RESOLUTION OENO 1/2000

GOOD PRACTICES GUIDE FOR BULK WINE TRANSPORTATION

THE GENERAL ASSEMBLY,

HAVING TAKEN ACCOUNT of the work of the Group of Experts, "Technology of Wine",

DECIDES on the proposal of Commission II, Oenology, to annex the "Good Practices Guide for Bulk Wine Transportation" to the International Code of Oenological Practices.

GOOD PRACTICES GUIDE FOR BULK WINE TRANSPORTATION

1. USE OF THE CODE

This Code of Practice has been developed by the International Wine Office (OIV)[1]. It incorporates procedures to which Suppliers and Purchasers on the one hand and Freight Forwarders and Ship Owners on the other, should refer when negotiating contracts concerning bulk wine transport operations.

The Code is advisory in nature, but all the practices proposed, subject to their conformity with the applicable regulations in the various regions concerned, are in actual and successful use. With proper application, they contribute to the quality of the wine during transit and to guaranteeing its authenticity.

2. SCOPE

The Code of Good Practice applies to the handling of wine (both table wine and quality wine) in bulk. It contains the minimum requirements to ensure acceptable cleanliness and freedom from any defect or contaminant which could adversely affect the characteristics or quality of the wine being carried, including its authenticity

3. INTRODUCTION

3.1. GENERAL

Two types of alteration can occur in wine during the operations dealt with in this

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Code; oxidation and contamination. The susceptibility of wine to alteration depends upon several factors including the type and characteristics of wine under consideration. These should be considered when transporting the wine.

3.1.1. Oxidation

Contact of wine with oxygen, present in the atmosphere, causes chemical changes in the wine which change its quality. Much can therefore be gained by limiting to a maximum the amount of air contact with the wine and this principle is the basis of several of the recommendations in this Code. Oxidation proceeds more rapidly as temperature increases, so each operation should be carried out at the lowest practicable temperature but without stimulating tartrate precipitation where either the supplier or the purchaser wants to avoid it. In any case, it is worth noting that oxygen is more soluble in wine at low temperature than at higher temperature. The rate of oxidation may be increased by the catalytic action of certain metals, even when trace amounts are present. Because of this, great care should be taken in the selection of materials which come into contact with the wine during transport.

3.1.2. Contamination

Undesirable contamination may be chemical, physical or microbiological in nature. It may arise from residues of a previous material handled in the equipment, from ingress of dirt, rain or seawater or through the deliberate or accidental addition of a different product. In ships, particular difficulty may be experienced ensuring cleanliness of valves and pipelines, especially where they are common for different tanks. Contamination is avoided by good design of the systems, adequate and strict cleaning routines and an effective inspection and sampling service, and the rejection of tanks which have carried unsuitable previous cargoes.

3.2. DEFINITIONS

3.2.1. Supplier

The company or companies from whose cellars the wine is to be collected for shipment.

3.2.2. Purchaser

The Party that has placed a contract for the wine to be collected from the Supplier and transported.

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3.2.3. Ship Owner/Agent/FreightForwarder

The Party that has been contracted to transport the wine, whether this be Ship Owner, Agent, tankcontainer/roadtanker operator or a commissioner of transport

3.2.4. Acceptable cleanliness

For tanks, pipelines, and all ancillary equipment, including pumps with which the wine comes into contact, a state of Acceptable Cleanliness is defined, after cleaning and disinfection, as follows:

- All items shall be free from taint or perceptible odor.
- No traces of solvents or debris shall remain.
- No traces of previous cargoes shall remain.
- No traces of detergents or sanitising agents shall remain.
- Equipment must be disinfected and rinsed before use, according to the use of the equipment and the nature of the wine.

3.2.5. Conditions of use

Tanks, containers and all ancillary equipment must be in excellent condition, physically and mechanically, and fit for the purpose intended. It should be noted that alcoholic beverages may be classified under IMO and or ADR as flammable cargoes and that tanks carrying such substances should comply with appropriate construction criteria for transport.

3.2.6. Washing

Cleaning must be conducted by a pressure spray system using a rotating head, or by a system of equivalent efficacy. Water and cleaning agents should be used. The water used for all rinsing operations of surfaces in contact with wine must be clean and free from microbial or other contamination, and without residues of organic or inorganic disinfectants, whether oxidative or not (Cl_2, O_3, ...). It must also have a low content of calcium and iron.

4. TRANSPORTATION

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4.1. CONSTRUCTION OF TANKS AND ANCILLARY EQUIPMENT

4.1.1. General

All materials used in the construction of tanks and of ancillary equipment, such as hoses, hose connections, pipelines, seals and gaskets, valves, strainers, pumps, temperature gauges or sampling apparatus, should be inert to wine, and should meet any appropriate legislation concerning materials in contact with food.

