Container Owners Association

Container Owners Association

Code of practice, for a single-use flexitank system.

COA Code of practice, for a single use flexitank system:
Version 5 rev. – September 2016

www.containerownersassociation.org

1: Introduction

The Code of Practice for a single use flexitank system is published by the Container Owners Association. It forms part of the COA shipping line (carriers) risk assessment process and requires flexitank manufacturers to comply with the Code and ensure a safe and reliable flexitank system. The Code of Practice might additionally be appropriate for flexitank operators, shippers (producers) and other entities.

The Code of Practice refers to a single-use flexitank of a capacity up to 24,000 litres and designed for installation in an ISO 20ft or 40ft GP container.

The company shall meet the requirements of a COA Certificate of Compliance before displaying the COA logo or otherwise indicating compliance with the COA Code of Practice.

Nb. The Code of Practice was first developed by the COA in 2008 (Version 1) and amended in 2009 (V2) 2011 (V3) and 2015 (V4)

This Code of Practice (V5), dated September 2016 supersedes all previous versions.

1.1 Obligations of participants

COA:
- Publication of the Code of Practice for a single use flexitank system.
- Publication of the Flexitank Quality Management List.

Manufacturers:
- Manufacture of flexitanks that are fit for purpose.
- Manufacture of flexitanks of the specified quality and design that, as a minimum, meet the provisions of the Code of Practice.
- Provide installation, operating and training instructions to operators, shippers and other users of their flexitanks to ensure best practice and safe, reliable transport.

Operators and shippers:
- Operating flexitank systems in accordance with the manufacturers' instructions and best practice to ensure safe and reliable flexitank systems.
- Risk assessment of the flexitank system and the cargo to ensure safe and reliable flexitanks.
- Transporting only cargoes that are non-dangerous, compatible with the flexitank system and where a risk assessment outcome supports safe and reliable transport.

Shipping lines (carriers):
- Risk assessment of the flexitank system and the cargo, prior to carriage on their vessel, to meet their company requirements and conditions of carriage.

Liability Exclusion

Manufacturers are required to ensure that their products are fit for purpose. Shippers, operators and carriers should carry out a risk assessment and ensure safe and reliable transport. Accordingly, the Container Owners Association accept no liability whatsoever for any events resulting from implementing the recommendations of this Code of Practice.

1.2. Declaration

To be completed by COA Flexitank member companies:

I am authorised to confirm, on behalf of the Company that:

- The Company is committed to high professional standards of integrity, manufacture and safety and operates in compliance with all applicable regulations and obligations.
- The Company manufactures and supplies all its flexitanks in compliance the COA Code of Practice.
- The company has completed the audits required by the Code of Practice.
- The Company is committed to an environmental policy that cares for the flexitank from point of manufacture to final disposal.
- The Company complies with anti-trust legislation and its employees are trained and instructed in its requirements. The Company representatives involved or attending COA meetings are additionally instructed in the requirements of COA anti-trust compliance policy.

The Company agrees that in the event that the Company does not continue to meet the provisions of this declaration the COA Board reserve the right to require the Company not to display the COA © logo or otherwise indicate compliance with the COA Code of Practice.

I am an authorised signatory on behalf of The Company.

Signed:

Title:

Date:

Company stamp:

1.3 Key Points:

1. A COA member company shall meet the requirements of a COA Certificate of Compliance before displaying the COA logo or otherwise indicating compliance with the COA Code of Practice.

2. To obtain the Certificate of Compliance, the manufacturer should complete four audits:

Audit Description	Standard	Validity	Remarks
Quality Management	ISO 9001:2015	3 yrs.	2008 standard remains valid.
Installation, operating and training instruction manual.	CoPV5	3 yrs.	
Material tests, including loading and discharging valves	PAS 1008:2016	3 yrs.	
Flexitank system rail impact test	PAS 1008:2016	5 yrs.	

