COA
TG-07
CODE OF PRACTICE FLEXITANK CONTAINER SYSTEMS

Container Owners Association

COA TG-07 CODE OF PRACTICE FLEXITANK CONTAINER SYSTEMS 2021

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1. FOREWORD

The Container Owners Association (COA) is an international organisation with the principle aims to promote common standards and the safe use of containers, focusing on efficiency, safety, and sustainability.

The Code of Practice for Flexitank Container Systems is intended for the use of COA members involved in flexitank industry:

- Manufacturers of flexitanks and equipment
- Operators of flexitanks
- Service providers
- Ocean Carriers (Shipping Lines) transporting flexitanks

The Code of Practice requires participants to ensure flexitank systems are fit for purpose; of a design and quality to provide safe and reliable transport and personnel are qualified to the necessary competencies and best practice.

This Code of Practice provides additional guidance for:

- The use of flexitank container systems
- COA Quality Conformance

Flexitank manufacturers and operators are required to apply the provisions of the Code of Practice and attain COA Quality Conformance (CQC)

This Code of Practice (TG-07) supersedes all previous versions.

2. SCOPE

The COA Code of Practice for Flexitank Container Systems is focused upon maritime container transport by an Ocean Carrier but may also be relevant to land modes.

A flexitank is a large bladder with valve(s) that is designed to fit inside a general-purpose freight container and to operate as part of a system which includes the container, flexitank, its fittings and restraining system. It is designed for single-use transport of non-regulated liquids.

The objective of the Code of Practice is the safe and reliable containment of the flexitank cargo and to ensure the container is used without detriment to its structural integrity.

The COA quality conformance scheme is intended to form a component of the Ocean Carrier's risk assessment process when accepting cargo.

The COA quality conformance scheme audits are in addition to, and are not intended to replace, the manufacturer's and/or the operator's obligation to provide flexitank systems and processes that are entirely fit for purpose.

The COA Code of Practice requires COA flexitank members to attain the COA Quality Conformance Scheme.

2.1 NORMATIVE REFERENCES

IMDG Code – International Maritime Dangerous Goods Code
CTU Code - IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units
CSC - Convention for Safe Containers 1972 as amended
ISO - ISO 1496, ISO 668, ISO 6436, ISO 9001, ISO1401, PAS 1008

Note: Regional and National regulations and statutory provisions including Health & Safety Legislation and land mode requirements are not specifically referenced within the scope of the COA Code of Practice but, nevertheless, are required to be applied as appropriate.

2.2 TERMS AND DEFINITIONS

Flexitank system - A large bladder with valve(s) that is designed to fit inside a general-purpose freight container and operates as part of a system which includes the container, flexitank, its fittings and restraining system. It is designed for single-use transport of non-regulated liquids.

Manufacturer – The Original Equipment Manufacturer (OEM) that designs, manufactures, and supplies the flexitank. Nb. Operators that re-brand and market flexitanks manufactured by an OEM, are not defined as a manufacturer.

Materials of construction - Polyethylene, polyethylene blends and polyvinyl chloride; other materials can also be used.

Non-Regulated Cargo (non-dangerous goods or non-hazardous goods) - Substances that are not classified as Dangerous Goods by the criteria of the IMDG Code and any other applicable regulations and are not assigned as Dangerous Goods.

Ocean Carrier (Shipping Line) – The entity that undertakes the transport at sea of the flexitank container system. The Ocean Carrier is usually the supplier of the container in which the operator installs the flexitank.

Operator – An entity that manages the use of the flexitank including services such as supply, cargo risk assessment, transport logistics, arranging installation into the container and removal of the used flexitank and recycling. An operator might be an associated entity of the manufacturer, an independent entity, or the shipper or agent.

Recycling consolidation centre – A service provider that drains, strips and shreds used flexitanks in preparation for consolidation for transport to a recycling plant. Restraining equipment is additionally serviced and recycled.

Restraining system – A steel structure secured into the vertical slots inside the container rear end corner posts to form a bulkhead that retains the flexitank behind the container doors.

Service provider – An entity that provides services to operators and shippers, undertaking depot services such as container storage, flexitank installation, removal, recycling consolidation, incident management and local transport.

