

# Montecchio Terracotta Amphora information / protocol



## IMPORTANT:

1. Do not wash with water above 105 C or 221 F
2. Only use hot water incrementally for washing
3. Do not use high a pressure washing jet or barrel washing head
4. Do not use a percentage over 3% in tartaric acid bath solutions
5. Montecchio's "cigar" amphorae can be stored horizontally on barrel racks for aging (do not stack other cigars or barrels on top) or can can stand vertically for punch downs.

## READ BEFORE USE:

### Antica Fornace Montecchio

The Antica Fornace Montecchio has been producing terracotta goods since the 1700's and is still a family run farm, winery and business located in San Donato which is in the comune of Impruneta. Terracotta literally translates to baked earth and is made of four naturally occurring materials: **WATER - EARTH - AIR - FIRE.**

### Why clay from Impruneta is important

The comune of Impruneta represents a unique 200 square km region in the hillsides of Florence between the Ema and Greve rivers that contain open air mines where it's clay and rocks contain high percentages of "galestro" which provide resistance to color and temperature change. Impruneta clay is also famous for being lower in metals especially iron in comparison to other clays.

### Critical steps in production

1. Sourcing of the clay
2. Mixing of the clay with water
3. Separation of rocks from the clay, then the pulverization of these rocks and their addition back to the clay

4. Method of production: Moulds vs. Columbine (building up amphorae by hand)
5. Cooking phases:
  - a. **Before Firing:** *Amphora is placed in ventilated room where it enters at 80 C humidity and then needs to descend to 20 C humidity before firing*
  - b. **Firing:** *Temperatures reach over 1000 C in the ovens they are baked in with gradual temperature curves. Firing takes over 70 hours.*
  - c. **Drying:** *Once they are cool enough, amphorae are immersed in water which helps make them strong and robust*

## Container that is unique to other wine vessels

1. If you compare a same sized vessel of terracotta and oak, there is slightly more micro-oxidation that takes place in terracotta than oak. Terracotta acts as an absorbent so it is important to first prepare the terracotta with a solution that it will absorb before using for winemaking
2. **Single wine vs. Terracotta focused wine**
  - a. Wines made in terracotta can be fermented, aged and bottled separately as is done in the Friuli region of Italy, or they can be used as aging vessels that are bottled separately or mixed with other vessels to help add complexity.
3. **Aging vs. Fermenting**
  - a. Terracotta from Impruneta is known as a temperature stabilizer or antifreeze. During fermentations, vessel stabilizes naturally between 25 - 29 C
4. Terracotta is known to be respectful of the fruit on the nose and can add structure and earthiness on the palette

## How to prepare amphoras before putting wine inside

***Once your terracotta amphorae arrives, it is strongly advised to fill the amphorae up with a solution to saturate the terracotta.***

### 1. Tartaric acid solution bath

- a. Fill the entire amphora up with a diluted solution of tartaric acid and let the amphora sit for 1-2 days. When you create a tartaric acid solution it is **VERY IMPORTANT** to mix the solution and then put it inside of the amphora. If you put tartaric acid in direct contact with terracotta, it will directly start eating away at the terracotta.
  - i. Prepare a 3% tartaric acid solution of the amphora's total volume either inside of the amphora after it has been completely filled with water, or in a separate vessel and then pump it inside of the amphora. Using the following table mix tartaric acid with neutral water at ambient temperature with a ph of 7 or close to 7.

- ii. After letting the amphora bathe for 1-2 days, empty and discard the tartaric acid solution, open all doors and valves and let the amphora air dry before using for winemaking.
- iii. By using a tartaric acid solution, you are minimizing the risk of your wine increasing 0.2 in terms of ph.

Amphora Type	Actual Capacity (L)	3% Tartaric Acid Amount (Kg)
Cigar 1	250	7.5
Cigar 2	500	15
Bee-Hive	700	21
Rotunda	1000	30

or

## 2. Neutral water bath

- a. Fill amphorae entirely with neutral water at ambient temperature and leave amphora to sit for 1-2 days. When you empty the amphora, be sure to open all doors and valves to let amphora completely air dry before using it for winemaking.
- b. By using a water bath solution and not a tartaric acid solution, you are risking to increase the ph of your wine by 0.2.

## How to clean amphoras:

To clean amphoras in between winemaking uses, do the following:

1. Clean amphora with hot neutral water under 105 C or 221 F at a low pressure.
2. Either gradually increase the temperature of the water or only use warm water around 70 C - 80 C or 158 F - 176 F.
3. Although the amphorae are designed so that if the stainless steel fittings expand, the terracotta will not crack, try to not clean the lids of the amphorae excessively with hot water for preventative purposes.
4. Do not use pressure washer or pump at high pressure for washing amphora.
5. For cleaning the 230 L and 500 L cigars, you can keep the cigars on barrel racks or you can stand them up.
6. If tartrates remain on walls, clean amphora with a 1.5% soda-ash solution. **DO NOT USE HIGH PRESSURE.**

7. Before putting wine back inside, either give it another tartaric acid soak of 3% (most recommended) or a neutral water soak.
8. After washing, to make the amphora dry out faster and consequently prohibit the development of any mold or undesirable components, you can use a fan pointed towards the inside of the amphora. This will increase the rate of drying and reduce the time.

## Q/A

### 1.) White solids that form outside of terracotta

- a.) Terracotta clay is rich in salts such as sodium, calcium and other minerals. Depending on the ambient temperature and level of humidity in the air where amphora is stationed, these salts have a tendency of exiting the terracotta over time and appearing on the surface of the inside and outside walls of the amphora.

### 2.) Odor of amphora when it is sealed and empty

- a.) When amphoras are tested after production (filled up with neutral water with a pH of 7), left for several days full then emptied and air dried, some water vapor still remains inside of the terracotta because terracotta acts as an absorbent. When the containers are emptied, air dried and then sealed, some of the water that is still inside of the vessel condenses during the night and then evaporates during the day. If the amphora is sealed and is empty for a long period of time, it might give off a unique smell. To get rid of this smell, before using the amphora for winemaking, prepare it as mentioned above and then start using for winemaking. The odor will go away immediately.

### 3.) Vessels may weep over time

- a.) Those with experience with terracotta mention that depending on the vessel, it may “weep” meaning that moisture oozes out of the terracotta over time. This has a lot to do with the porosity of the terracotta that is dependent on:
  - i.) How much water was added to the clay during mixing
  - ii.) Uniformity of clay during unfired drying phase
  - iii.) Temperature terracotta was cooked at temperature curve of the firing process.

If your amphora weeps at first, do not be alarmed. It will stop weeping over time.