



Manual of Procedures (MOP)



Authorization Memorandum

*The Information In This Manual Has Been Created And Compiled By The
Technical Committee Of The South African Cork Council
In Accordance With The Requirements Of The Council,
The International Code Of Cork Manufacturing Practice
And ISO 9002 For The Testing Of Cylindrical Cork Stoppers.*

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**Attachments will be added in due course.*

1.0 PURPOSE

The purpose of this document is to describe in detail the standard operating procedures for the quality control of the import, distribution and storage of natural cork stoppers, 1 + 1 (technical) cork stoppers and sparkling wine cork stoppers.

2.0 SCOPE

This standard operating procedure describes the fundamentals of the SACC's quality management system and will apply to all natural cork suppliers in South Africa who use the "accredited member" official logo.

The members will be audited semi-annually against a set of rules based on this standard. The storage facilities will be tested yearly for chemical contaminants by TWCS. This report will be available for audits.

Members who do not pass these audits will be given a suitable period to rectify the situation. Failure to comply will result in official removal from the Council.

The SACC has appointed a Technical committee, with representatives from each member company, who will meet each month and make sure that the standards are both practical and adequate to ensure the superior quality of all cork stoppers supplied by these companies.

3.0 RESPONSIBILITY

It is the responsibility of the SACC to:

- Establish and maintain a scientifically accurate and viable control method for the control and eventual minimization of the incidence of cork-related releasable TCA occurrence in wine and wine products.
- Educate the South African Wine Market in the correct interpretation of results received from the tests conducted to determine releasable TCA in specific cork lots.
- Establish an internationally acceptable Quality Control Standard against which to test natural, technical and sparkling wine corks to ensure the quality of the supplied product.
- Educate the South African Wine industry in the ability to recognise and distinguish which wine faults can be ascribed to the cork stopper and which faults have other probable cause.
- Standardize all routine test protocols in QC laboratories of natural cork suppliers belonging to the SACC.
- Become closely involved in the official South African wine-tasting competitions to ensure the accurate representation of the incidence of true cork-related releasable TCA found in wine.

4.0 LIST OF ABBREVIATIONS

ICF	Informed Consent Form
MOP	Manual of Procedures
QA	Quality Assurance
QC	Quality Control
SOP	Standard Operating Procedure
SACC	South African Cork Council
TCA	2,4,6-trichloroanisole
TCP	Trichlorophenol
TeCA	2,3,4,6-tetrachloroanisole
PCA	Pentachloroanisole
GC/MS	Gas chromatography/Mass spectrometry
IWBT	Institute for Wine Biotechnology
Ppt	Parts per trillion
ng/L	Nanograms per Litre
G	Gram
SO ₂	Sulphur Dioxide
°C	Degree Celsius

5.0 DEFINITIONS

Releasable TCA: The amount of TCA, measured in ng/L, found to be released by a natural cork stopper when in contact with wine (or any 8-12% alcohol) after at least 24 hours at room temperature.

Sampling Protocol: A protocol designed to allow the quality controller select a representative amount of the product to be sampled that reflects the characteristics of the product as accurately as possible, can be tested and reflects the characteristics of the product in its entirety.

Seal of approval: The official seal given to members of the Cork Council found to be compliant with the standards described in this manual. The seal can then be legally displayed on the packaging and stationery of the particular cork supplier.

6.0 SEAL OF APPROVAL



7.0 CODE OF CONDUCT

The following code of conduct must be adhered to by all members of the SACC in order to achieve and maintain accredited membership status of the Council. Only Accredited Members in good standing are allowed to use the SACC Seal of Approval in accordance with the following Code:

- 1) The SACC designation and Seal of Approval must be used in a judicious manner.
- 2) The SACC Seal of Approval is a registered quality seal and should therefore be respected as such.
- 3) Members may not misrepresent:
 - * The services that they or their organisation are capable of
 - * Their or their firms' qualifications
 - * Claims regarding their service or their products.