3. The four audits are required for each of the manufacturer's factory sites. Accordingly, a manufacturer with two or more factories will require two or more sets of audits.

4. An audit is required for each type of flexitank manufactured. For example, if both single layer and multiple layer flexitanks are manufactured, two sets of audits are required except that one ISO 9001 audit is acceptable for each factory. An independent auditor shall carryout the audit.

5. Rail impact test shall be undertaken at a COA nominated test centre.

6. The audit is reported on the COA Flexitank Quality Management List (FQML). FQML is a reference document designed for the use of COA shipping lines as part of their risk assessment process prior to transport of a flexitank. The FQML is available on the COA website.

7. Confirmation of Membership is a document issued to all members to confirm that the annual membership fee has been paid. Certificate of Compliance is a document issued to those members that completed the four audits described above.

8. Only non-regulated (non-dangerous) goods that have been risk assessed shall be carried. Dangerous goods shall not be transported by a flexitank system.

9. Containers used for flexitank systems shall meet the requirements of this Code of Practice.

10. The flexitank shall be installed in the container by trained fitters and in accordance with the manufacturers' instructions and best practice.

11. Manufacturers should hold an all-risks insurance cover of a minimum US$5million secured with an A rated insurer.

12. Incidents involving flexitanks should be investigated and reported.

2: Cargo

- Flexitank systems shall only be used for non- regulated cargo that has been assessed for risk and confirmed acceptable, by all parties, for safe and reliable transport in a flexitank system.

- Cargo classified as Dangerous Goods by IMDG (International Maritime Dangerous Goods Code) shall not be transported by flexitank systems.

2.1 Non-dangerous goods (non-regulated goods)

Non-dangerous cargo (non-regulated goods) also commonly referred to as non-hazardous or non-classified) is cargo that is not classified as dangerous goods by the provisions of the IMDG Dangerous Goods Code. Non-dangerous goods are not included in the IMDG Dangerous Goods List and are not regulated by IMDG.

The Safety Data Sheet (SDS) shall be supplied by the shipper for the cargo to be transported and made available during the period of carriage. The SDS provides details of the cargo classification as either dangerous goods or non-regulated / non-dangerous goods

Although non-dangerous goods are below the regulatory criteria to be classified and regulated as dangerous goods, they might nevertheless contain hazards and might not compatible with the flexitank material or suitable for safe reliable transport in a flexitank system.

All parties shall undertake a risk assessment before accepting any cargo for transport in a flexitank system. Cargo shall be risk assessed for compatibility with the flexitank material of construction, hazards detailed in the SDS and in addition any remedial cleaning and environmental pollution in the event of a leakage.

Cargo loading temperature range shall accord with the manufacturers' instructions,

All parties shall exercise responsible care at all times and ensure safe and reliable flexitank systems.

Nb. Safety data sheet is a requirement of UN Globally harmonised system of classification and labelling of chemicals (GHS)

2.2 Dangerous Goods

- Cargo classified as Dangerous Goods shall not be transported by flexitank systems.

IMDG Dangerous Goods List provides a list of substances classified as dangerous goods and provides the UN number, proper shipping name and Class.

Refer to the SDS (safety data sheet) to determine the cargo classification.

Nb: refer also to all national and regional regulations applicable in the region of carriage as requirements for the classification of dangerous goods might differ.

2.3 Compatibility

The cargo shall be compatible with the flexitank material of construction, entirely inert with the flexitank material and free from any risk of degradation or reaction.

Cargo temperature and ambient temperature range shall accord with the flexitank manufacturers specification and instructions.

Cargo compatibility risk evaluation shall be completed by each party (shipper, operator and carrier) and form part of the risk assessment. The manufacturer of the flexitank shall provide compatibility information and advice.

3: Quality management systems

3.1 ISO 9001:2015

Manufacturers shall implement quality management systems, at each manufacturing site, in accordance with the provisions of ISO 9001:2015 Quality management systems or equivalent and demonstrate compliance to an independent auditor.