Shipper (Consignor) – The shipper is the effective cargo owner and may also be the producer (manufacturer) of the cargo. The shipper fills the cargo into the flexitank and instructs the operator to transport the flexitank and cargo. A shipper might also act as an operator as defined.

2.3 OBLIGATIONS OF PARTICIPANTS

COA:
- Provision of the Code of Practice for a single use flexitank system
- Manage the COA Quality Conformance (CQC) system
- Manage the Flexitank Quality List (FQL)

Flexitank Manufacturers:
- Manufacture and supply flexitank systems of the specified quality and design and that are fit for purpose.
- Provide operating instructions and training procedures to enable operators to be equipped with the necessary competencies to provide safe and reliable transport.

Flexitank Operators:
- Undertake a risk assessment and use the flexitank container system only when the outcome supports safe and reliable transport.
- Operate the flexitank container system in accordance with the manufacturer's instructions and best practice and ensure safe and reliable transport.
- Transport only cargoes that are classified as non-regulated (non-dangerous) and are entirely compatible and suitable for the flexitank system.
- Environmental management of used flexitank systems.

Ocean Carriers (Shipping lines):
- Undertake a risk assessment of the flexitank system and the cargo to ensure that the flexitank system fulfils the carrier's requirements for its conditions of carriage.
- Refer to the COA Flexitank Quality List as part of the risk assessment process

2.4 DIMENSIONS AND RATINGS

Flexitank container systems are subject to the provisions of the IMO/ILO/UNECE Packing of Cargo Transport Units (CTU Code), Convention for Safe Containers (CSC) and ISO.

Nominal Filling Capacity - Litres	Max Payload (Cargo Mass) Kg	Container Type	Remarks
24000	24000	ISO 20ft (GP22) General Purpose Freight container	Standard to this Code of Practice
26000	24000	ISO 20ft (GP22) General Purpose Freight container	Carrier prior authorisation required
24000 - 26000	24000	ISO 40ft (GP42) General Purpose Freight container	Carrier prior authorisation required
22000 - 24000	24000	ISO 20ft (R122) Refrigerated Freight container	Carrier prior authorisation required

Note:
- Filling capacity is specified by the manufacturers and marked on the flexitank.
- Flexitank is required to be filled to tolerance of +/- 3% of the specified nominal capacity.
- CQC applies to each container type including the rail impact test

3. CARGO

Flexitanks shall only be offered to transport non-regulated (non-dangerous) substances when the flexitank is suitable and the materials of construction are resistant and compatible with the substance at the filling and transport temperature.

All parties are required to undertake an appropriate risk assessment before accepting any cargo for transport in a flexitank container system.

All parties are required to exercise responsible care and ensure safe and reliable flexitank systems conforming to all relevant regulations.

3.1 NOT ALLOWED CARGO – DANGEROUS GOODS

Substances (cargo) regulated as Dangerous Goods are not allowed to be transported by flexitank systems.

Refer to the Safety Data Sheet (SDS) which provides the classification of the cargo and other safety matters.

Refer to IMDG Code (International Maritime Dangerous Goods Code) Dangerous Goods List, Chapter 3.2 which provides the UN Number, Proper Shipping Name and Class of Dangerous Goods together with provisions for transport of substances classified as Dangerous Goods. These substances are not allowed to be transported in a flexitank.

Regional and National Regulations applicable in the location of carriage may also apply. Substances (cargo) classified as Dangerous Goods by Regional or National Regulations and statutory legislation, are not permitted to be transported by flexitank systems.

3.2 ALLOWED CARGO – NON-REGULATED GOODS / NON-DANGEROUS GOODS

Substances (cargo) that are non-regulated (not included in dangerous goods regulations) are otherwise commonly known as non-dangerous goods or non-hazardous goods. These substances do not meet the criteria to be classified as dangerous goods by the provisions of the IMDG Dangerous Goods Code and other applicable regulations. Consequentially, the cargo may be allowed to be transported in a flexitank.

Non-regulated cargo is allowed, providing it is suitable for flexitank transport and the flexitank materials of construction are resistant and compatible at the cargo transport temperature

Maritime and National Legislation for governing maximum gross mass of the flexitank system also applies.

National, or Modal Transport legislation or directives, may require authorisation for the transport of flexitanks.

Note - Although the cargo might be classified as non-regulated by the criteria of the regulatory process, the cargo might contain hazards and risk. Refer to the Safety Data Sheet (SDS) and implement the required safety provisions.

