

Container Owners Association

Code of Practice - flexitank operators

www.containerownersassociation.org

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Disclaimer

This technical document is intended for qualified operatives who have completed appropriate technical and health and safety training.

Shippers, operators, carriers, service providers and other users should nevertheless undertake their own risk assessment and ensure the container is fit for purpose, safe and reliable for transport and in accordance with the owners CSC approved procedure and other relevant regulations applicable in the region of use.

The COA and its members and personnel cannot and do not assume any liability for damage to persons or property or other consequences of any procedures referred to herein or of any omissions relating to practices and procedures.

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1. Introduction

The Code of Practice is provided by the Container Owners Association. There are two parts:

V6-M Flexitank manufacturers, including manufacturers that additionally provide operational services for their manufactured flexitanks via a wholly owned entity.

V6-O - Flexitank independent operators.

The Code of Practice for flexitank operators (V6-O)

This COA Code of Practice requires that the flexitank operator complies with the quality system and submit to independent quality audits and tests of the flexitank.

On satisfactory completion of the audits and tests, the manufacturer (V6M) and operator (V6-O) achieve the COA Quality Compliance (CQC). No document is issued, refer to the FQML.

The flexitank manufacturer and operator's compliance with the COA Code of Practice should form part of the shipping line's (carrier's) risk assessment process when transporting flexitank systems.

Flexitank manufacturers and appointed operators are required to supply flexitanks that are fit for purpose and of the required quality to ensure a safe and reliable flexitank system.

Flexitank manufacturers are required to take measures to ensure that appointed operators and other installers of their flexitanks are properly instructed in the required procedures that ensure a safe and reliable flexitank system.

Operators in compliance with this Code of Practice are required to supply only flexitanks manufactured by a holder of the CQC.

The operator may additionally hold a COA quality compliance in its company name by fulfilling or the criteria detailed in V6-O.

The manufacturers flexitank may be re-branded with the operator company name providing there is a system of traceability and the re-branding is authorised by the manufacturer.

The operator may achieve the COA Quality Compliance by:

- Compliance with the COA Code of Practice V6-O
- Completion of five audit requirements:

Audit requirement	Remarks	CoP. Ref: Section
Declaration	Operators declaration. Ref: section 2	2
Manufacturers endorsement of the operator	The manufacturer, who must hold a COA certificate of compliance certificate, should verify, the appointment of the operator. Ref: Section 2	2.1
ISO 9001 quality management system	Applies to the operator company	7.2
ISO 14001 environmental management	Or an equivalent policy or standard	7.3

Installation, operating and training instruction manual.	Includes the manufacturer's manual and added operator's specific functions	7.4
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COA members that achieve the COA Quality Compliance are recorded on the Flexitank Quality Management List (FQML). This is available to view on the COA website.

COA Quality Compliance.	Awarded to COA members that complete the four audits described in this Code. Recorded on the FQML and forms part of a carrier's risk assessment process.
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A COA member company that meets the requirements of a COA Quality Compliance may display the COA logo or otherwise indicate compliance with the Code.

All COA members are issued with an annual confirmation of membership. This only denotes membership of the COA.

Confirmation of Membership.	Issued to all members who have paid the COA annual membership fee.
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The Code of Practice was first developed by the COA in 2008 (Version 1) and amended in 2009 (V2) 2011 (V3) 2015 (V4) 2016 (V5) and 2019 (V6-M and V6-LO)

This Code of Practice (V6), dated 07.2019 supersedes all previous versions.

1.2 Definition

A flexitank is a large bladder with a 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.

Flexitanks can be constructed from polyethylene, polyethylene blends and polyvinyl chloride, but other materials can also be used.

The freight containers used are usually ISO dry freight 20 ft general purpose units (GP22), but 40ft and other sizes can also be used. The flexitank is required to be designed for the type and length of the container to be used.

