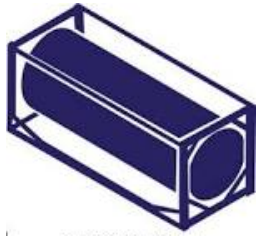
Shown by the chart, as at 1st Jan 2024, the top 10 lessors accounted for 317,740 tanks representing over 85% of the total leasing fleet (376,195 tanks).

1) **Eurotainer – 85,000 Tanks**
2) **EXSIF Worldwide – 71,150 Tanks**
3) **Seaco Global – 43,000 Tanks**

LEADING TANK CONTAINER LEASING COMPANIES

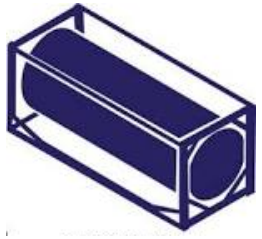
WORLDWIDE COVERAGE
BY TANK CONTAINER OPERATORS





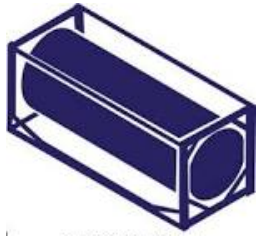
WORLDWIDE COVERAGE BY TANK CONTAINER OPERATORS

- The Tank Container Industry is the only Container Shipping sector which Main Shipping Lines are not involved in.
- Tank Container Operators are specialist companies who have the expertise and knowledge in Liquid, Gas & Powder cargo shipping.
- The liquid Tank Container sector has Chemical Cargo Tanks, and Food Grade Tanks which are dedicated for transporting edible cargo.
- Dry Container operating NVOCC's focus on providing container shipping services in one geographic region, or several regions which are inter-connected.
- Tank Container operators offer worldwide shipping services by working with both Feeder Shipping Lines and Main Line Operators, purchasing SLOTS on their short-sea & deep-sea services.
- GAS Tank operators usually carry dedicated cargo from manufacturers to regular buyers who need smaller parcels of cargo.



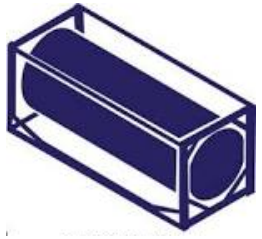
TANK CONTAINER – ROAD TRANSPORT

- Trucks equipped with specialized trailers are used to transport ISO tanks overland.
- Long haul trucking is used in countries like USA, Canada, Europe, Russia, China, and African countries.
- Other countries which have shorter distances between Ports & Industrial Areas, Trading Hubs, use standard Prime-mover & trailer configurations to move laden tanks.
- This method is flexible and can reach inland locations that are not accessible by rail or sea.



TANK CONTAINER– RAIL TRANSPORT

- ISO Tanks can be transported by rail for long distance travel across continents.
- This method is cost effective and environmentally friendly reducing the carbon footprint of the transportation process.
- China to Europe Railways are also used by Tank Container Operators to move Liquid & Gas Cargo overland.

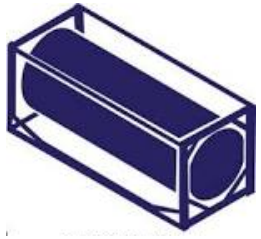


TANK CONTAINER– SHORT SEA TRANSPORT BY BARGE

Tank containers can be transported by barge, for short sea voyages.

Barge transport is a more environmentally friendly option than trucking, especially in large land masses where rivers and canals are efficient transportation routes.

We also see barges being used to move containers, in countries with many island archipelagos such as Philippines, Indonesia and the Maldives etc.



TANK CONTAINER – DEEP SEA TRANSPORT BY CONTAINER SHIPS

- Tank Operators offer services to worldwide destinations.
- Tank Operators ship their tank containers to short haul destinations on feeder vessels.
- Tank Operators ship their tank containers on deep sea routes, by obtaining slots on MLO vessels.
- As MLO’s do not operate their own tank container fleets, they seaport slot arrangements with Tank Operators.
- For special project shipments, where a high volume of tanks are involved, dedicated ships are involved to move the tanks from load port to discharge port.
- Shipping ISO tanks by sea offers many commodities to be moved in medium size bulk parcels to any seaport in the world.