Copper and its alloys, such as brass, bronze or gun metal, should not be used in the tanks or ancillary equipment of a ship or road/rail tanker that are designed for the transport of wine. Temperature gauges containing mercury should not be used. Glass equipment and glass sample bottles should be avoided where breakage might lead to contamination.

4.1.2. Tanks

All tanks, pumps and fittings should be constructed of stainless steel, of polished AISI 304 or 316 (EN58J) quality or equivalent rating. Where existing vessels with tanks constructed of materials other than AISI 304 or 316 stainless steel are required to be used, the Purchaser must be informed and his approval to use the vessel obtained in writing in advance. In this event, the Purchaser should notify the Supplier or Agent that approval has been given for the vessel to be loaded subject to the condition of the vessel being acceptable immediately prior to loading.

In all cases, tanks should be fitted with a bottom outlet valve capable of being connected to the pumps to assist cleaning and sanitising procedures, to ensure complete drainage, and to allow bottom loading and discharge of the wine. This is an essential requirement for tankcontainers and roadtankers.

Ideally, ships' tanks should each be fitted with an independent pump which should be reversible to allow wine to be loaded and discharged via a bottom outlet valve. Pumps must be capable of being cleaned, sanitised and inspected as described in Sections 6.2 and 5.1, respectively.

Internal fittings within the tank should be kept to a minimum and should be constructed of the approved grade of stainless steel. For roadtankers and tankcontainers, all internal fittings should be constructed of the agreed grade(s) of stainless steel (see above). Internal ladders must have fully sealed ends except in the case of the side supports of a ladder being specifically designed for use as a loading or discharge pipe. In this case the ladder rungs must be completely sealed from the loading/discharge section.

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Tank doors or manways should be of sound construction and well-fitting. They should be easily accessible for steaming, washing with a pressure spray system using a rotating head or other cleaning and sanitising procedures. Sealing gaskets/washers should be detachable from the tank door or manway to allow manual cleaning and replacement at regular intervals.

It may be useful to equip each compartment of the container or tank with a cleaning-in-place system, correctly sized and positioned. However, this should be avoided if the container or tank is also used to transport viscous liquid foodstuffs.

Tank closing or sealing devices should be constructed in such a way that will not allow the intake of air or liquid during a sea voyage. Where necessary, seals should be tamper evident or should comply with appropriate excise requirements.

Expansion pipes and pressure relief valves should be constructed of stainless steel and be of sound construction. They must be capable of being cleaned and sanitised and should include a non-return valve to prevent the return to the tank of the expanded liquids, with suitable provision to avoid a consequential vacuum in the tank. Particular attention must be given to the pressure in tanks during transport and discharge.

Fittings should be of a common size either 80 mm, 90 mm, 100 mm or 150 mm, preferably of the bayonet type with free jointing or male screw thread. Where nonstandard fittings are in use, suitable cleaned and sanitised stainless steel adapters should be made available by the Ship Owner or Freight Forwarder.

It is strongly recommended that tanks should be insulated against temperature variations which might be reasonably anticipated in the course of transit. Where appropriate, further temperature control equipment should be fitted, to give in all cases the possibility to refrigerate the tank or the wine and to monitor temperature.

4.1.2.1. Flexible containers

The containers should be constructed from inert materials, approved for wine contact and impervious to oxygen and potential volatile contaminants (such as chloroanisoles, petroleum, fuel oil,....).

4.1.3. Hoses, pipelines and pumps

All flexible hoses used during loading and unloading must be of inert material suitable for contact with wine, be suitably reinforced and be of such a length to make cleaning easy. Couplings should be of stainless steel or other inert materials. When not in use, all flexible hoses for delivery of the wine shall be stored with the ends capped after draining and not in contact with the floor. There must be clear marking or identification systems for pipelines.

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4.1.4. Precautions against unnecessary exposure to air

Pipelines and their connections should be designed to prevent the admission of air. It may be appropriate to sparge the wine with nitrogen, carbon dioxide or a mixture of nitrogen and carbon dioxide to remove oxygen during loading and unloading. Tank filling should be done wherever possible from the bottom of the tank. Where filling is done over the top of the tank, the pipe (cleaned on the inside and outside) should lead to near the bottom to avoid cascading and thus aeration. It is preferable to purge the pipeline leading to the tank with inert gas before use. However, if air is used a suitable means must be provided to prevent it coming into contact with the wine in the tanks. It is essential that any air or inert gases used in these operations be of food quality.

Where necessary, equipment for the provision of inert gas blanketing of the wine during transport should be fitted in accordance with the appropriate construction and operating regulations or recommendations for tankcontainers.

Containers, tanks or their compartments should be fully filled so as to limit the risk of oxidation.

4.2. CARGOES CARRIED

It is preferable that tanks and containers used for bulk transport of wine should be dedicated to carrying only must, grape sugar, wine or potable spirit. Particular care should be taken with tank cleaning when the previous cargo contained aromatic spirit or other aromatic food commodity.