An audit shall be carried out of the management system at each manufacturing factory site.

Auditor reports shall be undertaken by an independent, third party and external auditor accredited by a governmental body to undertake ISO 9001 audits. The Auditor should accord with the appropriate provisions of ISO 17020 Conformity assessment - Requirements for bodies providing audit and certification of management systems or ISO 17021 Requirements for bodies providing audit and certification of management systems.

ISO 9001:2015 is valid for a period of 3 years. Audits completed in accordance with ISO 9001:2008 remain valid until the expiry date of the certificate.

Alternative quality management systems to ISO 9001 are permitted subject to COA agreement.

3.2 Environmental management

Companies should implement an environmental policy that cares for the flexitank from point of manufacture to final disposal. Companies are recommended to implement ISO 14001 environmental management systems.

ISO 14001 is an internationally accepted standard that outlines how to put an effective environmental management system in place. It provides the framework for companies to meet corporate responsibility as well as legal or regulatory requirements.

3.3 Flexitank quality management list (FQML)

FQML is a reference document for use by COA shipping lines as part of their risk assessment.

The list is compiled by the COA on receipt of independent audit reports and certificates submitted by the flexitank manufacturer. The list is updated periodically. It is available from COA web site.

The FQML includes, for each COA flexitank manufacturer, the status of quality audits:

- ISO 9001 quality management system
- Installation, operating and training instruction manual
- Material tests
- Rail impact test.

The FQML records all flexitank manufacturing COA member companies. There are two categories:

Certificate of Compliance.	Issued to members that complete the four audits described in this Code (and paid annual membership fee).
Confirmation of Membership.	Issued to all members to that paid the COA annual membership fee (but not completed all the required audits).

4: Installation, operating and training instruction manual.

Competent installation of the flexitank in the container by properly trained personnel is an essential requirement for safe and reliable flexitank systems.

The manufacturer shall provide to all parties engaged in the flexitank transport, an Installation, Operating and Training Instruction Manual advising best practice for operating the manufacturers design and type of flexitank.

The manual may be printed or in electronic format and shall include text and pictorial or video instruction.

The language(s) shall be English and the language understood by the installer, operator or other participants, if not English.

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

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

4.1 Installation, operating and training instruction manual

The manual shall include detailed instruction of all processes and procedures required by the manufacturer for the safe and reliable operation of a flexitank. The manual shall specify the type and model reference of the flexitank and include at least the following subjects:

- Health, safety and environmental advice including the necessity to comply with the SDS.
- Process to determine the compatibility of cargo with the flexitank materials.
- Compatibility chart of the substances typically transported.
- Temperature range compatibility.
- Risk assessment process.
- Container selection and preparation.
- Flexitank installation.
- Freight container lining, constraining and any other ancillary equipment installation.
- Restraining systems (bulkhead) installation.
- Quality assurance procedure.
- Filling methods, including filling capacity control by calibrated measuring equipment.
- Action in the event of excessive container wall bulging or other incidents during filling.
- Marking the container.
- Discharge methods including draining of the flexitank and stripping the flexitank and linings from the container.
- Disposal, including safety and environmental best practice and recycling procedures.
- Recycling of restraining bulkhead and ancillary equipment.
- Incident management and emergency plan.
- Training scheme (see below) required level of competence and records of training.

4.2 Training

- The manual shall include a training scheme.
- The manufacture shall develop a comprehensive training scheme suitable for all personnel of the manufacturer, operator and shipper and others that install or operate flexitank systems.
- The training scheme shall provide for the appropriate level of competence to ensure a safe and reliable flexitank system
- Training shall be in general awareness and job specific function.
- Training schemes shall be designed for each type and design of flexitank supplied by the manufacturer.

4.3 Audit

An audit shall be carried out to verify:

- Installation, Operating and Training Instruction Manual meets the requirements of COA Code of Practice V5 section 4.