- 4) Accredited Members in good standing may use the SACC Seal of Approval stating “Founder Member SACC” or “Accredited Member SACC” on letterheads, business cards, packaging material of corks and in directory listings and advertising in a dignified manner. The designation may only appear in smaller and less prominent type size than the member organisation name.
- 5) Any description or explanation of the seal or designation should be limited to a concise description of the SACC requirements needed to obtain it and/or a concise description of the SACC.
- 6) No claim of superior performance, ability or knowledge by virtue of having the SACC designation should be made or implied.
- 7) No member may make misleading, false or inaccurate claims about their or their products or organizations’ abilities or performance.

8.0 SACC MEMBERS’ COMPLIANCE AUDIT – APPOINTED COMPANY

Thales Wine Cellar Services (Pty) Ltd (Thales) was appointed by the SACC to perform quality and code of conduct compliance audits in order for the SACC to accredit (or not) each of its members with the council’s seal of approval.

This audit will be conducted semi-annually, starting from August 2004. The premises of each supplier will be tested by Thales for known chemical contaminants and precursors or derivatives of these contaminants, and certified to be clean.

9.0 AUDIT OVERVIEW:

SACC QUALITY CONTROL STANDARDS & PROCEDURES

9.1 SUPPLY SOURCES

The supply sources of the SACC members must be accredited by CELIEGE, and preferably be ISO 9001:9004 certified by a reputable company. Laboratory reports of tests conducted on incoming shipments should be kept on file by the suppliers, as well as proof of CE Liege Certification and other certifications.

9.2 INCOMING CORK SUPPLY

- All incoming cork shipments should undergo TCA analysis before shipment and on arrival.
- These results must be fully traceable, and available on request when performing an audit.
- A register should be kept that cross-references lots, sample codes and results.

9.3 AUDIT AND SAMPLING PROCEDURES

- All cork batches received since the 1st of August 2004 have undergone TCA testing.
- Batches or Lots should be traceable back to the shipments received – by way of an invoice, order number or container number.

9.4 LOGISTICAL PROCEDURE

- Documentation should be present at the different members' premises allowing samples to be traced back to the different batches and shipments.
- Laboratory analysis results received with all incoming shipments should be traceable to the lot tested during the production stages, as well as connected to the outgoing shipment records, to ensure each cork's traceability from point of supply (bottling line) back to point of origin (cork forest).
- The suppliers can exercise own initiative when repeating the physical tests (i.e. humidity, density, dimensions, capillarity and weight.) It is recommended to do these tests on outgoing shipments.
- The technical committee has compiled SOPs for the testing of corks by SACC members, for the mandatory tests that have to be performed.
- Sensorial (olfactive) testing of all incoming shipments is mandatory for all members, and a container inspection on arrival of shipment is highly recommended.

9.5 PREMISES AND STORAGE CONDITIONS

- The auditing company will be issued with a copy of the required manufacturing practiced for cork stoppers (4th edition), against which the cork stoppers will be audited.
- All pallets in contact with the cork stopper bales will be plastic – no treated wooden products are allowed near the cork stoppers.
- The premises will be regularly checked (using air traps) for the presence of TCA and related dangerous compounds, i.e. chlorine and chlorine derivatives.
- The results are kept confidential and are distributed individually to the members. The results will be valid for one year. Failed air trap results will be classified as a nonconformance, necessitating the member to take steps to rectify the situation within a month. Failure to do so will result in the suspension of the affected supplier.
- When auditing premises, auditors will check for good ventilation, good hygiene, mildew growth, pest infestation and chemical contaminants.
- It is advisable that all members monitor the humidity and the temperature of the storage area – suitable range for the South African climate will be decided on after installation of hygrometers in all members' facilities, and a year of monitoring these – members will then decide by discussing the average values found in their warehouses for one year.
- Only approved paints and cleaning solutions can be used in the production area – Thales has issued a list of these paints and cleaning solutions. A copy of these documents will be attached.
- If the supplier uses chemicals that are volatile, dangerous for human consumption, not food grade for other purposes (i.e. cleaning printing machines), these chemicals should be marked as poisonous and kept separate in a metal cupboard or a fireproof containment unit well away from the cork bales, in another room (i.e. a tool room).
- When using these chemicals, all opened cork bales are removed from the workstation to avoid sensorial contamination. Staff members using the solutions, should wash their hands after returning the chemicals to storage, and before touching the cork stoppers.