Other foodstuffs may be carried as previous cargo but only with express written agreement of the Purchaser. In the case of oils, fats, dairy products, animal feed or other substances that may technically be considered as foodstuffs (food-grade products for pharmaceutical use, for example) particular precautions must be applied in regard to cleaning. The precise cleaning and sanitising steps used should be adapted according to the nature of the immediate previous cargo (see section 6.2).

For ships' tanks, the Purchaser should be advised in advance in writing of the exact nature of the previous cargo carried. In some cases, Purchasers may require details of a number of the cargoes carried prior to the shipment of the Purchaser's wine where the use of common loading or discharge equipment may cause contamination or loss of its quality. Other cargoes on the vessel at the time of loading and those planned to be handled prior to off-loading should also be identified.

For tankcontainers, the previous cargo should be noted on the cleaning certificate or certificate of intervention.

The different parties (3.2.1., 3.2.2., 3.2.3.) must be informed of any passivation that may

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have been performed on the tank.
It is not permissible for Freight Forwarders to use tankcontainers that have previously carried non foodstuff cargoes[2]

5. INSPECTION, CERTIFICATION AND SAMPLING

5.1. INSPECTION AND CERTIFICATION

5.1.1. Ships' tanks

It is imperative that an independent surveyor is employed to check all aspects of the tanks, containers and ancillary equipment. This surveyor should be trained so that he/she has a full understanding of the Code, the Supplier's and Purchaser's written requirements and the specific requirements of the wines being transported. In addition, it is strongly recommended that a member of the Supplier's technical staff attends loadings to ensure that the surveyor is fully briefed and effective and check that the ship's crew is aware of the nature of the product being transported.
In accordance with the terms laid down in the charter party, it is the responsibility of the Ship's Master to provide (for the shipment and discharge of wine) tanks or containers, pumps, pipelines, hoses and any other ancillary fittings which are in good repair, of satisfactory cleanliness (see section 6.2) and free from any taint or defect which could adversely affect the quality or characteristics of the Purchaser's wine.
The Purchaser, his Accredited Agent or any independent surveyor (recognized as competent in the area of international transport of foodstuffs) appointed by the Purchaser (and acceptable to both the Purchaser and Ship's Owner) should carry out an examination of all tanks, containers and other equipment to be used. A certificate of inspection (see example in Appendix 1) should be completed and signed by the Ship's Master/Chief Officer.
The certificate of inspection should contain the following information:

- The Plan of Loading
- The nature of products carried on the previous voyage (or more if requested by the Purchaser (see 4.2)).
- The nature of any additional cargoes being carried at the same time as the Purchaser's wines together with details of any discharges carried out prior to the Purchaser's destination.

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- Precise details of cleaning procedures used to remove residues of previous cargoes and subsequent sanitising procedures.
- Suitability of tanks, pumps, hoses, etc., to receive the wine (i.e. freedom from damage or defect, cleaning completed satisfactorily, visual appearance acceptable, etc.).
- Guarantee of perfect segregation of the cargo.
- Additional information as required by individual Purchasers.

Any details regarding unacceptable standards in the tanks or equipment to be used should be recorded, together with the action taken by the Ship's Master/Chief Officer to rectify those standards.

The independent surveyor has the right to reject any individual tank or item of equipment which he/she considers to be in an unacceptable condition for loading the wine, giving his reasons in writing to the Ship's Master/Chief Officer, and to require the Ship's Master/Chief Officer to take the necessary steps to bring the tank or equipment up to the required standard.

Loading will not normally be permitted until the certificate of inspection has been completed and approved by the surveyor/accredited Agent. However, in the event of the majority of tanks and equipment being passed as acceptable, loading may commence into these tanks and equipment while action is being undertaken to bring the unacceptable tanks and equipment up to the required standards.

One copy of the completed certificate of inspection should be made available to each of the following:

- Ship's Master
- Surveyor
- Purchaser's Agent (if different from the Surveyor)
- Ship's Owners
- Purchaser

Copies for the Ship's Owners and the Purchaser should be dispatched by airmail or fax to be available in advance of the ship's arrival at its destination. The Ship's Owner is required to notify the Purchaser of the previous cargoes carried in the ship, preferably 5 days in advance of the ship being presented for loading.

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5.1.2. Other tanks, including flexible containers

The transport operator shall not be responsible for the provision or condition of any hoses, pumps, pipelines or other ancillary equipment used for the loading and/or discharge of the goods unless previously agreed with the Supplier or Purchaser.

Certificates of cleanliness should be issued after cleaning for each tank (see Appendix 2 for an example). Presentation of these certificates may be made directly to the loading bay, or by arrangement between the Freight Forwarder and the Purchaser. Details may be notified by telex or fax and the original certificates retained on file.

Tankcontainers and roadtankers carrying alcoholic beverages classified under appropriate regulations as flammable liquids must be equipped and labeled to comply with the appropriate regulations. The consignor has a statutory duty to ensure that these regulations are complied with before dispatch of the transport unit.