The maximum capacity under this Code of Practice is 24000 kg and 24000 litres and is additionally subject to the provisions of the IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units (CTU Code).

The flexitank is used only for the transport of liquids that are not classified or regulated as dangerous goods in accordance with the IMDG Code.

Other regulations, such as National regulations or GHS (Globally Harmonised System of classification and labelling of chemicals) and National Health & Safety requirements, are not within the scope of the COA Code of Practice but should, nevertheless, be applied as appropriate by the company.

1.3 Obligations of participants

COA:

- Provision of the Code of Practice for a single use flexitank system.
- Issue the Certificate of Quality Compliance as appropriate
- Provision 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:

- Operate the flexitank system in accordance with the manufacturer's 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.
- Transport only cargoes that are classified as non-regulated (non-dangerous) and are compatible with the flexitank system and the risk assessment outcome supports safe and reliable transport.

Shipping lines (carriers):

- Refer to the FQML when evaluating flexitanks
- Risk assessment of the flexitank system and the cargo, prior to carriage on their vessel, to meet their company requirements and conditions of carriage.

1.4 Incident management

Upon notification of an incident, the carrier, shipper, operator, manufacturer or other contracted party or emergency responder, should immediately take actions to safeguard the health and safety of personnel, the public, the environment and take measures to minimise any leakage. The 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, IBC's or drums.

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

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 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 and for auditing and insurance purposes.

The records should include:

a) the unique flexitank serial number	g) cargo name
b) capacity of the flexitank	h) volume and mass of cargo loaded
c) date of incident	i) restraining system and other ancillary equipment
d) location of incident	j) root cause or possible root causes
e) type of incident	k) photographs of the incident and any damage to the flexitank, restraining equipment and container
f) quantity of cargo lost	

1.5 Insurance

The company is required to hold an all risks liability insurance policy with an A rated insurer and insurance cover commensurate with risk but not less than US\$5 million. The cover should be international and include all locations where the flexitank might be used.

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

2. Declaration of compliance with the COA Code of Practice

The declaration is required to be completed by the COA Flexitank operator and manufacturer member and submitted by email in pdf format to the COA secretariat.

Declaration by Operator

Company name:

Address:

COA Code of Practice: Declaration V6-O

I confirm that The Company:

- Commits to high professional standards of integrity, manufacture and safety and operates in compliance with all applicable governmental regulations.
- Complies with the all relevant laws, including health and safety and anti-trust legislation, in the countries where it operates
- Supplies all its flexitanks to a specification that is fit for purpose and manufactured by a company holding the COA Quality Compliance named as a counter signatory to this declaration
- Operators flexitanks to comply with the recommended Installation, operating and training instructions.
- Supports an environmental policy from point of flexitank manufacture to final disposal.
- Complies with the COA Code of Practice.

In the event that the Company does not meet the provisions of this declaration or ceases to be a valid member of the COA, the Company undertakes to cease the display of 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:

2.1 Manufacturers endorsement of the operator

The endorsement of the operator is required to be completed by the manufacturer

Manufacturers endorsement of the operator

Manufacture Company Name:

Address:

Operator Company Name:

Address:

COA Code of Practice: V6-O

I confirm that the above operator company is authorised to:

Operate flexitanks manufactured by:

Re-brand manufactured flexitanks using the name:

Company:

Signed:

Title:

Date:

Company stamp:

2. Cargo – non-regulated (non-dangerous) substances.

- ***Substances (cargo) classified as Dangerous Goods in accordance with the provisions of the IMDG Code (International Maritime Dangerous Goods Code) are not permitted to be transported by flexitank systems.***

3.1 Non-dangerous goods (non-regulated goods)

Non-regulated goods (non-dangerous goods) also commonly referred to as non-hazardous or non-classified, are substances that do not meet the criteria to be classified as dangerous goods by the provisions of the IMDG Dangerous Goods Code.