3.3 SAFETY DATA SHEET (SDS)

The SDS (Safety Data Sheet) provides important information to be used to assess the hazards and risks and the suitability of the substance to be transported by flexitank systems. The SDS is a requirement of UN Globally Harmonised System of Classification and Labelling of Chemicals (GHS).

Although non-regulated cargo is outside of the regulatory criteria to be classified and regulated as dangerous goods, the cargo might contain hazards which must be considered for the suitability of the flexitank to provide safe and reliable transport.

The SDS should be supplied by the shipper for the cargo to be transported and made available by the shipper to participants throughout the period of transport.

3.4 COMPATIBILITY OF CARGO AND FLEXITANK MATERIALS OF CONSTRUCTION

The flexitank materials of construction shall be entirely resistant, inert and free from any risk of degradation or reaction to the cargo at the filling and transport temperature.

Flexitank material resistance and temperature compatibility charts and test procedures are required to be included in the manufacturer's operating instruction and training manual.

A compatibility risk evaluation shall form part of the required risk assessment required to be undertaken by the responsible persons.

4. LOADING AND TRANSPORT

The flexitank is required to be filled to the manufacturer's specified filling capacity and within a tolerance of +/- 3% of the flexitank nominal capacity. The maximum payload (cargo mass) shall be 24,000kg.

Flexitank container systems shall also comply with IMO Code of Practice for Packing of Cargo Transport Units (CTU Code) Chapter 5, General Conditions of Transport and Annex 7. 5.2. Liquids in Flexitanks:

"During transport, the contents of a flexitank will be subject to dynamic forces without significant retention from friction. These forces will act upon the boundaries of the container and may cause damage or complete failure. Therefore, the payload of the container should be appropriately reduced when it is used for carrying a loaded flexitank. The reduction depends on the type of container and on the mode of transport.

When a flexitank is loaded into a general-purpose container, the mass of the liquid in the flexitank should not exceed a value agreed with the Ocean Carrier to prevent the container from suffering side and end wall bulging damages.

After discharge of the flexitank cargo, the flexitank, linings and all equipment should be completely removed from the container, cargo residues drained and safely disposed and the flexitank materials recycled. The used container should be returned to the Ocean Carrier completely empty, clean and in the same condition as received".

5. CONTAINER CONDITION

The container should conform to the provisions of the applicable ISO standards. A 30,480kg minimum gross mass rating container is required for a flexitank system.

The flexitank should be installed only in the container type for which the flexitank is specially designed and specified and used for the COA CQC rail impact test recorded on the COA FQL (Flexitank Quality List).

20ft General Purpose (ISO 22G1) is the standard container type to be used for flexitank systems.

If a Reefer or 40ft dry freight containers (or any special container type) is to be used for flexitank transport, Ocean Carrier pre-agreement is required.

5.2 CONTAINER CONDITION CRITERIA

Containers used for the carriage of flexitanks must be in good serviceable condition according to COA CIC-2 (Container Interchange Criteria 2) or similar criteria such as UCIRC (Unified Container Inspection & Repair Criteria) or IICL-6 (Institute of International Container Lessors)

If there is any doubt about the structural integrity of the container or its suitability for installing or transporting a flexitank, the container should be rectified or replaced.

In addition, the condition of the container to be used for transporting a flexitank should conform to the additional condition criteria detailed in this COA Code of Practice.

Flexitank Container Condition		
Component	**Condition**	**Acceptability**
Side and end walls	- Flat logo panels - Vertical plane deformation over the height - Construction and repair welds sharp protrusions - Allowable dents and deformations sharp edges, protrusions	- Not acceptable - Maximum 10 mm - Not acceptable - Not acceptable
Roof interior	- Protrusions or sharp edges that could damage the flexitank in the event of flexitank surge	- Not acceptable
Floor (wood/ply)	- Splinters and protruding nails, screws etc. - not acceptable. - Gouge depth - Misalignment of adjacent planks / panels	- Not acceptable - Maximum 15mm - Maximum 10mm
Floor (steel)	- Cuts, sharp edges, burred gouges or sharp dents	- Not acceptable
Interior	- Rear post shoring slots - Lashing rings protrusions or sharp edges - Panel excessive gouges - Rust or flaking paint - - Grit, carbon, sand, cargo residues etc - Transferable stains or significant odour	- No obstruction - Not acceptable - No sharp edges - Not acceptable - Not acceptable - Not acceptable
Doors	- Doors obstructing flexitank or restraining system.	- Not acceptable
Door hardware	- Each door, locking bars - Locking bar securing brackets. - Locking bar cams - Door handle security catches - Door gear fixings on the inside of the doors	- Minimum 2 bars - Minimum 3 - Full locking - Full closing - No sharp edges
Exterior	- Foreign markings and previous cargo marks	- Not acceptable
Safety approval plate (CSC)	• The plate should display a valid PES (periodic examination scheme) or • ACEP (approved continual examination programme)	- Invalid CSC