TANK CONTAINERS
INLAND CONTAINER DEPOT FACILITIES

The importance of ISO tank storage – proper storage of ISO tank containers is essential to maintaining their integrity and ensuring the safety of their content. ISO tanks should be stored in secure, well ventilated areas to prevent damage and contamination.

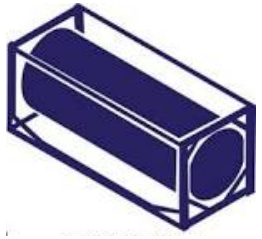
Facilities with protective barriers and temperature control are ideal for storing these containers, especially when dealing with hazardous material

TANK CONTAINER INSPECTION, SURVEY, CLEANING, MAINTENANCE & REPAIR

Routine inspections and maintenance checks are crucial to ensure that ISO tanks remain in optimal condition. This includes checking for signs of wear and tear, corrosion, and ensuring that all safety features are functioning correctly.

TANK CONTAINER LINING FOR TRANSPORTING OF CORROSIVE LIQUIDS

Tank Containers coated with special linings such as polymer, glass & rubber are used to transport corrosive cargo such as Sulphuric Acid.



MULTINATIONAL COMPANIES THAT SHIP THEIR PRODUCTS IN TANK CONTAINERS

Unilever

BASF
The Chemical Company

DUPONT

Johnson & Johnson
FAMILY OF COMPANIES

Nestlé

syngenta

LYB LyondellBasell

MITSUBISHI CHEMICAL GROUP

WANHUA

DOW

Reliance
Industries Limited

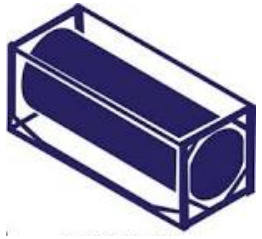
INOAC

سابك
sabic

इंडियनऑयल
IndianOil

Chevron

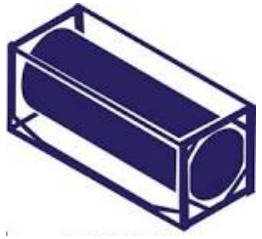
FOOD GRADE CARGO MOVING IN TANK CONTAINERS



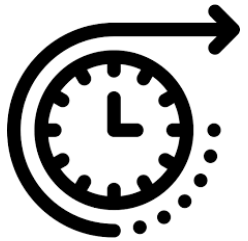
IMPORT CARGO MOVING IN TANK CONTAINERS TO SRI LANKA

CARGO NAME	2024 (JAN TO OCT24) – 10 MONTHS	2023 (JAN TO DEC)
METHANOL	488	534
SULPHONIC ACID	245	294
XYLENE	55	33
LUBRICANT OIL	51	59
STYRENE MONAMER	46	32
POLYURETHENE	43	27
PROPYLENE GLYCOL	38	83
TOLUENE	35	42
BUYTLE ACETATE	30	35
UREA FORMALDEHYDE	29	39
OTHER	248	371
TOTAL	**1308**	**1549**

IMPORT CARGO IN TANK CONTAINERS TO SRI LANKA



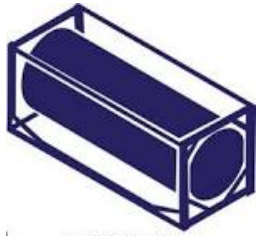
FUTURE OF THE TANK CONTAINER INDUSTRY



- As technology advances and the focus on sustainability grows, ISO tanks are poised for broader adoption. They represent the future of bulk liquid and gas transportation, offering businesses a competitive edge while maintaining high safety and environmental standards.

- The rising demand for LNG, expanding trade routes, and increasing awareness of eco-friendly practices have further fueled the market growth for ISO tank containers. They are a pivotal innovation in modern logistics, providing a reliable, sustainable, and efficient solution for global liquid and gas transportation.

- For shipping lines, freight forwarders, and end-users, ISO tank containers offer unmatched versatility and value, ensuring that logistics operations align with the demands of an ever-changing world.



CONCLUSION

ISO Tank Containers are a vital component of the global logistics industry. Their standardized design, durability and versatility make them an ideal choice for transporting a wide range of materials safely and efficiently.

By investing in ISO Tank containers, businesses can enhance their logistic operations, reduce costs, and contribute to a more sustainable environment