- There should be a clearly identified area for rejected corks that are to be shipped back to Europe for recycling into products that are not food-related. This area must be kept separate from all approved corks.
- There should be a mechanism for the quarantine of stock. The member should have a system that prevents use of these corks in the production line, until the corks have passed the releasable TCA tests, and the in-house quality control tests.

9.6 OUTGOING CORK SHIPMENTS

All outgoing shipments should have:

- a) A quality control report kept for at least 2-3 years after date of delivery.
- b) A reference sample of the corks supplied, printed with the required details (about 5-15 corks) – can be kept for 2-3 years, then recycled in Europe.
- c) Recommended packaging and storage conditions for cork stoppers on the box
- d) The SACC seal of approval.
- e) Shall have a clear warning for the SO₂ used to sterilise the corks, on the plastic bags.
- f) Be sealed in clear plastic bags that are at least 100micron thick.

9.7 AUDIT AND SAMPLING PROCEDURES FOR RELEASABLE TCA

- All cork batches received since the 1st of August 2004 have undergone TCA testing. All batches will be traceable back to the shipments received – by way of an invoice, order number or container number. Most members use the invoice numbers for the identification of the different consignments.
- The sampling method is according to the sampling procedure outlined in the IWBT Lab SOP – Sampling Procedure and Logistical Procedure.
- Auditors must be able to trace IWBT Releasable TCA results to individual lots received by cork suppliers (see Releasable TCA Testing [RTT] SOPs).
- These lots must remain clearly identifiable until insertion in the wine bottle.
- The bottling line will use their order number to connect to the lot or batch number from the cork supplier for traceability.

9.8 RECORDS

All invoices sent out by QA Laboratory have a summary of the analyses performed during that specific month attached to the invoice. This summary is then checked by the quality managers to determine whether it correlates to the test results received during that month.

9.9 GENERAL

The technical committee has built in general recommendations to facilitate the differences at each supplier's production line, staff and facilities, by underlining key issues that have to be uniformly represented at the premises of all the suppliers – thus allowing for small differences that will not affect the quality of the product.

The **SACC MOP** will be used as an ongoing quality management tool against which compliance can be implemented.

**Standard
Testing
Procedures
For
Natural,
1+1
&
Sparkling Wine
Cork Stoppers**

10. Releasable TCA (RTT) SOPS

10.1 Sampling Procedure

10.1.1 POLICY AND PURPOSE

This procedure aims to give structure to collect a representative sample of corks from bales to be sampled and submitted for organochloride analysis.

10.1.2 SCOPE

The representation of samples received at the laboratory correlates directly to the process and procedures followed at the cork supplier's premises. The essence therefore lies in the accuracy and consistency with which process is managed at the individual member's premises.

10.1.3 RESPONSIBILITY

The main responsibility lies with the quality manager at the different members' premises who should facilitate a smooth and continuous process to ensure that all samples are representative and packed in a contamination free parcel for delivery to the laboratory

10.1.4 PROCEDURE

Definition: *A bale is defined as a grouping of 10,000 – 12,000 corks.*

In this context a bale may be considered as one of the following:

- (a) One bag with 10 000 corks,
- (b) Two bags with 5 000 corks each,
- (c) Four bags with 2 500 corks each,
- (d) Ten bags with 1 000 corks each.