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

This Code of Practice is focused on IMDG. Be aware that other regulations might apply e.g. National regulations or GHS (Globally Harmonised System of classification and labelling of chemicals)

All parties should undertake a risk assessment before accepting any cargo for transport in a flexitank system.

The Safety Data Sheet (SDS) should be supplied by the shipper for the cargo to be transported and made available during the period of carriage.

In addition to the required classification as non-regulated to IMDG criteria, the cargo should be risk assessed for compatibility with the flexitank material of construction, hazards detailed in the SDS and any remedial works and environmental pollution in the event of a leakage.

Cargo temperature range should accord with the flexitank manufacturer's operating instructions.

All parties are required to 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)

3.2 Dangerous Goods – not allowed

Substances classified as Dangerous Goods in accordance with IMDG Code are not allowed to 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 all National and Regional regulations applicable in the region of carriage as the requirements for the classification of dangerous goods might differ.

Refer to the shippers valid SDS (safety data sheet).

3.3 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.

The cargo temperature and ambient temperature range should accord with the flexitank manufacturer's specification and instructions.

A compatibility risk evaluation shall be completed by each party and form part of the risk assessment. The manufacturer of the flexitank should provide compatibility information and advice.

4: Container condition

4.1 General

Flexitanks shall be installed in 20ft GP containers, rated to a minimum gross mass 30,480kg. The container should conform to the provisions of ISO 1496:2013 Part 1, and display a valid CSC safety approval plate (Convention for Safe Containers).

Flexitanks may also be specially designed to be installed in 40ft GP containers and other types.

4.2 Loading and Transport

The flexitank is required to be filled to the manufacturer's specified filling capacity and a tolerance of +/- 3% of the nominal capacity.

The flexitank specified capacity should be a maximum of 24,000 litres and not exceed 24,000 kg.

Flexitank systems shall also comply with IMO Code of Practice for Packing of Cargo Transport Units (CTU Code):

- Chapter 5, General conditions of transport
- 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 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 should be completely removed from the container and safely disposed according to the environmental instruction and policy.

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

4.3 Container condition criteria

Containers for the carriage of flexitanks must be in good serviceable condition.

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.

Shipping lines usually supply containers to the service condition according to UCIRC (Unified Container Inspection & Repair Criteria). Check with the shipping line the specific container condition to be supplied.

In addition to UCIRC (or similar criteria) requirements, containers to be used for transporting a flexitank should comply with the COA Code of Practice.

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

Component	Container condition in addition to UCIRC condition criteria
Side and end walls	<ul style="list-style-type: none"> • Corrugated for the entire length, flat logo panels are not acceptable • Flat in the vertical plane, maximum deformation over the height of 10 mm • Construction welds smooth and free from sharp edges • Repair welds smooth and free from sharp edges • Allowable dents, deformations and smooth and free from sharp edges
Floor (wood/ply)	<ul style="list-style-type: none"> • Splinters and protruding nails, screws and other fixings not acceptable. • Gouge not greater than 15mm depth - all gouges should be covered with suitable protective lining • Misalignment of adjacent planks / panels not greater than 10mm. All misalignment should be covered with protective lining
Floor (steel)	<ul style="list-style-type: none"> • Cuts, sharp edges, burred gouges or sharp dents not acceptable • Floor should be covered with a suitable protective lining
Interior	<ul style="list-style-type: none"> • Rear post shoring slots required and free from dents or obstruction • Lashing rings fit for purpose • There should 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 should be placed over the floor and walls
Doors	<ul style="list-style-type: none"> • Doors should close without obstructing the flexitank restraining system. • To ensure that doors close properly, the container should be positioned on a flat horizontal surface during the process of filling the flexitank with cargo.
Door hardware	<ul style="list-style-type: none"> • Each door should have a minimum of two locking bars each retained by a minimum of three locking bar brackets. • Locking bar cams fully lock into both top and bottom locking bar cam retainers • Door handle security catches fully close in a secure position • Hinges in full working order and free moving • Door gear fixing on the inside of the doors free from sharp points and edges
Exterior	<ul style="list-style-type: none"> • The exterior free from markings relating to previous cargo
Safety approval plate (CSC)	<ul style="list-style-type: none"> • A valid CSC plate should be securely attached to the container • The plate should display a valid PES (periodic examination scheme) or ACEP (approved continual examination programme)

