

Flexitank, an overview

Presented

by



**MY FlexiTank Industries Sdn Bhd
Malaysia**



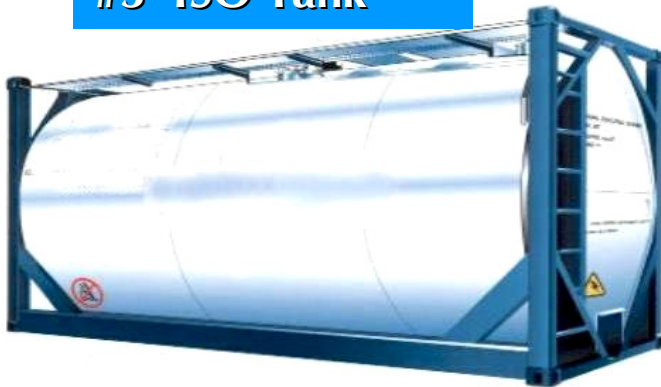
General Cost Comparison of bulk packaging



#1 Ocean Tanker



#2 Flexitank



#3 ISO Tank



#4 Drums and IBCs





➤ Ocean Tanker

- Lowest cost per ton to ship long distances.
- Requires significant infrastructure.



➤ Flexitank

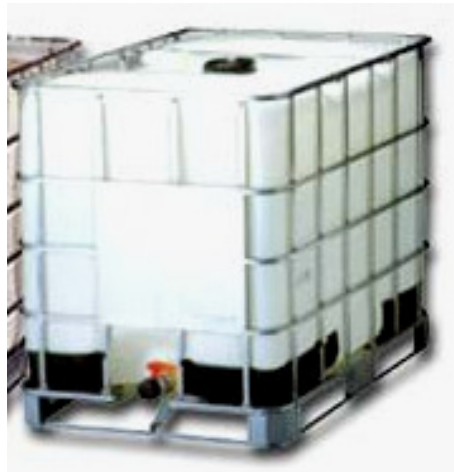
- Next lower cost per ton to ship long distances.
- One way system.



➤ ISO Tanker

- Higher costs vs flexitank on long distances.
- Leased round trip.
- Not always available in food grade or remote areas.

➤ Drums and IBCs



- Higher cost compared with flexitank.
88 drums x RM100 = RM8,800
Flexitank = RM2,500
- Lower payload in container, than flexitank.
88 drums x 200 L = 17,600 liters
Flexitank = 22,000 liters
- Costly storage vs. flexitank
- Empty return costs makes it difficult to re-use.
- Require specialized equipment for cleaning.
- High labor costs.
- Forklift to load and unloading container.
- Disposal can give environmental problem.

The advantage & disadvantage of a Flexitank ?

Advantage.....cost savings

Disadvantage.....reliability

What is a Flexitank ?

A Flexitank is a large flexible bag that converts a standard dry 20' Ocean Container into a One-Way 24-ton bulk liquid carrier.



Why flexitanks?

- ✓ **More economical – next lower cost to Ocean Tanker.**
- ✓ **Food grade.**
- ✓ **One way system.**
- ✓ **Higher payloads than drums or IBCs.**
- ✓ **Readily available.**
- ✓ **Always new – no risk of contamination.**
- ✓ **Significant reduction in storage cost when empty.**
- ✓ **Quick loading / discharging compared to drums and IBCs.**
- ✓ **No need for forklift to load or unload container.**
- ✓ **Available in remote areas. Low positioning costs.**

What can flexitanks carry?

**Flexitanks can carry most
Non-Hazardous Liquid Products.**

**It is ideally suited for the carriage of
Palm oil and its derivatives.**



**Even oleochemicals and palm fats
that may need reheating to discharge.**

The evolution of the flexitank

1970s



Heavy rubber design
No longer widely available
due to operating cost.

1980s



PVC urethane design
Non food-grade.