Note:

- CIC.2 - The container condition should meet the criteria of COA CIC.2 and the additional requirements herein
- Interior protection - Container interior up to the height of the flexitank should be lined with a suitable protective material e.g. card-board
- Spot protection - Any sharp edges, dents or other defects or surface conditions that could potentially damage, snag or chaff the flexitank, shall be additionally covered with a suitable protective lining material.
- Doors - To ensure that doors close properly, the container / truck chassis should be positioned on a level surface during the process of filling the flexitank with cargo.

6. MARKINGS

6.1 CONTAINER WARNING MARK:

The container is required to display a mark (label) to warn and caution persons approaching the container of the potential risks.

Container Flexitank Warning Mark	
Dimension	A4 (210 x 297mm)
Material	Designed to remain intact in arduous marine conditions for a minimum of 90 days
Purpose	- Caution – do not to open the LH door - Caution - flexitank filled with liquid installed in the container - Caution – dynamic surge forces during transport /container movement - Caution – no fork-lift - Safety instructions and emergency contacts
Pictorial	- Keep left hand door shut. - Container loaded with flexitank containing liquid cargo - No fork-lift - Emergency contact information
Text	- Text to highlight the content of the pictorial - Additional safety instruction and emergency contacts - English language and the language appropriate to the region(s) of use
Location	- Affixed to the outside of the left-hand door - In a position that it is obvious to any person accessing the container - Does not obscure existing statutory marks on the container
All marks relating to the flexitank to be removed from the container after the flexitank has been discharged of cargo and the used flexitank removed from the container	

6.2 FLEXITANK IDENTIFICATION MARK

- The manufacturer should fit the prescribed identification mark to the flexitank at the time of manufacture.
- The mark should be positioned on the flexitank, such that when the flexitank is installed in the container, the mark is visible when the right-hand door of the container is open.

a) Unique flexitank serial number	b) Flexitank capacity (in litres)
c) Manufacturer's name and recognised logo	d) Country of manufacture
e) Materials of construction	f) Unique Design Reference:

7. RECYCLING OF FLEXITANK MATERIALS

Flexitank manufacturers and operators are required to commit, as part of this Code of Practice, to achieve by best practice procedures an eco-friendly flexitank life cycle and manage the process of recycling manufacturing off-cuts and waste, used flexitanks and equipment. All parties should:

- Promote recycling of used flexitanks within their company and to their clients
- Provide practical instruction and training for recycling procedures.
- Support service providers of flexitank recycling consolidation services
- Include used flexitank recycling services as part of their offering to their client.
- Measure and retain records of recycling performance

All members are required to attain ISO 14001 Environmental Management Systems as part of the COA Quality Conformance procedure.

7.1 RECYCLING CONSOLIDATION FACILITIES

The provision of global recycling facilities is part of the infrastructure that enables flexitanks to be consolidated in economically viable bulk quantities for recycling at specialist plants.

Recycling facilities drain the flexitank, strip into its component material parts, shred the materials, wash the material, bale and prepare to transport to a recycling plastics plant.

This Code of Practice requires flexitank companies to support Recycling Service Providers and to actively manage the recycling of all flexitank materials.

8. OPERATING INSTRUCTION AND TRAINING MANUAL.

Manufacturers are required to take measures to ensure that operators of its supplied flexitanks are properly instructed in the procedures and training that ensure competency to operate a safe and reliable flexitank system.

The manufacturer should provide an Operating Instruction and Training Manual for the operator's use, the content of which provides best practice for operating the manufacturer's design and type of flexitank.