The following exceptions also exist for a few products:

- (e) One box with 40 000 corks (should be treated as four bales of 10 000 per box),
- (f) One bag with 6 000 corks (Sample 12 000 cork grouping or two bags as one bale),

- (g) One bag with 3 000 corks (Sample 12 000 cork grouping or four bags as one bale).

Bales to be sampled must be selected randomly.

Corks are sampled from each bale as follows:

Number of bales per lot (@ 10M -12M)	Number of soaks 50 corks each*>20 000 <20000 - 20 corks per soak.	Total number of corks tested
<20 000 corks	3	60
2 to 8	3	150
9 to 15	3	150
16 to 25	5	250
26 to 50	8	400
51 to 90	13	650
91 to 150	20	1,000
151 to 280	32	1,600
281 to 500	50	2 500
501 to 1 000	80	4 000
> 1 000 bales	Any lot bigger than 1 000 000 is divided into smaller lots of equal size and a maximum of 500 000. These smaller sub-lots are sampled according to the table.	

Equipment needed

1. Bin capable of handling 10,000 corks, or use another clean, empty raffia bag.
2. Plastic sampling bags.

Sample gathering

1. Whenever more than one bag is combined to get a grouping of 10,000 to 12,000 corks, an equal number of corks should be sampled from each bag (ex. 25 + 25 = 50, or 12 +12 +13 + 13 = 50 etc.).

2. Sample the required number of corks from each bag by randomly selecting corks throughout the whole bag while emptying it in parts into the sampling bin.
3. Insert the 50-cork sample in the prescribed zip seal plastic bag.

Sample registration

1. All samples taken are recorded on the sample registration form to be handed in together with the samples at the laboratory's reception.
2. Groups of samples from the same batch are registered on the same sample registration form.
3. Samples from different batches are registered on individual sample registration forms.
4. Any single batch containing more than 1,000,000 corks is subdivided into smaller batches and hence registered as more than one batch. For this purpose an identifying sub-code should be added at the end of the batch number.

10.2 Releasable TCA (RTT) SOP: Logistical Procedure

10.2.1 POLICY AND PURPOSE

This procedure aims to register samples at the reception desk of the laboratory in an organised, well-documented and traceable manner in order to ensure traceability of samples once delivered at the laboratory.

10.2.2 SCOPE

It is important to ensure that the logistical process of receiving and delivering of samples conforms to certain standards and timelines. This will mean that results will be made available on a first come first serve basis, ensuring an orderly handling of all samples from receiving until making the results available to members.

10.2.3 RESPONSIBILITY

All members of the cork council as well as the laboratory are responsible for the smooth running of this procedure. Continuous communication between parties as well as regular audits should regulate the effectiveness of this process.

10.2.4 PROCEDURE

- (a) SACC members will register once for the service at the laboratory whereupon the laboratory will provide a unique member code. This code will serve as the only link to that member's company details on all sample registration forms. New member codes will be provided from time to time in order to limit the risk of breaking confidentiality.
- (b) SACC members will be supplied with a standard sample registration form to be completed for each group of samples from a single batch. Please refer to the RECORD section.
- (c) The laboratory will issue a receipt to prove the acceptance of all samples delivered to the laboratory.
- (d) Samples will be accepted at the reception desk, room 2021, JH Neethling building, Victoria Street, on Monday to Thursday 8:00-13:00 and 14:00-16:00 and Fridays 08:00-13:00 and 14:00-15:00.
- (e) The line-up order of all samples will be auditable.

- (f) Slots for urgent samples need to be reserved in advance at the laboratory technician, Claudia Brodard.
- (g) All results will be communicated back to the members via e-mail taking into account the necessary confidentiality protocol.

10.2.5 RECORDS

Member code:	ABC1234	Sampling date:	13 July 2004
Consignment	XYZ123	Bale size (# of corks)	10 000
Batch #	BN00123	Batch size (# of bales)	50
		Number of soaks (50/20 corks each)	8

Sample information			
Sample #	Dedicated sequential bale #	Sampled bale #/ bale #'s	Sample # (Lab)
1	2004	4	
2	2006	6	
3	2007	7	
4	2019	19	
5	2023	23	
6	2038	38	
7	2040	40	
8	2043	43	
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

21			
23			
24			
25			
26			
27			
28			
29			

Sample Received by Laboratory	Time:	Date:
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10.3 Releasable TCA (RTT) SOP: Sample Registration Form

Member code:		Sampling date:	
Consignment		Bale size (# of corks)	
Batch #		Batch size (# of bales)	
		Number of samples	
Sample type (tick one) :	Natural	Agglomerate	Champagne

Sample information			
Sample #	Dedicated sequential bale #	Sampled bale #/ bale #'s	Sample # (Lab)
ROWS OF EQUAL SIZE< NUMBERING 1-35 Each page will be signed by the Cork Supplier, Quantum Lab representative, Dated, and copied to Supplier.			
1. -35.			

11. Supplier Standard Operating Procedures

11.1 Incoming Container Protocol

(For export, inspection at arrival and shipping conditions)

Objective

This inspection aims to ensure that the containers used to ship the cork stoppers are in a good condition and that adequate precautions are taken to ensure that the corks are shipped safely and arrive intact without any contamination.

Method Description

Verify the characteristics (namely moisture, smell, entrance of light and container condition) to ensure the goods will not be contaminated during the transportation.

Procedure

Before starting the loading of a container at source, a QC employee must make an inspection of the container. This person must fill in a record sheet and control documentation necessary for the shipment.

Physical inspection of Container before loading

The quality controller must go into the container and verify by touch and smell that there is no:

-  Moisture,
-  Strange smells,
-  Damaged areas in container and also
-  No evidence of previous contents of the container.

- A desiccating agent may be included if the change in climate over the equator might result in precipitation or too much condensation around the corks.
- Finally, the doors should be closed with the controller inside, to verify that no light or signs of leakage is visible.
- The controller should inspect all the bales to be loaded to ensure that they are all secure and correctly labeled.
- If the container has a wooden floor, the floor should be tested to ensure that it will not contaminate the shipment.

Results

All the results must be recorded on a form for Inspection of Containers.

WITHOUT THIS INSPECTION AND APPROVAL CORKS CANNOT BE SHIPPED.

This document should be supplied to the recipient of the corks in South Africa, together with other QC reports of the specific consignment.

ARRIVAL OF CONTAINER AT DESTINATION

1. Paperwork verification:
A quality controller must verify all the details pertaining to the container i.e. invoice, contents of container, description of corks and the list of numbers on bales.
2. Date of arrival will be entered as well as weather conditions on date of arrival.
3. The seal will be inspected for damage before opening. Damaged, open seals will not be accepted. It is preferable that the entire container should contain only corks, no chemicals, etc.
4. Unloaded bales are checked off against a prepared list of the numbers in the container, and inspected for damage.
5. Random bales of each grade are to be opened and sniffed for off-taints, examined for visual grading quality and samples removed from various points of each bale for testing. These sampled bale numbers should be noted.
6. Once specified samples have been taken, the cork bales are packed on plastic or steel pallets in the receiving warehouse and marked as being quarantined until passed by QC.

11.2 MOISTURE DETERMINATION **Date: September 2003**

Objective

This procedure aims to describe the method to determine the relative moisture of cork stoppers. (Natural, Colmated, Agglomerated, Sparkling Wine Corks)

Method Description

Direct and unitary evaluation of the cork moisture using a needle moisture meter that reads the moisture percentage in an appropriate scale. (1 decimal point – especially accurate in the range of 4% to 8.5%)

Reference Documents

NP 2803-2
NP 2922
NP 4351
MIL STD Norm 105-E.

Materials

Moisture meter with needles: Aquaboy /DC 2011 cork moisture metre (Any calibrated cork moisture meter will be acceptable).

Methods

The moisture of a certain number of corks should be determined according to the attached table

For natural corks, colmated, champagne cork bodies, agglomerated and mixed:

-  Make sure the cork probe is clean and dry.
-  Calibrate, if necessary.
-  Insert needle carefully into the centre of the cork body, making sure that the needle has penetrated fully.
-  Take reading while holding probe straight up.
-  Calculate average, maximum and minimum values of natural cork stoppers

For discs of mixed and champagne corks:

-  Make sure the cork probe is clean and dry.
-  Calibrate, if necessary.
-  Insert needle carefully in the centre of the disk without puncturing the agglomerate.
-  Measure agglomerate body in the same way as the natural body of the cork.
-  Calculate average, maximum and minimum values of moisture in disks and the same for the agglomerate bodies..

Results

The recording and calculations can be done manually or directly by computer as long as a certified company for ISO purposes calibrates all equipment used.

To analyse the obtained results the AQL of a simple inspection is used, level of inspection S3.

-  For all practical purposes, there should never be more than 1 or 2 corks out of specifications. This is a recommendation, not a rule.
-  Results are interpreted taking the average humidity or moisture into consideration.

The levels of moisture specified must be as follows:

-  Natural and colmated corks \Rightarrow 5% - 8%
-  1+1 Corks - disc \Rightarrow 5% - 8%
-  Agglomerated and 1+1 corks - agglomerated \Rightarrow 4% - 8%
-  Champagne corks - disc \Rightarrow 4,5% - 8%
-  Champagne corks - agglomerated \Rightarrow 4% - 8%.

AQL as per agreement between the manufacturer or supply source and the importer.

ATTACHMENT 1

BASED ON MILITARY SAMPLING PLAN 105-E

**Lot quantity
Sampling For Moisture/Humidity of Cork Stoppers**

Corks (000's)	10	30	50	100	150	250	500	+500
	↓	↓	↓	↓	↓	↓	↓	↓
Sample size	20	20	32	32	32	32	32	50

11.3 DETERMINATION OF DIMENSIONS

Date: September 2003

Objective

To verify if a certain lot of corks is within the specifications regarding the dimensions of the corks by measuring:

- Length
- Diameter
- Ovality

Method Description

Unitary dimensional measurement of each cork by using a device to compare dimensions or a calliper of constant pressure.

Reference Documents

- NP 2803-1
- NP 4351
- NP 2922
- Military Standards 105 - E

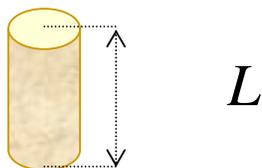
Materials

- Callipers
- Pressure sensitive dial attached to callipers (optional)

Method

The number of corks to be measured is according to the attached table
 The corks are taken randomly from the pre-shipment sample.
 Use a device to compare measurements.
I.e. Mitutoyo Digital pressure sensitive callipers

The measurements are the following:
 Total length of the cork (L).



Diameter will be the average of two measurements:



Diameter 1(D1) – Diameter measured on the cork growth rings.

Diameter 2(D2) - Diameter measured rolling the cork 90° from the previous position.

Results

The obtained results will be presented in the following way:

	L	D1	D2	(D1+D2) / 2	Ovality = (D1-D2)
Maximum					
Minimum					
Average					

Results Analysis

To analyze the obtained results the AQL is used for a simple inspection, inspection level **S3**, according to the following table:

The acceptance / rejection level is presented on the following criteria:

Dimension	Specification
Diameter	(± 0.5 mm)
Length	(± 1 mm)

ATTACHMENT

Lot Quantities

Based on the military standard sampling plan 105-E

Dimensions = Diameter + Length + Ovality								
Corks (000's)	10	30	50	100	150	250	500	+500
Sample Size	20	20	32	32	32	32	32	50

11.4 STORAGE CONDITIONS BEFORE PRINTING & PACKAGING

Date: September 2003

According to International Code of Cork Stopper Manufacture:

