



# Barrel Associates American Oak Quality Control Guidelines



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### **Wood: Origins & Sustainability**

Barrel Associates barrels are built with one type of American White Oak wood origin:

- Quercus Alba

Our barrels are created using a proprietary blend from two forest sources:

- Missouri Ozark
- Minnesota Forest

These trees and logs are 100% chemical free from the time of harvest, through production and delivery of the white oak staves and heading.

Our stave mills purchase select cut white oak logs from sustainable forestry programs. These forestry programs provide continuous output of high quality white oak logs, without causing lasting harm or affecting forest productivity. As a result of the select cutting, the forest embraces an appropriate level of trees, enhances the growth of white oak trees and provides regeneration of new trees.

### **Wood: Traceability & Quality Control**

All Barrel Associates wood has been sourced from two trusted stave mill suppliers who we have been working with for decades. All wood is thoroughly inspected multiple times to ensure that only premium quality staves are used in the barrels.

- Each lot of wood is carefully tracked & traced and information kept on each wood lot includes:
  - Wood source
  - Cut date
  - Seasoning length at saw mill/cooperage
  - Wood transportation date
  - Cooper/manufacture date
- Periodic laboratory testing of wood lots for haloanisoles and halophenols is conducted and compared to testing standards set by the Federation Francaise des Tonneliers (see limits in chart below)
- Periodic laboratory testing is also performed on the atmosphere in the cooperage, the atmosphere in the warehouse and the water used at the cooperage
- A piece of wood from each wood lot is saved, tagged and stored at the cooperage
- All wood is naturally seasoned by earth's natural elements: wind, rain and sun
- All wood utilized in the making of our standard water bent, fire bent and deep toast barrels is at least 24 months naturally seasoned. If "36 month" seasoned wood is specified, the wood is seasoned at least 36 months.
- Wood is seasoned where it is cut in either Missouri or Minnesota
- All wood must reside in Fresno at the cooperage for at least 30 days prior to production to become acclimated to the drier climate in Fresno
- The moisture content of the wood, prior to production, is no greater than 14%
- Each piece of stave and heading wood is inspected to identify and eliminate any staves with:
  - Wind shake
  - Knots



- Carroty wood
- Saw irregularities and grain

Haloanisole/Halophenol wood lot testing protocol:

- A composition of raw stave and head wood shavings are assembled per wood lot (tools are always cleaned between sampling)
- Samples are placed in aluminum foil and sent to the ISO 17025 accredit lab, ETS, for analysis
- At the lab, a composition analysis is conducted. Chips are reduced from the samples into a rough powder of wood. Then, a solvent is used to extract any chemical components from the wood and a chromatograph is used for the analysis.
- Analysis is performed shortly before wood enters production for halophenols and haloanisols
- \*\*\*Recent tests available upon request

Acceptable thresholds, detection limits and quantification limits from “Le Guide de Bonnes Pratiques de la Fédération Française des Tonneliers”:

Acceptable thresholds, detection limits and quantification limits

Molécules	AT wine (ng/L) *	AT Wood (ng/g)	DL (ng/g)	QL (ng/g)	Accuracy	Concentration area (ng/g)
2,4,6 TCA	3	0.6	0.03	0.1	6% - 15%	0.5 à 25
2,3,4,6 TeCA	12	2.8	0.2	0.5	6% - 15%	0.5 à 25
PCA	50	10	0.2	0.5	6% - 15%	0.5 à 25
2,4,6 TBA	3	0.6	0.03	0.1	6% - 15%	0.5 à 25
2,4,6 TCP	20	5	0.13	0.8	5% - 17%	2.5 à 150
2,3,4,6 TeCP	30	5	0.5	1.5	5% - 17%	2.5 à 150
PCP	30	18.8	0.5	1.5	5% - 17%	2.5 à 150
2,4,6 TBP	20	5	0.13	0.3	5% - 17%	2.5 à 150

AT wine : Perception thresholds in still wine  
 AT Wood : Acceptable thresholds in wood (determined by French Laboratories and FTF)  
 LD : Detection limits of the molecules  
 LQ : Quantification limits of the molecules



### **Food Safety Assurance**

We certify that Barrel Associates barrels are fit for contact with food. Improper storage/handling or barrel use (outside of our recommendations) after the barrels have left the cooperage may alter this food grade quality.