- Sample documentary evidence that the manual has been made available to users of the flexitank.

Nb. Audit report should confirm the manual reference number and the flexitank design and model reference to which the audit applies.

The audit is valid for 3 years.

Auditor reports shall be undertaken by an independent, third party and external auditor accredited by a governmental body. Unless otherwise authorised by the COA, the Auditor shall accord with the appropriate provisions of ISO 17020 Conformity assessment - Requirements for bodies providing audit and certification of management systems or ISO 17021. Requirements for bodies providing audit and certification of management systems.

5: Containers

5.1 General

Containers shall be 20ft or 40ft GP containers, rated to a minimum gross mass 30,480kg and conforming to the provisions of ISO 1496:2013 Part 1, and shall display a valid CSC plate (Convention for Safe Containers).

It is advisable to inform the shipping line that the container is to be used for a flexitank and to confirm the specified requirements.

5.2 Loading and Transport

This code of practice refers to a GP container loaded with a maximum capacity 24,000 litre flexitank not exceeding 24,000 kg.

The flexitank should be filled to the manufacturers specified filling capacity tolerance but within +/- 3% of the nominal capacity.

Flexitank systems shall comply with IMO Code of Practice for Packing of Cargo Transport Units (CTU Code) including annex 7 paragraphs 5.2.2 - 5.2.3:

“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 CTU and may cause damage or complete failure.

Therefore, the payload of a CTU should be appropriately reduced, when it is used for carrying a loaded flexitank. The reduction depends on the type of CTU and on the mode of transport.

When a flexitank is loaded into a general purpose CTU, the mass of the liquid in the flexitank should not exceed a value agreed with the CTU operator, to prevent the CTU from suffering bulging damages. Nb. CTU operator is defined as the carrier”.

After discharge of the flexitank cargo, the flexitank, linings and all equipment shall be completely removed from the container and safely disposed according to the environmental instruction and policy.

The container shall be redelivered to the shipping line completely empty and in the same condition as received.

5.3 Container condition

Containers for the carriage of flexitanks shall be in good serviceable condition and meet the shipping line condition criteria, e.g. CIC (Container Interchange Criteria), UCIRC (Unified Container Inspection & Repair Criteria) and in addition the COA Code of Practice V5 provisions.

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

If there are any sharp edges, dents or other defects or surface conditions that could potentially damage, snag or chaff the flexitank, the surface shall be covered with a suitable protective lining material.

Side and end walls

- Corrugated for the entire length, flat logo panels are not acceptable.
- Flat in the vertical plane with maximum deformation over the height of 10 mm.
- Welds smooth and free from sharp edges.
- Allowable dents, deformations and repairs shall be smooth.
- Previous repairs are acceptable providing that the quality of repair complies with this Code.

Floor (wood/plywood)

- Splinters and protruding nails, screws and other fixings not acceptable.
- Gouge not greater than 15mm depth - all gouges shall be covered with suitable protective lining.
- Misalignment of adjacent planks / panels not greater than 10mm. All misalignment shall be covered with protective lining.

Floor (steel)

- Cuts, sharp edges, burred gouges or sharp dents not acceptable.
- Floor shall be covered with a suitable protective lining.

Interior general

- Rear post shoring slots shall be free from dents or obstruction.
- Lashing rings should be checked for suitability.
- There shall be no sharp edges or excessive scratches to the interior.
- Walls and roof free from significant areas of rust or flaking paint.
- Floor and walls clean i.e. free of grit, carbon, sand, cargo residues etc.
- Floor and walls no transferable stains or significant odour.
- A suitable protective lining material shall be placed over the floor and walls.

Door hardware

- Each door shall have a minimum of two locking bars each retained by a minimum of three locking bar brackets.
- Locking bar cams shall correctly lock into both top and bottom locking bar cam retainers.
- Door handle security catches should close fully.
- Hinges shall be in working order and free moving.
- Door gear fixing on the inside of the doors shall be free from sharp points and edges.