5. Marking of container and flexitank

5.1 Container flexitank warning mark:

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

Container flexitank warning mark	
Dimension	<ul style="list-style-type: none">▪ A4 (210 x 297mm)
Material	<ul style="list-style-type: none">▪ Designed to remain intact in arduous marine conditions for a minimum of 90 days.
Pictorial content depicting	<ul style="list-style-type: none">• Keep left hand door shut.• Container loaded with flexitank containing liquid cargo.• No fork-lift.• Emergency contact information.
Language (in addition to pictorial content)	<ul style="list-style-type: none">▪ Text should be displayed in English and the language understood in the region(s) of use.
Location, position of mark	<ul style="list-style-type: none">• Affixed to the outside of the left-hand door• In a position that it is obvious to the operator• Acts as a warning before opening the right-hand door.• Do not obscure existing statutory marks on the container.

5.2 Removal of container markings:

All flexitank warning marks should be removed from the container after the flexitank has been discharged from the container.

5.3 Flexitank mark:

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

The mark should be positioned on the flexitank, such that when the flexitank is installed in the container, the marks are visible when the right-hand door of the container is open.

The flexitank mark comprises:

a) reference to the performance test standard	c) a unique flexitank serial number
b) the manufacturer's name and/or recognised logo	d) flexitank capacity (in litres)

6. Quality management scheme

The COA quality management scheme provides criteria to be considered by shipping lines and others during the risk assessment process.

The requirements for manufacturers and operators differ. Refer to CoP. V6-M for details of the manufacturer's quality scheme.

The operator may hold a COA Quality Compliance in its company name by fulfilling or the criteria detailed in V6-O.

Operators in compliance with this Code of practice should supply only flexitanks manufactured by a holder of the COA Quality Compliance.

The operator supplied flexitank may be re-branded with the operator company name in place of the manufacturers name, providing there is a system of traceability and the re-branding is authorised by the manufacturer.

The quality management scheme requires the operator company to successfully supply five one-page documents in PDF format.

On completion the company is awarded the COA Quality Compliance. No document is issued, refer to the FQML.

Audit Description	Criteria	Valid	Applies to O- Operator M- manufacturer
Company declaration	CoP Section 2	3-Yrs	O & M
Manufactures endorsement of operator	CoP Section 2		O
Quality Management	ISO 9001:2015	3-Yrs.	O & M
Environmental management	ISO 14001:2015 or equivalent	3-Yrs.	O & M
Installation, operating and training instruction manual.	COA CoP V6	3-Yrs.	O & M
Material tests, including loading and discharging valves	PAS1008:2016	3-Yrs.	M
Flexitank system rail impact test	PAS1008:2016	5-Yrs.	M

Note:

1. The operators COA Quality Compliance is invalid if the operator ceases to provide flexitanks manufactured by a company holding a valid CQC.
2. If there is a variance flexitank manufacture beyond that detailed in PAS1008, audits and tests should be repeated.

ISO 9001 and ISO14001 audits are required for at least the operators head office.

An installation, operating and training instruction manual audit is required to for each model of flexitank supplied. Manuals may be combined to cover one or more flexitank models.

6.1 Flexitank quality management list (FQML)

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

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

The list is compiled on receipt of the audit reports from the manufacturer of the audit reports.

The list is updated periodically and is available to view on the COA web site.

7. Audits and tests

The COA Code of Practice requires that the flexitank manufacturer and operators comply with the quality management system and submit to independent quality audits and tests of the flexitank.

On satisfactory completion of the audits and tests, the operator achieves the COA Quality Compliance. No document is issued, refer to the FQML.

The operator's COA Quality Compliance requires five documents:

Operator requirement	Remarks	Audit requirement
Operator declaration (CoP. section 2)	Self-declaration	Not applicable
Manufacturers endorsement of the operator	The manufacturer, who must hold a COA quality compliance, should verify, the appointment of the operator	Not applicable
ISO 9001 quality management system	Operator's company	Independent audit certificate
ISO 14001 environmental management	Or an equivalent.	Independent audit certificate/report
Installation, operating and training instruction manual.	Includes the manufacturer's manual and added operator's specific functions	Independent audit/certificate/report
<p>Nb. The operator should supply the 5 documents (1 page each) in pdf format to technical@containerownersassociation.org</p>		

7.1 Auditor

Audits shall be undertaken by an independent, third party and external auditor accredited by a governmental body.

Unless otherwise authorised 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 appoint the auditor, make the necessary arrangements and bear the full costs of the audits.

The auditor is required to provide an audit report for each of the audits successfully completed.

This audit report /certificate should consist of a one-page document for each audit completed and supplied to the COA by the flexitank company in PDF electronic format.

Audit	Report / Certificate Format	Report/Certificate Content to include:
ISO 9001	ISO prescribed	<ul style="list-style-type: none">▪ ISO prescribed
ISO 14001	ISO prescribed	<ul style="list-style-type: none">▪ ISO prescribed
Installation, operating and training instruction manual.	A4, one page	<ul style="list-style-type: none">▪ Confirmation that the manual meets the requirements of COA Code of Practice V6▪ Manual reference number▪ Flexitank design/model reference▪ Date of manual

7.2 Quality Management Systems

Manufacturers should implement quality management systems in accordance with the provisions of ISO 9001.

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

An audit should be carried out at each manufacturing factory site.

7.3 Environmental management systems

Manufacturers should implement an environmental management system in accordance with the provisions of ISO 14001:2015 Quality management systems.

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

An audit should be carried out at least at the operators head operating office.

The audit requirements for ISO14001 are prescribed by ISO.

For alternative environmental policies the auditor is not required to be an expert in the content but should be reasonably satisfied that there is evidence that policy content has been competently prepared.

7.4 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 should provide to all parties engaged in the flexitank transport, an Installation, Operating and Training Instruction Manual advising best practice for operating the manufacturer's design and type of flexitank.

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 understood by the installer, the operator and other participants.

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) should provide instruction for each of the flexitank types and designs manufactured.

7.4.1 Installation, operating and training instruction manual - content

The manual should include detailed instruction of all processes and procedures required by the manufacturer for the safe and reliable operation of a flexitank. The manual should 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.
- Environmental best practice including recycling procedures and safe disposal.
- Recycling of restraining bulkhead and ancillary equipment.
- Incident management and emergency plan.
- Training scheme for general awareness and job specific functions of flexitank installers, operators and shippers.
- Training should be to the level of competence commensurate with the task and include record keeping procedures.

Note: The operator's manual may include the contents of the manufacturer's manual and add any additional operator specific functions including evidence that the training scheme has been implemented by the operator.

7.4.2 Audit procedure

The audit shall verify:

- Installation, Operating and Training Instruction Manual meets the provisions of 7.4.1 contents.
- Manual reference number, date and the flexitank design and model reference to which the audit applies.
- Sample documentary evidence that the manual has been made available to users of the flexitank.

The audit is intended as a desk-top review by the auditor of the manual contents. The auditor is not required to be an expert in the contents of the manual but should be reasonably satisfied that there is evidence that manual content has been competently prepared.

Contact:

Container Owners Association,

Email: technical@containerownersassociation.org

Web: www.containerownersassociation.org

Date:	Section:	Type:	Amendment:
12.2019	1 Intro	Edit	Clarify V6-M and V6-O