5.2. SAMPLING OF THE WINE

5.2.1. Introduction

It is strongly recommended that adequate samples should be taken at each stage at which the wine is handled so that, in the event of a defect (including lack of authenticity) or contamination being found in the wine the cause and source of the defect or contamination can be established. It is the responsibility of the party taking the samples to ensure that the samples are taken under conditions of strict hygiene in such a manner that will neither infect nor contaminate the sample or the wine in the tank.

Samples should be taken in clean, sterile bottles kept solely for the purpose. Samples should be representative of the condition of the wine being sampled and should be clearly labeled, hermetically closed, possibly sealed and stored under suitable conditions. The used of receptacles having tamper-evident closures is recommended.

Sampling cans used in ships' tanks operations must be thoroughly cleaned and rinsed in fresh, potable water before use. Ideally, they should also be sanitized by immersion in a suitable sanitizing solution followed by rinsing in fresh, sterile-filtered or sterilized potable water.

Where necessary, the Purchaser will arrange for suitable sterile sample bottles to be provided by the Supplier or other nominated Agent at the points of loading and discharge.

The samples should be clearly labeled, hermetically closed and possibly sealed, in a manner acceptable to all parties.

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All the samples taken must be retained for at least 90 days or any period specified in the contracts signed by the Purchaser, the Supplier and the shipping Agent. In cases of dispute over the quality or the condition of the wine, these samples may be analyzed by accepted experts so as to establish when the fault occurred. Additional samples may be requested by the buyers involved.

5.2.2. Sampling prior to loading

5.2.2.1. Supplier's cellars

The Supplier should take at least 4 samples of between 0.5 and 1.0 liters from each vat from which the wine is to be drawn for shipment. Samples should be drawn under strictly hygienic conditions from the heart of the tank or compartment and should be representative of the condition of the wine immediately prior to shipment. Samples should be hermetically closed, possibly sealed, clearly labeled and signed by the Supplier or in his/her presence.

- One sample should be retained by the Supplier.
- One sample should be retained by the Freight Forwarder, Ship Owner or his Agent.
- Two samples should be available to the Purchaser.

5.2.2.2. Transportation to ship's side

In the event of the wine being transported to ship's side by means of a container, tanker, rail wagon, etc., samples may be required from each container, tanker, rail wagon etc., after loading. Details of the number of samples required and of the parties requiring these samples should be agreed in writing between the Supplier and the Purchaser or the Purchaser's accredited Agent.

5.2.3. Sampling at loading

A minimum of 3 samples of between 0.5 and 1.0 liters should be taken from each tank containing the wine immediately after loading has been completed. The samples should be taken hygienically and representatively, as specified in 5.2.2.1

Ideally, samples should be taken by the Supplier or loading point Staff in the presence of a representative of the Freight Forwarder. The samples should be clearly labelled, hermetically closed and possibly sealed in a manner mutually acceptable to all parties.

One sample should be signed for and retained by the Supplier, Freight Forwarder or

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Ship's Master. One sample should be retained by the Purchaser's accredited Agent. One sample should be retained for the Purchaser.

5.2.4. Sampling on arrival

Samples should be taken from each tank prior to the commencement of unloading at the point of discharge. The samples should be taken hygienically and representatively, as specified in 5.2.2.1.

The number of samples required may vary and should be agreed in advance between the Supplier, Freight Forwarder or Ship's Owner, and the Purchaser or the Purchaser's accredited Agent.

Samples should be taken by the Purchaser in the presence of a representative of the Freight Forwarder. Representatives of other interested parties may be present if the contract permits.

6. OPERATIONS

6.1. LOADING AND UNLOADING

6.1.1. Preparation of the wine for shipment

The wine to be transferred to tanks for transport shall conform to the specifications of the purchaser and to the legislation in the destination country concerning organoleptic and physico-chemical properties. The microbiological quality of the wine shall be defined by agreement between the Purchaser and the Supplier. In effect, the wine must remain of merchantable quality throughout its journey.

The correct pre-treatment, such as filtration, addition of preservatives, is the responsibility of the Supplier in agreement with the Purchaser and is normally carried out under the immediate control of the Supplier.

It is the responsibility of the Supplier and/or the Purchaser to ensure that any treatments, additions of preservatives, etc., do not infringe regulations of the country importing the wine.

It is the responsibility of those supervising the loading of tankcontainers to satisfy themselves that the overall condition of the tankcontainer reaches an acceptable standard for the transport of its cargo. If the tankcontainer is presented in a contaminated, dirty or otherwise unserviceable condition contrary to the terms on which it is hired, then the Supplier may refuse to load it. If he/she chooses to load, it is done at the Supplier's responsibility. If not, it is the responsibility of the Freight

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Forwarder to arrange effective cleaning and sanitisation of the defective tankcontainer or to provide a satisfactory alternative tankcontainer.