The operator of the flexitank should also provide an Operating Instruction and Training Manual for the use of its personnel and filling or discharge terminal personnel. The manual should incorporate the manufacturer's instructions and provide the additional requirements to meet the operators specific job function and country of activity.

The manual may be printed or in electronic format and may include text and pictorial or video instruction. The language[s] used, one of which must be English, should be language understood by the user.

The manual should be reviewed annually by the manufacturer and operator, or before if there is a process change, to ensure up-to-date procedures and best practice.

The manual(s) should provide instruction for each of the flexitank types and designs manufactured.

8.1 OPERATING INSTRUCTION AND TRAINING MANUAL – CONTENT

The manual should include detailed instruction of all processes and procedures required to provide the necessary competencies for the safe and reliable operation of a flexitank. The manual content should include at least:

a. Manual title, reference no, version, and issue date
b. Flexitank type, unique model/design reference, capacity
c. Materials of construction, temperature range

d. Health and safety guidance for installation and use
e. Risk assessment process for use of flexitank

f. Container selection and preparation
g. Flexitank installation procedures including container lining, restraining system and ancillary equipment etc.

h. Process to determine compatibility of the flexitank materials with intended cargo
i. Materials resistance chart (compatibility) with at least the range of common cargoes at the temperature of transport
j. Filling procedure, including filling capacity control
k. Filling actions in the event of leakage, overspill, excessive container wall bulging etc.

l. Marking the container for transport

m. Cargo discharge procedure, including maximising drainage of cargo
n. Stripping the used flexitank and linings from the container

o. Environmental procedures for waste management of used flexitank and equipment
p. Recycling preparation procedures to drain, strip sleeve and components, separate material types, shredding and consolidating for recycling
q. Recycling of restraining bulkhead and ancillary equipment

r. Incident management and emergency plan

Manufacturers
s. Training scheme guidance for installers and operators of flexitank systems including guidance on best practice classroom theory and on-site practical training.
t. Competency attainment level required for the tasks

Operators of flexitank systems
u. Training scheme for job specific functions of flexitank installers, fillers, discharging and logistics personnel
v. Classroom theory subjects and on-site practical training
w. Competency attainment evaluation procedure
x. Training records

9. MATERIAL AND VALVE TESTS

The manufacturer should carry out tests during production for each type of flexitank manufactured at each of its factory sites. Test results should be recorded and retained for 5 years. Tests and procedures are specified in PAS 1008:2016.

9.1 MATERIALS TESTS (FILM)

The flexitank film and sleeve shall be subject to both Type Test and Sample tests to determine whether the finished product meets the specified PAS 1008:2016 requirements.

Sample tests shall be carried out at a minimum frequency of:

- Once per 100 flexitanks manufactured (for each material specification flexitank design)
- When a new material (film) roll from a new batch of material is used.

9.2 LOADING AND DISCHARGE VALVE TEST

Each loading and discharge valve is required to be subject to a Routine Leak tightness test:

- Undertaken when assembling the flexitank system.
- Maximum of 72 hours before dispatch of the valve to the finished goods inventory.

The test may be either:

- Liquid fluid test - there shall be no visually detectable leakage of fluid
- Gas fluid test - no bubbles breaking the surface of the water, when the valve is immersed in water; no continuous formation of bubbles, when the valve is coated with a leak detection fluid.

Note:
- Type tests - tests made before supplying a particular type of item on a general commercial basis, to determine whether the item has satisfactory performance characteristics to be suitable for the intended application.
- Sample tests - tests performed on samples taken from a completed item, at a specified frequency, to determine whether the finished product meets the specified requirements.
- Routine tests - tests performed on each manufactured item to check whether the item meets the specified requirements.

10. INCIDENT MANAGEMENT

Upon notification of an incident, the responsible person should immediately take actions to safeguard the health and safety of personnel, the public, the environment and to minimise cargo loss. The incident management emergency plan should be enacted as appropriate.

As soon as possible, the incident should be reported to the cargo owner and all other parties relevant to the incident. Actions should be taken promptly to safeguard personnel and the environment and to minimise cargo loss.

It might be necessary to arrange to transfer the flexitank system to a safe location and or transfer the cargo to another suitable flexitank system or to an ISO tank container, IBCs, or drums.

Once the incident is under control and the flexitank secured in a safe place and all relevant permissions obtained, an initial survey and report should be prepared.

