

## MARBLE, GRANITE AND CONCRETE

Stone containers were likely among the very first natural fermentation vessels for wine. Crafting stone vessels requires arduous labour and they were soon replaced with containers made from other materials like clay or wood. Despite this, stone vessels have particular attributes that can be advantageous for enhancing terroir specific character in certain high-quality wines and containers made of marble, granite or concrete are occasionally being put to use again. Next to emotional argumentations, there are also scientifically proven attributes that make stone vessels attractive alternatives to wood or stainless steel.

The main feature that sets stone apart from other materials for holding wine is its ability to ensure harmonious temperature development. Marble, granite and concrete are ideal mediums for buffering thermal energy. The massive, stable walls of concrete and stone vessels ensure that temperature changes are much more gradual than in stainless steel tanks or wooden barrels. The thicker and more compact the walls, the more heat can be absorbed, thus enhancing a more homogenous fermentation curve. This combines with the cool surrounding air temperature to provide yeasts, particularly natural yeasts, a constant and stress-free environment, which is ideally suited for the development of their specific aroma and structure contributions to wine. Wines gain depth and develop more complexity, while simultaneously becoming calmer and more stable. This unique type of inertia is inspiring increased use of concrete and stone vessels in many wine regions, for example in Champagne, Bordeaux and California.

A further positive feature is the much lower electro-magnetic influence of stone compared to stainless steel, which further enhances calmer wine development.

### MARBLE VESSEL

Marble is a metamorphic rock that develops from maritime sediment (mussels, crustaceans, fish skeletons, etc.) that metamorphosed under pressure and high temperatures. Marble is present in topsoils in Spitz and Spitzer Graben in its weathered form, which features high calcium carbonate and dolomite content.

Wachau marble is interspersed with silicates. Due to its graphite

content, the coloration is wavy or cloudy. It is also called “granite marble” due to its hardness and resilience.

The Wachau marble for our vessel was quarried in Kottes in the Waldviertel (Forest Quarter). This marble has a so-called “glacial polish”, a rare phenomenon that occurred naturally over the course of millions of years. The stonemason Heinz Dissauer ([www.stein-werk.at](http://www.stein-werk.at)) sculptured the stone, which had an original weight of six tons. The finished vessel still weighs 4.5 tonnes, is 270 cm in height and has a volume of approximately 700 litres. The interior surface was drilled and polished and is otherwise untreated, thus allowing direct contact between the marble and the wine. Our marble vessel is one of a kind and cannot be replicated; we use it for the first time in 2018.

### STONE VESSEL

Our stone vessel stems from a granite quarry in the Bavarian Forest. It belongs geologically to the Bohemian Massif, the same ancient truncated highland on which the Wachau is based. It belongs to the same type of rocks that we broadly refer to in the Wachau as “primary rock”. Granite is an intrusive rock comprised primarily of feldspar, quartz and mica. Our stone vessel was made from a 10-tonne block of granite that was gained through fissure blasting. The finished vessel and its lid weigh together two tons and have a capacity of 1130 litres.

The molecular structure of granite does not permit wine tartrate crystals to bond to its surface and they fall to the bottom of the vessel. This promotes rapid sedimentation of tartrates and natural stabilisation of the wine. Research at the Federal College and Research Institute for Viticulture and Pomology Klosterneuburg showed significantly higher mineral content in wines vinified in granite vessels. We will use our stone vessel for the first time after the harvest of 2018.

### CONCRETE EGG

Concrete egg-shaped vessels are fundamentally flavour-neutral containers, but this does not mean that they have no influence on the aroma and texture of wine. Many vintners believe to observe



a direct influence on wine flavour profile and report significantly more texture.

Three main factors are decisive. Firstly, as already mentioned, concrete eggs have excellent thermal qualities and regulate temperature better than stainless steel vats or wooden barrels. In addition to this, wines are exposed to gentle oxidation. A certain degree of oxygen exchange occurs with the surrounding environment. Many claims that the micro-oxidation potential lies somewhere between a wooden barrel and a stainless steel tank. Oxygen not only permeates the concrete wall, it also collects in the billions of tiny hollows on the rough surface whenever the concrete egg is emptied. Micro-oxidation encourages the growth of natural yeasts that initiate fermentation and improve polymerization and stabilisation of wine during maturation.

The third factor is the egg form itself. Outside the metaphysical and esoteric aspects (origin of life, the perfect form without corners and edges based on the "golden ratio" - the magical proportions repeatedly found in nature, architecture, design and music), the oval shape promotes a unique fermentation kinetic that keeps yeasts in perpetual motion and creates convection currents during CO<sup>2</sup> production.

The concrete egg is comprised of washed pebbles and sand, cement and non-chlorinated spring water without any additives. The egg is treated with tartaric acid paste before its use. This is a meticulous process in which eventually soluble particles are removed from the concrete. This prohibits any chemical reaction with must or wine.

Wine remains on the gross lees in a concrete egg, which function as natural protective agent ensure harmonious development. Wine vinified in concrete eggs exhibit depth and well-balanced texture. They make a round, harmonious and open impression.

We currently have three concrete eggs. Two have a volume of 700 litres each; one has 900 litres and is used for the spontaneous fermentation of our MTX, a Müller Thurgau that is bottled unfiltered and without sulphur addition. Our Gemischter Satz from 80-year-old vines also matures for several weeks in a concrete egg.