6.1.2. Readiness of tanks and containers for loading or unloading

6.1.2.1. Ships' tanks

The vessel shall not be considered ready for loading or unloading until it has been inspected and it is confirmed that all equipment such as tanks, pumps, manifolds, hoses, fittings, are in a condition of Acceptable Cleanliness.

If the accredited surveyor / Agent at the point of loading or unloading is not satisfied with the condition of the equipment to be used, the vessel shall not be deemed ready for loading / unloading until the necessary steps have been taken by the Ship's Master / Chief Officer to bring the condition of the equipment involved up to the required standard.

The Purchaser or his accredited surveyor / Agent should undertake to carry out the inspection of the vessel and equipment as soon as possible after notification by the Ship's Master / Chief Officer that the vessel is deemed ready for loading or unloading subject only to local working practices.

6.1.2.2. Tankcontainers, roadtankers and flexible containers

The unit shall not be considered ready for loading until it has been inspected and it is confirmed that all fittings (i.e. valves, manlids etc.) are in a condition of Acceptable Cleanliness.

If the Supplier at the point of loading is not satisfied with the cleanliness of the unit he/she should reject it and instruct the tank(er) operator to re-present it once it has been brought up to the required standard.

The Supplier and tank(er) operator should ensure that the tank/tanker is labelled in accordance with the regulations relevant to the journey it is to undertake.

6.1.3. Loading procedures

In order to reduce the risk of oxidation, tanks should normally be fully filled from the bottom via the outlet valve. This is particularly important when loading tankcontainers and roadtankers with wine.

If tanks have to be filled from the top through the manway door (which should be avoided whenever possible), it is the responsibility of the Supplier, Freight Forwarder or Ship's Master/Chief Officer to ensure that every care is taken during loading to prevent undue aeration and turbulence by use of a standpipe reaching to the bottom

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of the tank.

It is essential to ensure that tankcontainers and roadtankers are positioned on a level surface prior to loading.

After each tank has been loaded and adequate time has elapsed to allow the wine to settle, the absence of air pockets and the level of filling should be verified from the man-hole and the temperature of the wine taken. This information should be recorded on an ullage/temperature report.

Tanks should be closed and sealed to prevent airborne contamination. Where appropriate, tamper-evident seals may be used.

6.1.4. Unloading procedures

6.1.4.1. Ships' tanks

It is strongly recommended that the Purchaser or the Purchaser's Agent be present at the time of arrival of the ship for discharge. The Purchaser or the Purchaser's Agent should be satisfied that the tank has remained hermetically sealed during shipment and that the quality and characteristics of the wine and the cleanliness of the ancillary equipment to be used for discharge are of the required standard, as per the contract.

The programme and order of discharge of the wine should be mutually agreed in writing between the Ship's Master/Chief Officer and the Purchaser's Agent or his Representative. Following acceptance of the programme, the Ship's Master/Chief Officer should sign the programme, retaining one copy for himself/herself and returning one copy to the Purchaser or his Agent.

No deviation from this agreed discharge programme is permitted without consultation with the Purchaser's receiving Agent or Warehouseman. In this event, discharge should cease completely prior to the consultation with the Purchaser/Agent/ Warehouseman without prejudice to demurrage charges.

Any deviation from the agreed discharge programme made without consultation with the Purchaser/Agent/Warehouseman which subsequently is found to be the cause of delays in discharge, cargo mixing, contamination or any other problem, is the sole responsibility of the Ship's Master. In this event, a letter of protest should be drawn up immediately by the Purchaser's accredited Agent. In the presence of the Ship Owners' Agent, the letter should be given to and acknowledged in writing by the Ship's Master/Chief Officer. Copies should be retained by the Purchaser's Agent and despatched to the interested parties. This procedure should also be adopted in the event of any defect in the wine.

Where wines of different characteristics are to be discharged using the same pump,

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manifold or hose system, the Purchaser may require these to be cleaned between wines to avoid contamination. This is indispensable if wines of different colours are unloaded successively.

Any claim, of whatever nature regarding the wine, must be reported immediately in writing to the interested parties.

Ship's crews should be made fully aware that mishandling of the wine can cause serious or irrevocable damage to the quality and type of the wine.

6.1.4.2. Tankcontainers, roadtankers and flexible containers

Prior to unloading, the Purchaser should satisfy himself/herself that any tamper-evident tank seals are intact and that their numbers correspond with those shown on the accompanying documentation. He/She should also check that the tank fittings are in sound condition.

Where appropriate, the Purchaser should check that the headspace (ullage) does not exceed the specified volume and that the inert gas pressure (if applicable) is within specification.

The Purchaser should check that the wine is of the nature, substance and quality expected prior to discharge.

Pumps, pipelines, receipt tanks, etc., must all be confirmed as being in a state of Acceptable Cleanliness, adapted to suit the Purchaser and permitting unloading to occur.

6.2. CLEANING AND SANITISING

6.2.1. Methods

6.2.1.1. Introduction

All operators carrying out cleaning and sanitising procedures should be made fully aware of the appropriate regulations regarding entry to tanks and the safety precautions necessary for materials and procedures being used. They should be provided with the necessary protective clothing and equipment. It must be particularly noted that 'overproof' spirits are classifiable as hazardous 'inflammable liquids', and tanks may in addition contain residual narcotic fumes. When entering a tank, suitable rubber footwear should be worn to avoid scratching or damaging the internal surfaces on the tank.

Procedures for achieving suitable and Acceptable Cleanliness should include steps which will effect the following functions.

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- Pre-cleaning (using a pressure spray system with rotating head or equivalent with fresh, possibly softened, potable water).
- Cleaning (using a pressure spray system with rotating head or equivalent with a solution of a suitable cleaning agent in fresh potable water).
- Rinsing (using a pressure spray system with rotating head or equivalent with fresh potable water).
- Sanitising (By use of steam, hot potable water or approved chemical sanitiser).
- Rinsing after chemical sanitisers have been used (using a pressure spray system with rotating head or equivalent with fresh potable water).
- Draining. A sample of the final rinse water should be visibly clear, free from odour and containing no traces of sanitisers after testing. After cleaning, tanks should be thoroughly drained of rinse water in such a manner as to minimise any re-infection.
- Possible drying of the tank to avoid ice formation.

It may be useful to retain a sample of the final rinse water with a view to performing taste tests and microbiological analyses.

Tankcontainer and roadtanker operators should ensure that tanks are not moved prior to the completion of the draining process and that the valves and manlid covers have been closed.

6.2.1.2. Tank cleaning

All tanks used for transporting wine shall be of Acceptable Cleanliness before use.

An approved methodology for tank cleaning should be agreed between the Freight Forwarder, the Supplier and the Recipient of the wine.

Cleaning is to be carried out with the aid of a solution of cleaning agents and water, hot and/or cold as required, according to the manufacturer's recommendation.

Manual cleaning of tanks may be necessary periodically, and this may be carried out by means of scrubbing the internal surfaces with a soft brush and a solution of cleaning agent. Brushes should be free of any metal or rough parts that may damage or scratch the tank surfaces.

Special attention should be paid to the cleanliness of the manway door, manway seal, outlet valves and their washers. These should be manually brushed with cleaning agent and rinsed thoroughly, possibly after dismantling.

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Manway door seals and any outlet valve washers should be examined regularly and replaced as required to ensure their continued fitness for use.

During the cleaning cycle, outlet valves should be opened to allow a flow of the cleaning solutions to pass through.

After cleaning, all traces of chemicals/cleaning agents used must be completely removed by rinsing. The rinsing cycle should be continued until a sample of the rinse water is visually clear and free from any chemical odour or taste. The rinse water should not contain after testing (coloured indicator, pH paper....) residues of cleaning or sanitising agents.

Ideally, tanks should be given the full cleaning procedure immediately after unloading of the wine has been completed. When this is not possible, all items must be rinsed immediately after unloading and the complete cleaning procedure carried out as soon as possible thereafter. The selection of a suitable chemical/cleaning agent depends on the regulations in the country concerned and to some extent on the nature of the previous cargo.

For effective cleaning, it is essential that chemical/cleaning agent strengths, the contact time and the temperature are maintained at the Manufacturer's recommended levels at all times.

All tanks to be used for the transportation of wine shall undergo cleaning procedures that include a chemical/cleaning agent cycle and a rinse prior to sanitising procedures.

Flexible containers are cleaned externally by high-pressure spraying with detergent solution and brushing as necessary to remove dirt and grease marks, followed by rinsing. Before the use of hot water, cleaning with detergent can be useful to avoid incrustation of wine residues. If the material will tolerate it, internal cleaning is by the use of hot water spraying at 85°C - 87°C for a minimum of 25 minutes, and until such time that the outlet water is completely clean and free from any solids or traces of previous cargoes. These procedures are conducted on a container previously placed on a cleaning cradle and inflated to 35 hPa using a low-pressure, high-volume industrial blower fitted with a filter suitable to prevent contamination and re-infection of the flexible container.

6.2.1.3. Tank sanitising

Sanitising may be carried out by the use of steam, hot fresh, potable water or chemical sanitisers approved in the regulations of the country concerned. Flexible containers are usually sanitised by the use of chemicals, except for operational fittings, where chemicals and/or steam are used as appropriate. An approved method should be

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agreed by the Purchaser or his Agent and the Freight Forwarder depending on the facilities available. If air is used after sanitising, it is imperative to filter it.

In countries with a cold climate, the trapdoor of the tankcontainer may be rinsed after cleaning and sanitation with 1 to 2 litres of a solution of pure ethanol, having an alcohol content of 70% to finish the sanitation process and to prevent icing of the trapdoor and the valve.

6.2.1.3.1. Steam

Steam should be applied through the manway door using suitable injection equipment (rotating head system or equivalent) to allow the steam to penetrate thoroughly to all parts of the tank and fittings. A sufficient supply of steam should be applied in such a way that, for example, a temperature of at least 82°C is measured at the outlet for at least 20 minutes. This can be determined by the use of temperature indicating tape, discs or contact thermometer. The steam supply must be clean and free from any taint or contamination (some boiler feed treatments may result in contamination from phenolic material or calcium). A suitable steam filter should be fitted if necessary. Before attaching the steam supply to the tank, the steam hoses should be blown through for 5 minutes or until all condensate has been removed.

The manway door and any additional valves or outlets in the tank should be partially closed during steaming to allow for maximum contact or should be separately sanitised.

After steaming is complete, the condensate should be drained away and care taken to allow sufficient venting (with filtered air or neutral gas) during cooling to prevent implosion. This should be done in such a manner as to minimise re-infection. Tankcontainers and roadtankers should not be moved until adequately vented and all manlids and valves have been closed.

In the case of ships' tanks, when sanitising has been completed the tank should be closed, sealed so as to avoid possible re-infection or recontamination and labelled CLEANED/SANITISED with the initials of the operator. If the need arises, according to the agreement of the parties, the cleaner may be required to place seals on the tanks.

6.2.1.3.2. Hot water

Sanitising may be effected by the use of hot, fresh, potable water, providing that a constant water temperature of 82°C can be maintained for a minimum of 30 minutes, timed from the point when the hot water draining from the tank reaches 80°C (reference table to be used). Hot water should be applied either by high pressure spray

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using a rotating head or equivalent capable of impinging the hot water on all surfaces of the tank. Scavenging of hot water from the bottom of the tank during this process should be sufficient to prevent build-up of water in the bottom of the tank.

The hot, potable water supply must be clean and free from any taint or contamination.

After the hot flushing has been completed, the tank must be allowed to drain and cool completely.

When sanitising has been completed, the tank should be hermetically closed to prevent possible re-infection or contamination and possibly sealed.

6.2.1.3.3. Chemical Products

Various chemical sanitisers are available, and the choice of a sanitiser should be made from a list of approved chemicals to be agreed between the Freight Forwarders or Ship Owners and the Purchasers, in conformity with the regulations of the countries concerned.

The concentration of the solution used, the temperature and the minimum contact time required vary with the type of product used, and it is essential that the manufacturer's recommendations should be strictly followed.

The correct working strength of the chemical sanitiser must be maintained throughout the sanitising procedures if effective sanitising is to be achieved, and facilities for checking this should be made available.

The sanitising solution should be applied by pressure spraying with a rotating head or equivalent, capable of impinging the sanitiser on all surfaces of the tank or container. Scavenging of the sanitiser from the bottom of the tank during this process should be sufficient to prevent a build-up of sanitising solution in the bottom of the tank.

After sanitising has been completed, all traces of the sanitiser must be removed by adequate rinsing with fresh, possibly softened, potable water. Potable water used for rinsing must be clean, free from any taint or contamination, and of an acceptable biological condition.

The rinsing cycle should be continued until a sample of the rinse water is visually clear, free from any chemical odour or taint and from chemical residues detectable using appropriate tests (pH paper, coloured indicator,...)

When rinsing has been completed, the tank should be allowed to drain completely. The tank should then be hermetically closed to prevent re-infection or contamination, and possibly sealed.

Chemical sanitising is suitable for use on stainless steel and most tank materials, but advice should be sought before selecting a chemical sanitiser as approved by the

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Supplier or Purchaser to ensure that the chemical is suitable for the construction materials of the equipment being used and for the microorganisms to be eliminated.

For ships' tanks, sanitising should be carried out the same day as loading.

Sanitising for tankcontainers and roadtankers should be carried out within an elapsed time agreed between the Freight Forwarder and the Supplier or Purchaser.

6.2.1.4. Ancillary equipment

All pumps, pipelines, hoses, fittings, etc., used to carry wine to or from the tanks should be rinsed with water before use (see 3.2.6) and after use, cleaned, sanitized and maintained in a fit condition.

Cleaning and sanitising of ancillary equipment should be carried out by any one of the methods previously described.

Outside surfaces of hoses and fittings should be kept in a clean, sound condition. Inside surfaces of hoses and any sealing washers should be regularly examined for signs of wear. If wear is observed, the worn items should be replaced.

In the interest of overall cleanliness and hygiene, any item of equipment which may come into contact with the wine, such as sample cans, dipsticks, etc., should be effectively cleaned and sanitised before use. The equipment should then be rinsed with fresh, potable water prior to use.

6.3. Microbiological standards of acceptable cleanliness

It is recommended that interested parties carry out microbiological examinations at regular intervals to monitor the effectiveness of the cleaning and sanitising procedures.

Freight Forwarders may not have the necessary facilities of their own with which to monitor the effectiveness of their sterilisation procedures. However, it is in their own interests to ensure that the required standard of commercial hygiene is achieved and the services of a suitably qualified analyst may be engaged to carry out this work. The Purchaser may also be prepared to assist in carrying out a microbiological survey and random audits of cleaning stations.

The **recommended** microbiological standards following sanitation are specified in the International Oenological Codex.

6.4. MAINTENANCE

Regular maintenance checks should be made, preferably as part of a properly planned maintenance programme. They should include thermometers, thermostats, recording

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thermometers, weighing equipment and any gauge meters for function and accuracy; all leakage detection devices for the pumps and thermostat; integrity of tank coatings; hoses (internal and external) and condition of tanks and ancillary equipment.

Acceptable repairs for tanks and tankcontainers: The integral surfaces of the tank must be in good, undamaged condition. Any minor faults in the surfaces may be repaired by polishing or buffing. More serious faults should be repaired by cutting back and welding to agreed specifications laid down by a recognised authority. All repair work must be signed off by a competent member of the repairing depot's staff and the relevant accreditation body where applicable.

Flexible containers should be tested for damage at the time of cleaning and sanitising. Mouldings and drain assemblies, fittings, harness and valise, comer clamps should all be examined, together with the top and bottom surfaces of the container. In addition, the container should be inflated to 35 hPa prior to examining its internal surfaces. Small leaks may be detected during the cleaning process where detergent is used on outer surfaces of the inflated container and will be made apparent by the formation of bubbles. All necessary repairs should be made to bring the container into an acceptable condition for use without risk to the Supplier or Purchaser.

GLOSSARY

- ADR - Accord Dangereux Routiers (European Agreement for the International Carriage of Dangerous Goods by Road)
- AISI- American International Standard for Stainless Steel
- EN58J - European Standard for Stainless Steel
- IMO - International Maritime Organisation
- ISO - International Organisation for Standardisation

APPENDIX 1

SHIPS TANKS ONLY

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CERTIFICATE OF CLEANLINESS AND FITNESS OF SHIP'S TANKS.

PIPELINES AND ANCILLARY EQUIPMENT

Complement to certificate(s) of cleaning or certificate(s) of intervention number(s).....

If the tank(s) is/are sealed before loading, the number(s) of the seal(s)……

This document to be completed before the loading of the tank(s)

To the Master/Chief Officer of.....

..... have entrusted us with the control of the cleanliness of your vessel's tanks and ancillary equipment with which their cargo will come into contact during loading and subsequent sea voyage.

Would you please complete the attached questionnaire concerning the tanks to be filled and provide the information requested below.

Date..... Signed.....

Surveyor/Accredited Agent

****

1. The plan of loading.

.....
.....
.....
.....

2. Nature of other products handled through your ship's pumps and pipelines during the

previous loading/discharge operation prior to loading the Purchaser's cargo.

.....
.....
.....

Nature of all other products aboard your vessel during the sea voyage.

.....
.....
.....

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4. Other information (as specified by the Agent).

.....
.....
.....

APPENDIX 2

CLEANING CERTIFICATE/CERTIFICATE OF INTERVENTION

Certificate No .....

Name and Address of cleaning plant.....

.....
.....

Approval number of cleaning station (if the need arises).....

Tank-container/Tanker No:.....

Number of compartments:.....

Cleaned by :..... on.....

(Name of operative) (Date cleaned)

Previous Product(s).....

The above mentioned tank-container/tanker has been carefully cleaned in accordance with the OIV Code of Practice on the Transport of Wine in Bulk

The operations performed include the following:

□ Prewash

□ Cleaning with detergent

□ Rinsing

□ Sanitation – Method used:

- □ Steam
- □ Hot water
- □ Sanitiser - name

□ Rinsing and draining

□ Drying

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▫ Inert gas flushing

▫ Placing of seals ▫ With numbers – numbers of seals

▫ Without numbers

▫ Other (specify).....

The following auxiliary equipment has been cleaned (delete those which do not apply)

- ▯ Pumps
- ▯ Hoses
- ▯ Fittings
- ▯ Pipes

Before leaving our depot the tank-container/tanker was visually inspected and found to be clean and odour free.

Whilst every effort is made to ensure that the tank is dry, we cannot be held responsible for condensation forming after cleaning.

Name and signature of cleaner..... Dated .....

I recognise that the container/tank conforms to the specifications above

Name and signature of transporter.....

Dated.....

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[1] The OIV acknowledges with gratitude that this Code is based to a large extent on "A Code of Practice Relating to the Transportation of Wines, Spirits and Concentrated Grape Must in Bulk", published by the Wine and Spirit Association of Great Britain and Northern Ireland in 1994.

[2] For sea transport, seawater must in no case be used in tanks in a regular manner to ensure the stability of the vessel. Use of seawater for ballast is only permitted exceptionally because of difficult meteorological conditions. Seawater cannot be considered as a foodstuff.

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