The parties involved, including the carrier, shipper (cargo owner), operator, manufacturer and insurer should instruct their surveyor to complete an investigation and provide a report. Arrange a joint survey as might be appropriate.

The flexitank manufacturer and operator should keep records of reported incidents involving their flexitanks. The incident records should be used for improving the flexitank system as part of a process of continuous development.

The records should include:

a) Date of incident	h) Restraining system and
b) Location of incident	i) Ancillary equipment fitted
c) Type of incident	j) Cargo name
d) Unique flexitank serial number	k) Volume and mass of cargo loaded
e) Unique flexitank model reference	l) Volume of cargo lost
f) No. layers and materials	m) Cause of incident and description
g) Capacity of the flexitank	n) Photographs including spillage, damage to the flexitank, restraining equipment and container

11. INSURANCE

COA flexitank manufacturers and operators are required to take appropriate expert insurance advice and to hold an international all-risks insurance policy with an A-rated insurer providing cover for all locations where the flexitank might be used.

The insurance policy should at least include any potential product or public liability arising from any failure of the flexitank system and, or operation and include risks attributable to design, manufacture, materials, quality, installation, cargo compatibility, filling, discharge, logistics and any other associated event.

Insurance policy should be commensurate with risk as assessed by the company's expert advisor, but the cover should not be less than US$5 million.

12. COA QUALITY CONFORMANCE (CQC)

The COA Quality Conformance Scheme (CQC) provides criteria intended for Ocean Carriers and others during their company risk assessment process.

Manufacturers and operators attain CQC by completing prescribed audits and tests.

The status of the company attainment to CQC is recorded on the Flexitank Quality List (FQL) which is available to view on the COA website.

A COA member company that meets the requirements of CQC may display the COA logo on its website or promotional literature. If, for any reason, the company ceases to maintain CQC status, or the company ceases to be a member of the COA, the company shall remove all references to CQC.

12.1 SCOPE

The COA quality conformance scheme is open to manufacturers and operators of flexitanks:

Category	CQC Audits	Declaration
Original Manufacturer	ISO 9001 ISO 14001 Manual Material test Rail impact test	Declaration A
Operators supplying flexitanks from a wholly owned original manufacturer	ISO 9001 ISO 14001 Manual Material test* Rail impact test**	Declaration A
Operators supplying flexitanks from an original manufacturing entity of the manufacturers or the operators design	ISO 9001 ISO 14001 Manual Material test* Rail impact test**	Declaration A Declaration B

- The flexitank company is entirely responsible to appoint the auditor, make all necessary arrangements and bear the full costs of the audits
- Material* and Rail impact test** may be supplied by the original manufacturer
- Manufacturers & Operators should supply the 5 audit documents (1 page each) in pdf format to the COA by email to: technical@containerownersassociation.org

12.2 AUDITS

CQC comprises five audits and a declaration:

Audit Standard	Description	Audit	Valid
ISO 9001:2015	Quality Management	Audit to ISO prescribed system	3-years
ISO 14001:2015	Environmental Management	Audit to ISO prescribed system	3-years
COA CoP TG-07	Operating Instruction and training instruction manual.	Independent auditor	3-years
PAS 1008:2016	Material tests, including loading and discharging valves	Independent auditor	3-years
PAS 1008:2016	Flexitank system rail impact test	COA nominated test centre	5-years
COA CoP TG-07	Quality Declaration	COA audit	3-years

a. Audits to be undertaken by an independent auditor accredited to ISO17020 / ISO 17021
b. Audits are required for each of the manufacturer's factory sites. A manufacturer with two or more factory sites requires two or more separate sets of audits
c. ISO 9001 and ISO 14001- equivalent standards might be acceptable if pre-agreed by the COA
d. Rail impact test - equivalent standards might be acceptable if pre-agreed by the COA
e. An operator is required to operate only flexitanks supplied by a manufacturer that has attained CQC.
f. Audits for Manual, Material Test and Rail Impact test are required for each model type of flexitank and for each container type the flexitank is designed. For example, if both single layer and multiple layer flexitanks are manufactured, two sets of test audits are required. The rail impact test for is required to be carried out with the flexitank filled with water to the nominal design capacity, including tests to flexitanks of more than 24000 litres.
g. If there is a variance in the manufacture of the flexitank beyond that provided in 12.3 Audits expiry, the tests and audits should be repeated
h. Where an operator designs its own unique flexitank - or modifies the design of a manufacturer's existing flexitank - and the flexitank is fabricated by a manufacturer on behalf of the operator and to the operator's requirements, the flexitank is to be considered a "new design". It is required to undergo audits and tests as set out in the Code of Practice which are in addition to audits and tests that the manufacturer conducts for its own design of flexitank.
i. The COA member should supply the 5 documents (1 page each) in pdf format to the COA by email to: technical@containerownersassociation.org