The evolution of the flexitank

1990s



Thin multi-liner design

2000s



Thick single layer design



MYF Composite design

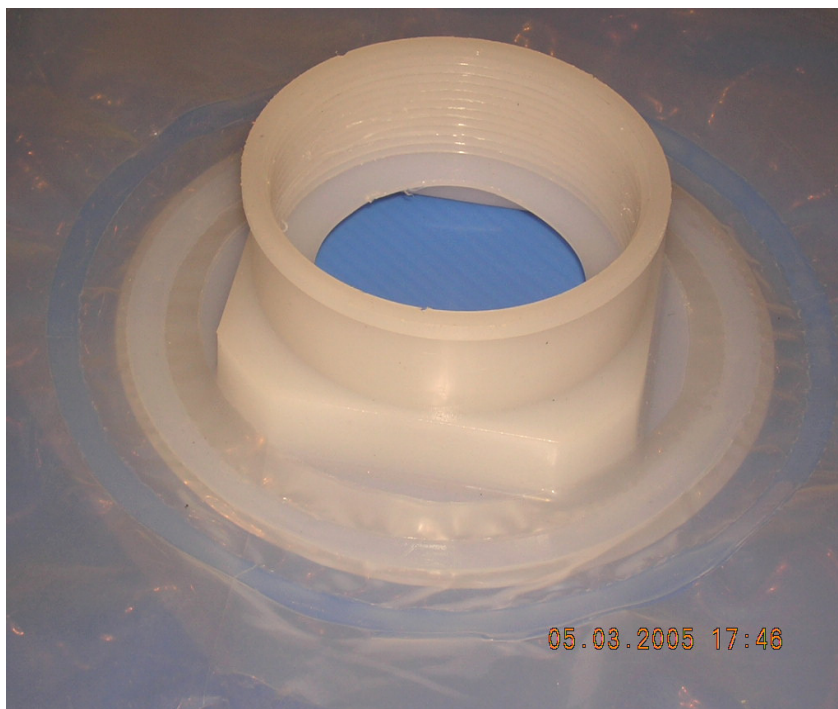
Designs suitable for palm oil and fats

Thin multi-liner design

This design combines thin food-grade PE liners heat sealed to light weight plastic fittings plus a woven outer PP jacket for durability.

Top loading and discharging.

Lowest cost but with a relatively poor track record.



- Plastic heat-sealed fitting cause most problems.
- Thin liners can be sucked up into the pump during discharge.
- Top load and discharge is unsafe and labor intense.
- Uses wooden bulkheads.

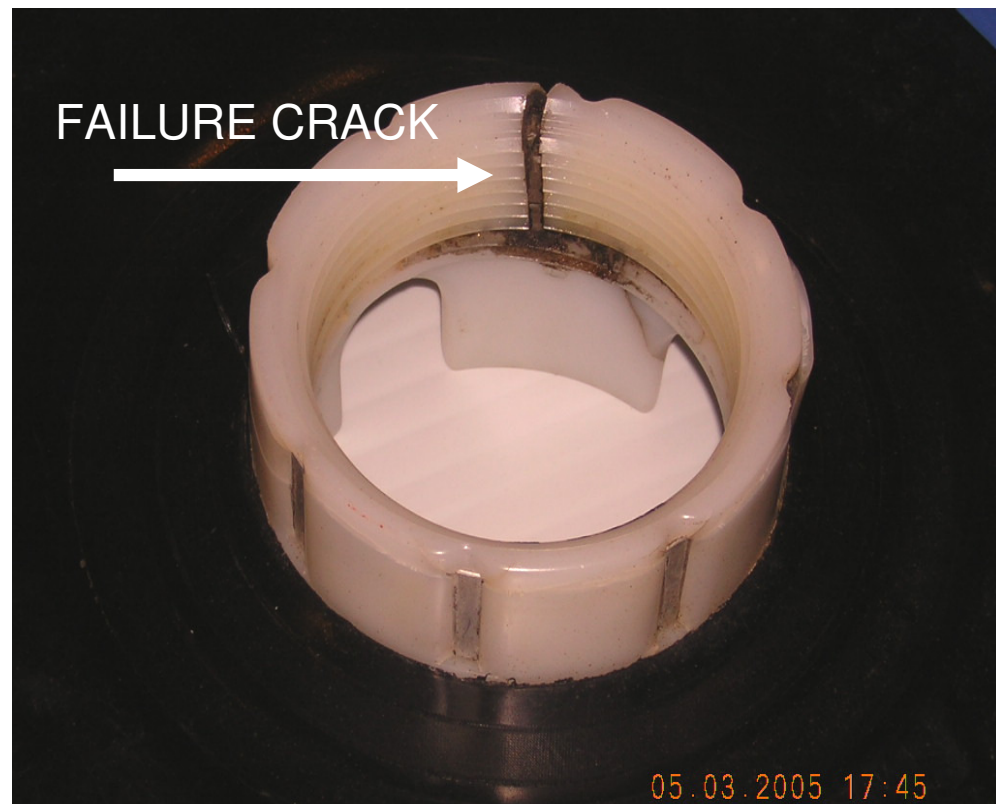


Thick single layer design

This design combines a single thick food-grade PE liner heat-sealed to light weight plastic fittings. Top loading and discharging.

Higher cost but with a reasonable track record.

- **Heat welded fittings cause most problems.**
- **Very stiff and difficult to total discharge.**
- **Top load and discharge which is unsafe and labor intense.**
- **Wooden bulkheads.**



Thick single layer design

This design also uses a light weight butterfly valve in an attempt to reduce the strain on the load / discharge fitting.



- **Butterfly valve “O” rings can be damaged in loading.**
- **Top load and discharge which places great stress on the fitting.**

All the above designs use wooden bulkheads.

Heavy ◇ Dirty ◇ Unsafe ◇ Non-OSHA Compliant ◇ may require fumigation

**They are cheap, readily available and fairly reliable.
48" standard height**



The above designs use Top Load and Top Discharge methods.

- ➡ Labor intensive.
- ➡ Difficult to handle.
- ➡ Unsafe.
- ➡ Messy.
- ➡ Places great strain on the fitting.



MYF Composite Bolted Design Flexitank

Patent pending



The composite design combines food-grade stainless steel fittings with medium thickness PE liners plus a woven outer jacket of PP for durability.



- **Food-grade stainless steel fittings.**
- **Woven outer PP jacket for durability.**
- **Optional aluminized outer jacket for O2 barrier for high quality products.**
- **Composite PE food-grade liner.**
- **Bottom load and discharge.**
- **Reheat option.**
- **Works just like an ISO tank.**

MYF Composite Bolted Design Flexitank

Patent pending

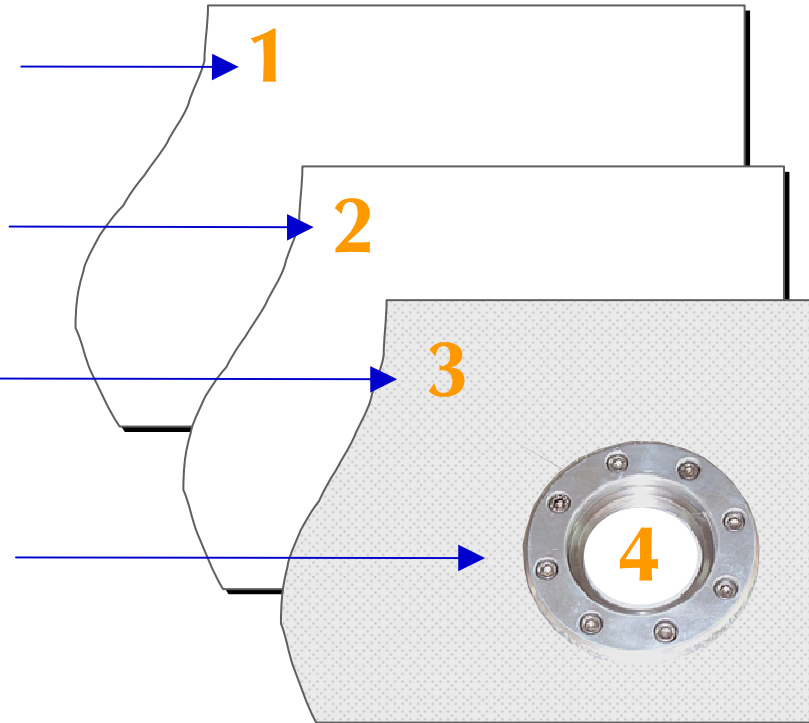


Primary liner of 15 mil food-grade LLDPE in contact with the product.

Secondary liner of 15 mil food-grade LLDPE for double protection.

Woven PP outer jacket
optional aluminum oxygen barrier.

Stainless steel food grade
load, discharge and vent fittings.



The 15 mil thick inner liner is light enough to fold for ease of discharge while being heavy enough not to be sucked into the discharge hose.

MYF Composite Bolted Design Flexitank

Patent pending



- Each heat seal is tested to 120% of load capacity.
- Each load and vent fitting is vacuum tested to 0.25 atmos.



MYF Composite Bolted Design Flexitank

Patent pending



Air Vent Assembly and its importance.

- **Releases air induced during loading**

Eliminates air space inside the flexitank for maximum load while eliminating aeration of the product and the need for nitrogen blanketing.

- **For sample taking purpose**

Vent hose extends to the container door for easy sampling.

- **As a loading gauge.**

Product in the translucent vent tube
Indicates a full load.



MYF Composite Bolted Design Flexitank

Patent pending



Safety Bulkhead™

Wings and Feet on the “Safety Bulkhead” hold the flexitank in the container even without steel support bars.



MYF Composite Bolted Design Flexitank

Patent pending



Utilizes the bottom loading / bottom discharging
"Safety Bulkhead™"



- Light Weight
- Easy to Install
- Easy in and out.
- Steel reinforced
- OSHA Compliant
- No Organic Material
- No fumigation.
- Totally recyclable.

MYF Composite Bolted Design Flexitank

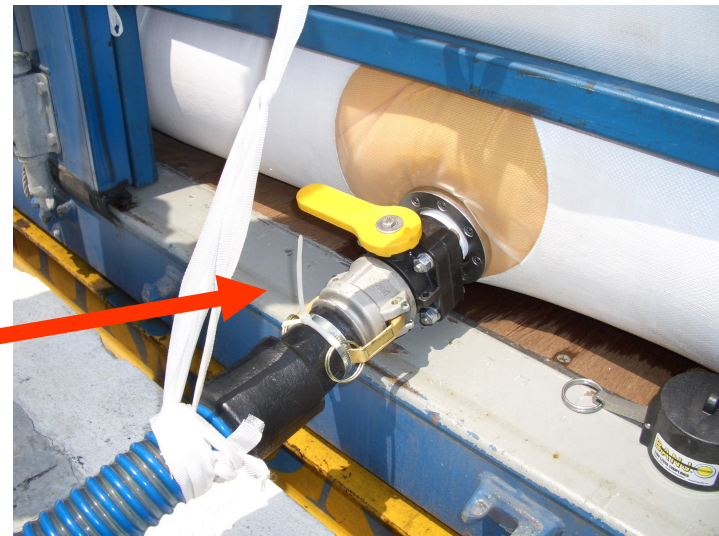
Patent pending



Bottom Load/Discharge – operates like an ISO tank.



Bottom load/discharge



MYF Composite Bolted Design Flexitank
Patent pending

**Top Load and
Discharge**

vs.

**Bottom load and
Discharge**

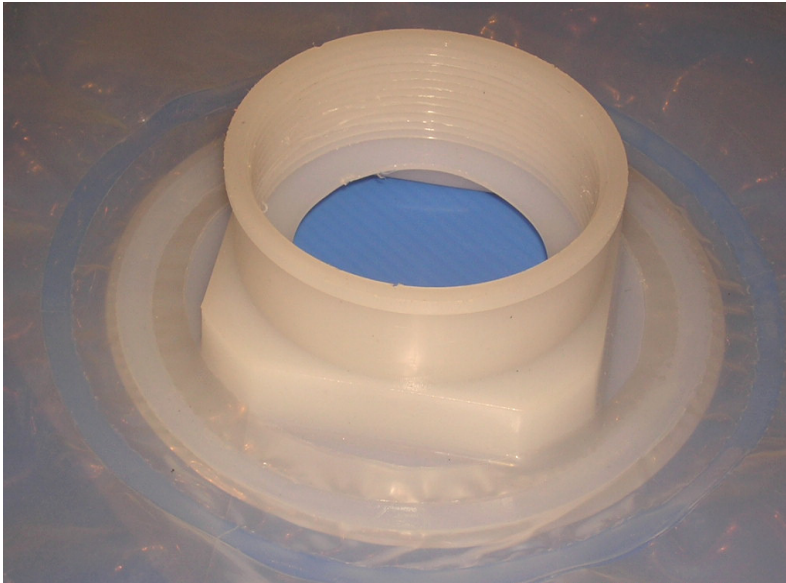


MYF Composite Bolted Design Flexitank
Patent pending

Plastic heat-sealed fitting

vs.

Stainless steel bolted fitting



Flexitank reheat device

US Patent 5,884,814 and other international patents



Patented reheating system enables the carriage of temperature sensitive products that require reheating to be discharged.

Reheat system is designed to provide discharge temperature within 48 hrs.

Reusable.



**Floor model Heater Pad
in 20' Container**

Flexitank rehear device

US Patent 5,884,814 and other international patents



In extreme cold climates, insulation and side wall units are combined with the floor model to provide reheat in 48 hrs.

Reusable.



Side-wall heater units

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