- Store in clean, dry and well-ventilated areas.
- Avoid places with pungent odours or chemicals.
- Avoid using pallets made of treated wood, try not to store near barrels or barrel products.
- Maintain Food Safety by not eating, drinking or smoking near corks.
- Do not leave bales open, sew them whenever possible.
- Avoid possible microbial contamination.
- Store in conditions of hygrometric range 50% - 70% (humidity present in atmosphere).
- Do not use cleaning agents containing chloride and or organophosphates to clean the storage areas.
- Regularly check the humidity of the bales so that they remain within the required range.

STORAGE CONDITIONS AFTER PRINTING AND PACKING IN PLASTIC

- Do not open the plastic bags until immediately before loading corks into the loading bin of the corking machine and store on plastic or steel pallets away from treated wood.
- No bags containing unused corks should be left open for any reason.
- Plastic bags should be at least 100 microns thick – these should be replaced after 12 months in storage, as the plastic will degenerate.
- Corks recovered from the corking machine after completion of bottling should be returned to the plastic bags or another sterile closable container, dosed with SO₂, and sealed tightly.
- The bags should be stored in a cool, dry location not bottling rooms, barrel storage areas or chemical storage areas.
- Ideal storage temperatures are 12°C - 25°C.
- Corks below 5% humidity should be discarded or returned to the supplier for re-hydration and sterile packaging.
- Corks with average moisture content of above 8% should be regarded with suspicion, as such humidity content can support mould growth.

11.5 SENSORIAL ANALYSIS

Objective

This test aims to detect in a given lot of corks the existence of corks contaminated by off-flavours that can affect the final product. Although

it can also be used to detect TCA contamination of cork lots, it should be primarily used to detect OTHER sensorial deviations that could affect cork stoppers. These deviations are described in a sensory (olfactive) wheel (Cork faults and wine faults).

Method Description

Corks are submersed in white wine or distilled water containing 8-12% alcohol for 24 hours and samples are then assessed against a control by a panel of at least 2 experienced tasters.

Materials

- Neutral dry white wine (bottled with plastic closure) or
- Boxed dry white wine with 10% alcohol content or
- An 8 – 12% solution of ethanol (96%) in distilled water.
- 100 ml, 250 ml or 500 ml Schott flasks.
- Tasting glasses.

Procedure

1. Prepare all samples with the same homogenous mixture, depending on the laboratory protocol.
2. The number of flasks or containers to be used depends on the size of the lot under inspection.
3. The sampling plan for Sensory Tests is according to the USA CQC standard sampling plan for incoming lots of bales.
4. Six (6) corks are taken from each opened incoming bale, which is sampled and are used per flask. It is allowable to use the same bales opened for SPME sampling, but different bales can be opened randomly according to the sampling table.

Note: The same procedure applies when testing outgoing cork orders, but samples taken from outgoing order lots are soaked individually (1 per container).

5. The corks in each flask are submersed in the wine or alcohol solution for at least 24 hours. (An orbital shaker can be used at this stage, to effectively release all possible aromas.)
6. One flask with no corks is filled with wine or 10% alcohol solution as control.
7. After 24 hours, pour the wine or solution from each flask into clean tasting glasses and at least two trained persons should sniff it, comparing the aroma against the control glass, and using the wheel to classify the aroma. It is recommended to have some examples of known deviations available to calibrate the nose.
8. Classify the strength of the smell / aroma, as even a pleasant smell that is too strong, might affect the wine or other cork lots.

Results

The results obtained only concern the identification of any off-flavours in the test glass in comparison to the control glass.

The more critical off-flavours are:

- 2, 4, 6 – TCA
- Musty/Mouldy smell
- Earthy smell
- Vegetal (Herbal)
- Chemical

These defects will be classified as slight, moderate and strong.

A flask is considered rejected if at least two people detect a strong off-aroma in that flask. The affected bales will then be individually resampled, at double the initial sampling amount per bale. If these bales fail again, the bales are rejected.

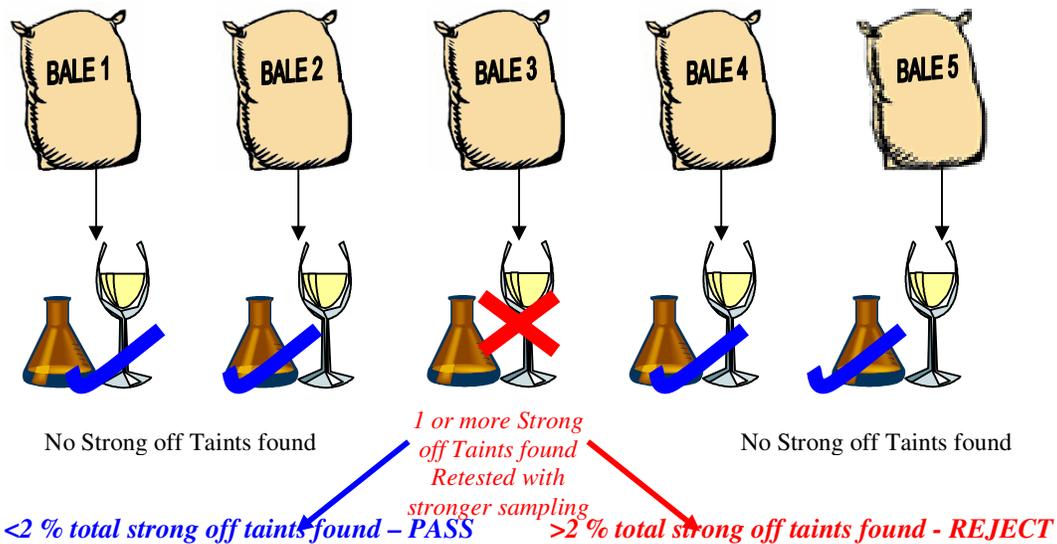
Results Analysis

- With the larger incoming lots, it is more practical to use multiple cork soaks (i.e. 6 per flask), as this would concentrate the aromas / smells, enabling quick detection of sensorial contamination.
- If tested as a 6-cork soak per incoming bale and an off-aroma is detected in any bale such off-aroma bales should be re-sampled and retested.

Approval or Rejection Protocol

- TCA smells found would automatically warrant a resample for SPME, (preferably with 50 corks/bale) – the normal rejection procedure for releasable TCA is then followed for affected lot.
- If the TCA levels are acceptable, all bales in the lot should then be resampled and assessed as a 6-cork soak per bale and any bales failing twice should be rejected.

For Example:



This is the recommended rejection procedure for sensorial defects –and not the rejection procedure for releasable TCA.

Any bale with strong negative sensorial properties displayed in initial reduced sampling and subsequent stronger sampling, has to be rejected and sent back to Europe for non-food related use.

Sampling Table

Sample 6 corks from each bale previously opened for the releasable TCA SPME testing. The minimum amount of corks to sample per lot is 13 and the maximum is 32 corks in total on the reduced sampling plan on the Mil.105 (E):

Thus, any smaller lot should have 6 + 7 corks sampled for sensorial sampling.

Note:

The amount of corks per individual container is open to individual choice, as this screen is specifically to identify any negative off flavour other than TCA contaminating the lot. Thus, 5 corks would display a stronger representation of the sensorial profile of the bales. However, if a supplier prefers to sample individual soaks of 1 cork each, the possibility of identifying off taints is still strong enough to an individual trained in cork olfactive testing.

Statistically, sensorial screening is more effective if the lot is well represented by opening as many bales as possible. Always soak corks from each bale separately (i.e. 3-6 corks from bale 1 in flask no 1, 3-6 corks from bale 3 in flask no 2, etc.)