12.3 AUDIT EXPIRY

On expiry after the prescribed period, audits should be renewed as prescribed.

In addition, audits should be renewed immediately in the event of any variation in the design, materials, manufacture process or place of manufacture except for:

a. Decrease in the flexitank capacity that does not involve a change in either the material used or a reduction in the flexitank film layer thickness or material properties
b. Decrease or increase in the number of flanges/openings
c. Increase in any flexitank film layer thickness that does not involve a reduction in the determined material properties
d. Addition of an outermost layer (not including the woven propylene sleeve) to a multilayer flexitank that has the same material properties as an existing flexitank film layer
e. Addition of an outer structural woven polypropylene sleeve to a single-layer flexitank
f. Addition of a non-structural layer serving as a contaminant barrier to a single-layer flexitank

13. AUDITOR CQC GUIDANCE

The COA Code of Practice Quality Conformance Scheme (CQC) requires the COA member flexitank company to submit certificates attesting to the satisfactory completion of the prescribed independent quality audits and tests.

The audit should be undertaken in accordance with this Code of Practice. This section provides additional guidance for the auditor.

13.1 AUDITOR

Objective evidence process audits are required to be undertaken by an independent, third party and external auditor accredited by a governmental body. Unless otherwise agreed by the COA, the auditor should accord with the appropriate provisions of:

- ISO 17020 Conformity Assessment - Requirements for bodies providing audit and certification of management systems
- ISO 17021 - Requirements for bodies providing audit and certification of management systems.

It is the responsibility of the flexitank company requiring the audit to select and instruct the auditor, make the necessary arrangements directly with the auditor and bear the full costs of the audits. The COA is not involved in the audit arrangements.

Objective Evidence Audit	Report / Certificate Format	Report/Certificate Content to include:
ISO 9001	ISO prescribed	ISO prescribed*
ISO 14001	ISO prescribed	ISO prescribed*
Operating instruction and training manual.	A4, one page	- Confirmation that the manual meets the requirements of COA Code of Practice TG.07 - Manual reference number and date - Flexitank design/unique model reference
Materials test (production batch tests of materials, welds and valves)	A4, one page	- Confirmation that tests are carried out in accordance with PAS1008:2016 - Place where tests witnessed - Flexitank design/unique model reference
Rail impact test	PAS 1008:2016 Prescribed	PAS 1008:2016 prescribed
- Equivalent standards to ISO 9001, ISO 14001 might be acceptable by COA prior agreement - Audit criteria as detailed in the COA Code of Practice for Flexitank Systems - Materials batch test apply only to the original manufacturer of flexitanks - Audit certificates should consist of a one-page document (for each audit) and supplied to the COA by the flexitank company in PDF electronic format		

13.2. ISO 9001:2015 QUALITY MANAGEMENT SYSTEMS

Audits should be undertaken according to the ISO prescribed procedures.

- Manufacturers - An audit should be undertaken at each of the manufacturing sites.
- Operators – An audit should be undertaken at the operator's main operating base.

Alternative quality management systems to ISO are permitted subject to COA prior agreement.

13.3. ISO 14001:2015 ENVIRONMENTAL MANAGEMENT SYSTEMS

Audits should be undertaken according to the ISO prescribed procedures.

- Manufacturers - An audit should be undertaken at each of the manufacturing sites.
- Operators – An audit should be undertaken at the operator's main operating base.

Alternative environmental management systems to ISO are permitted subject to COA prior agreement.