- Materials used in the manufacturing of Barrel Associates barrels are food grade
- Only filtered well water is used in the coopering process of Barrel Associates barrels
- The cooperage performs a thorough cleaning of cooperage facilities using only food-grade acceptable cleaning agents
- Warehouse storage facility exclusively stores new American oak barrels. No used barrels or other goods will be stored in the same enclosed space.
- Warehouse is humidified with filtered well water.
- Periodic Haloanisole and Halophenol lab testing is performed on wood lots, manufacturing facility atmosphere, warehouse atmosphere and water in the barrel baths. These results are then compared to le Guide de Bonnes Pratiques de la Fédération Française des Tonneliers (Tonneliers de France) guidelines.
- Lab results are tested by an ISO 17025 accredited lab, ETS Laboratories
- \*\*\*Note on gluten:
  - According to the list of allergens defined in EC regulations 2003/89 and 2006/142, the only allergen than can be detected in our barrels is gluten
    - During the production of our barrels, we use a natural sealant made with wheat flour and water to securely seal our barrel heads. The amount of flour used is minimal and typically trapped in the head of the barrel. Any excess flour is removed during the water pressure test. In normal use of our barrels, your wine/spirits do not come into direct contact with flour. Although unlikely, it is possible to find “traces” of gluten in our finished product.
    - Please note: a gluten-free alternative sealant is available upon advance request.



### *Coopering - Quality Control*

#### Quality Control Guidelines:

- Each barrel is inspected at each step of the coopering process and then inspected by the Quality Control Manager at the end of the coopering process
- Any cracked staves that result from bending and toasting fires are replaced using the same lot of wood and mill source. No barrels with cracked staves are set aside for later repair.
- Staves are planed on all four sides to eliminate any raw wood
- All water used during the coopering process is filtered well water. No city water is used in the production of any of our barrels.
- In jointing, all wood blades are sharp. Dull blades cause irregularities in the cutting of wood that might result in leaks and poor fitting joinery.
- Toasted barrels are monitored during toasting process to achieve the proper designated toast level:
  - Light
  - Medium
  - Medium Plus
  - Heavy
- Chimes are inspected for uniform thickness on both ends of the barrel
- Bung holes are inspected for hole burrs
- Hoop rivets are inspected to ensure they are centered and fully set
- Hoops are inspected to ensure the edges are aligned at the rivets
- All barrel heads fit tightly and each barrel head joint is filled with reed from a trusted supplier whose reed is certified to be free from contaminants
- All barrels are water pressure tested using at least 30 lbs of pressure. Any barrel stored for more than two weeks, is retested before the barrel leaves the cooperage and is delivered to a client.
- All approved designations are lasered on the barrel prior to shipment.
- A history is kept of the wood supplier, production date and age of the wood for each barrel



**Lasering Quality Control**

Unless otherwise requested, lasering guidelines follow the below template. To ensure precise lasering, a sample digital laser diagram is created and emailed for client approval. Once approved, lasering is executed by a senior member of the coopering staff.

Forest options:

American Oak  
Missouri  
Minnesota

Bending Regime (spelled out):

Water Bent  
Fire Bent  
Deep Toast

Toast level:

Light Toast  
Medium Toast  
Medium Plus Toast  
Heavy Toast

Toasted Heads:

(if applicable, spelled out)

Volume:

-No volume on 90/95cm barrels unless otherwise specified.  
-Volume will always be lasered on 265L & 300L barrels unless otherwise specified

36 months:

-Lasered if applicable: "36 Months"

Ripple Effect:

-Lasered if applicable "Ripple Effect"

Vintage:

-Not lasered unless otherwise specified. If requested, lasered at 6:00 (unless otherwise specified)





### ***Warehousing & Shipping Standards***

#### **Storage:**

- Barrels are stored on untreated specially fabricated pallets
- Barrels are protected with triple wrapped plastic wrap and cardboard discs on the heading prior to entering the warehouse
- Warehouse is humidified with filtered well water
- Periodic Haloanisole and Halophenol lab testing is performed on the warehouse atmosphere
- Warehouse storage facility exclusively stores new American oak barrels. No used barrels or other goods will be stored in the same enclosed space.

#### **Preparing for shipment:**

- Any barrel stored for more than two weeks, is re-tested/inspected before the barrel leaves the cooperage and is delivered to a client.
- All barrels are shipped in clean, structurally sound, un-altered, debris-free food-grade containers/trucks. Any oil laden residues present are unsuitable for shipment and the trucks/containers with these defects are rejected.
- Prior to shipment, a quality control manager re-inspects the barrels & certifies their release
- Pictures are taken of each container/truck leaving the cooperage
- Container and truck #s and recorded for each shipment
- Food-grade containers and trucks are used and barrels are strictly categorized as food-grade on all export documents.
- Trusted freight forwarders strictly monitor shipments to ensure containers are not fumigated at the port or positioned to be exposed to potentially non-food grade hazardous chemicals/waste during shipment