Doors

- Doors shall close without obstructing the flexitank restraining system.
- To ensure that doors close properly, the container should be positioned on flat horizontal surface during the process of filling the flexitank with cargo.

CSC Plate

- A valid CSC plate shall be securely attached to the container.
- The plate shall display a valid PES (periodic examination scheme) or ACEP (approved continual examination programme).

Exterior:

- The exterior shall be free from markings relating to previous cargo.

6: Marking of container and flexitank

6.1 Container flexitank warning mark:

The container shall display a mark to warn that the container is loaded with a flexitank filled with liquid cargo.

The shipper shall be responsible to ensure that all required marks are displayed.

A flexitank warning mark shall be affixed to the outside of the left-hand door, in a position that it is obvious to the operator and acts as a warning before opening the right hand door.

The flexitank warning mark shall not obscure any other markings present on the container.

Marks shall be a minimum dimension A4 (210 x 297mm) and made of a material designed to remain intact in arduous marine conditions for a minimum of 90 days.

The warning mark shall contain a pictorial warning and text:

- Keep left hand door shut.
- Container loaded with flexitank containing liquid cargo.
- No fork-lift.
- Emergency contact information.

Text should be in English and the language understood in the region(s) of use.

6.3 Flexitank marking:

The flexitank shall be marked at the time of manufacture in accordance with PAS 1008:2016

PAS 1008:2016 requires that the flexitanks is marked with: a) reference to the performance test standard; b) the manufacturers name and/or recognised logo; c) a unique flexitank serial number; d) flexitank capacity (in litres).

Markings shall be located on the flexitank, such that when fitted within the container, it is visible when the right-hand door of the container is open.

6.4 Removal of container markings:

All markings shall be removed from the container after the flexitank has been removed from the container and the container is clean and safe

7: Flexitank materials

Flexitanks should be specified and manufactured with high quality materials and to best practice. Material tests are required as part of the manufacturers process.

The manufacturer shall carryout tests for each type of flexitank manufactured at each factory site. Test records shall be maintained.

7.1 Material Tests

Materials shall be tested accordance with the provisions of PAS 1008:2016 Specification for the performance and testing of a single use flexitank.

7.1.1 Loading and discharge valve test.

Valves shall be tested in accordance with the provisions of PAS 1008:2016 Specification for the performance and testing of a single use flexitank.

7.2 Audit of material and loading and discharge valve test.

A material test audit shall be carried out at each factory site for each type of flexitank manufactured.

The auditor should verify:

- Process records of PAS 1008:2016 flexitank material and valve tests.
- Evidence that tests undertaken meet the criteria of PAS 1008:2016.

The auditor shall be undertaken by an independent, third party and external auditor that is accredited by a governmental body. Unless otherwise authorised by the COA, the Auditor shall accord with the appropriate provisions of ISO 17020 Conformity assessment - Requirements for bodies providing audit and certification of management systems or ISO 17021 Requirements for bodies providing audit and certification of management systems.

PAS 1008:2016 Material and loading and discharge valve tests remain valid for a period of 3 years from the date of the test, provided there is no variation to the design beyond that specified.

8: Rail impact test

A rail impact performance test shall be carried out to show that the flexitank can be used to transport liquids safely without leaking and without causing permanent damage to the GP freight container.

A test shall be undertaken for each design of flexitank, manufactured at each factory site.

8.1 Rail impact test

The test shall be carried out in accordance with the provisions of the PAS 1008:2016 Specification for the performance and testing of a single use flexitank.

The test shall be carried out at a COA recommended test centre. Test centres are available in USA, Germany and China.

The test centre shall provide a report in accordance with PAS 1008:2016.

PAS 1008:2016 Rail impact tests remain valid for a period of 5 years from the date of the test, provided there is no variation to the design beyond that specified.

9: Insurance

All parties shall maintain an all risks liability insurance policy with an A rated insurer and insurance cover of not less than US$5 million for each potential incident. The cover shall be international and include all locations where the flexitank might be used.

The insurance shall provide all risks cover in respect of any potential product or public liability arising from any failure of the flexitank manufacture and or operation including risks attributable to design, manufacture, materials, quality, installation, cargo compatibility, filling, discharge, and any other event where there might be a liability.

10: Incident management

Upon notification of an incident, the carrier, shipper, operator, manufacturer or other contracted party or emergency responder, shall immediately take action to safeguard the health and safety of personnel, the public, the environment and minimise any leakage. The emergency plan should be enacted as appropriate.

As soon as possible the incident shall be reported to the cargo owner and all relevant parties. Actions shall 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 trans-load the cargo to another suitable flexitank system or an ISO tank container, IBC or drum(s).

Once the flexitank system is secured in a safe place, any loss minimised and all relevant permissions have been obtained, a detailed survey and report shall be completed and the cause of the incident and associated factors concluded.

The parties involved i.e. carrier or shipper (cargo owner), operator, manufacturer or insurer should appoint a surveyor to complete an investigation and a report. A joint survey might be appropriate.

The flexitank manufacturer shall keep records of reported incidents involving their flexitanks in accordance with PAS 1008:2016. These records include: a) the unique flexitank serial number; b) capacity of the flexitank; c) date of incident; d) location of incident; e) type of incident; f) quantity of cargo lost; g) cargo; h) volume and mass of cargo loaded; i) restraining system and other ancillary equipment; j) root cause or possible root causes; k) photographs of the incident including any damage to the flexitank, restraining equipment and the shipping container.

Shipping lines that are contributors to CINS (Container Incident Notification Scheme) should report the incident.

Contact:
Container Owners Association,
Suite 3 - Charter House,
26, Claremont Road,
Surbiton KT6 4QZ. United Kingdom

Email: secretary@containerownersassociation.org
Web: www.containerownersassociation.org

Amendments

Date:	Section	Amendment
27.10.16	5.2 CTU code	Annex 7 preceding existing 5.2.2 -5.2.3
06.02.17	1.2 (2) Key points	For purpose of clarity amended to read "….. existing test if less than 5/3 years. ….."
06.02.17	7.2 audit of material	For purpose of clarity amended to read "……. the existing test if less than 3 years…..".
06.02.17	8.1 rail impact test	For purpose of clarity amended to read " ….. the existing test, if less than 5 years …"
14.03.17	4.3 audit section ref.	COA Code of Practice V5 section 4.
05.11.2017	Introduction, 5.1, 5.2	Or 40ft
05.11.2017	4.3 manual audit	Re-format manual reference
05.11.2017	5.3 container condition	Added CIC container interchange criteria
05.11.2017	7.2 audit of material test	Re-format process records and sample test. Carried out changed to completed. Change auditor reports …., to The auditor …..
21.02.2018	7.2 audit of material test	Amended text to clarify audit process to read - Process records of PAS 1008:2016 flexitank material and valve tests. Evidence that tests undertaken meet the criteria of PAS 1008:2016.
21.02.2018	7.2 audit of material test	Remark concerning the transition period ending Dec 2017 removed
21.02.2018	8.1 Rail impact test	Remark concerning the transition period ending Dec 2017 removed
11.05.2018	4.3 Installation manual	Changed from a bullet point to a note and changed "to which manual applies" to which audit applies Nb. Audit report should confirm the manual reference number and the flexitank design and model reference to which the audit applies.
11.05.2018	1.3 key points	**Removed out of date - Material tests and rail impact tests shall be completed to PAS 1008:2016. To allow for a transition period to repeat any existing test if less than 5/3 years but not completed in accordance with PAS 1008:2016, the existing test shall remain valid until December 2017 except where there is a variation in design as defined by PAS 1008:2016**