13.4 OPERATING INSTRUCTION AND TRAINING MANUAL.

The audit shall verify:

- Manual content meets at least the minimum provisions of the COA Code of Practice.
- Manual reference number, issue date for each of the flexitank design and unique model reference of the manuals audited.
- Each flexitank model type requires a manual. Model types may be included in a single manual providing the distinguishing features of each model are identified.
- Manufacturer audits - evidence that the manual has been made available to users of the flexitank.
- Operator audits – evidence that the manual has been have provided to its operational personnel and users of the flexitank and the manual is used in training.
- Operator training records are properly maintained.

The audit is intended as a desk-top review by the auditor of the prescribed manual contents.

The auditor is not required to be an expert in the content of the manual but should ensure that at least the prescribed content is included in the manual and that it is evident that manual has been competently prepared.

13.5 FLEXITANK PRODUCTION MATERIAL AND VALVE TESTS

The audit shall verify:

- Tests of materials and valves are undertaken in accordance with PAS 1008:2016
- Material tests for each design/model reference are carried out at a minimum of one set of tests for each 100 flexitanks manufactured. Material tests are required for each material specification and where a new material roll is used. Ref: PAS1008:2016 Annex D.
- Each loading and discharging valve should be subject to routine testing Ref: PAS Annex D.
- Process records of PAS 1008:2016 flexitank material and valve tests (past and present) are available for reference together with actions taken in the event of a negative test.
- Competent technicians and calibrated test equipment and suitable test facility.

The auditor is not required to be an expert in the test procedures but should be reasonably satisfied by the evidence of witnessing some of the tests, the test records, and the test facilities, that the tests are competently carried out and that the test results are actioned by the manufacturer as appropriate.

- Material tests should be undertaken at the manufacturers on-site facility that is properly equipped for the task.
- An audit should be undertaken at each of the manufacturer's sites.

The manufacturer should undertake tests in an on-site facility. Exceptionally, off-site testing of material film is not entirely precluded providing that the auditor is presented with:

- Evidence of an ongoing reliable and timely arrangement with a nearby test facility equipped to undertake the prescribed tests.
- Procedures that ensure immediate on the day delivery of production samples and immediate on the day notification to the manufacturer of any negative test result.

The auditor should visit the off-site facility, undertake an audit as described for manufacturers on-site testing and record the location on the auditor's report.

13.6. RAIL IMPACT TEST

Each flexitank model and design type manufactured at each factory site shall undergo a rail impact test at a test facility nominated by the COA.

An independent auditor is not required. The test facility is responsible for the test, assessment of results and the report.

The test should be carried out in accordance with the provisions of:

- PAS 1008:2016 Specification for the performance and testing of a single use flexitank.

Alternative test procedures may be accepted by prior agreement with the COA.

The test centre should provide a report in the format required for PAS 1008:2016.

ANNEX 1 DECLARATION

A. DECLARATION OF CONFORMANCE WITH THE COA CODE OF PRACTICE

The declaration below should be completed by the COA Flexitank member company:

- Manufacturer
- Operator

Copy the form onto the company letter headed paper. Sign and company stamp. Send the completed document in pdf format to the COA secretariat

Company name:
Address

COA Code of Practice: Declaration

I confirm that The Company, in each of the countries of its activities conforms to:

- Professional standards of integrity
- Company Law
- Anti-trust legislation
- Health and Safety legislation and best practice:
- Environmental legislation and the recycling of used flexitanks
- COA Code of Practice for Flexitank Systems

The Company is the original manufacturer of flexitanks:

- Fit for purpose in their entirety
- Specifications as provided to the COA CQC audit

Should the Company cease to meet any of the provisions of this declaration or ceases to be a valid member of the COA, the Company undertakes to remove any display of the COA © logo or otherwise indicate any conformance with the COA Code of Practice.
I am an authorised signatory on behalf of The Company.

Signed:

Title:

Date:

Company stamp:

B. MANUFACTURER'S ENDORSEMENT OF OPERATOR

The declaration below should be completed by the COA Flexitank manufacturer:

Copy the form onto the company letter headed paper. Sign and company stamp. Send the completed document in pdf format to the COA secretariat.

Manufacturer's endorsement of the operator

Manufacture Company Name:
Address:

Operator Company Name:
Address:

COA Code of Practice:

I confirm that the named operator company is authorised to:

a. Operate flexitanks manufactured by this Company
b. Change the brand-name of flexitanks manufactured by this Company

- Original manufacturer's name and model: .....
- Operators Re-branded name and model: .....

Company:

Signed:

Title:

Date:

Company stamp: