

# QVEVRI

## SPECIFICATION

**NUMBER OF REGISTRATION:** 22

**DATE OF REGISTRATION:** 21/05/2021

**NAME OF PRODUCT FOR WHICH REGISTRATION OF:** Clay wine vessels

**NAME AND ADDRESS OF APPLICANT:** Ministry of Environment Protection and Agriculture of Georgia; Marshal Gelovani Ave. №6, 0159, Tbilisi, Georgia

### I. NAME OF GI: QVEVRI

### II. PRODUCT DESCRIPTION

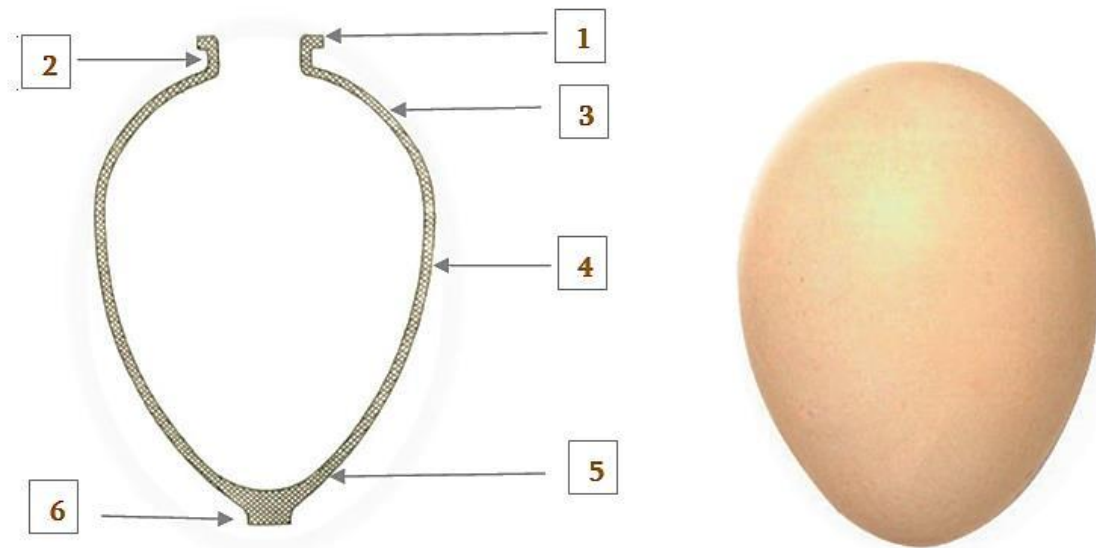
#### a. Definition

Qvevri – Georgian traditional wine vessel (jar) made with baked clay, useful for grape juice alcoholic fermentation, as well as wine storage and aging.

#### b. Shape and Description of Qvevri

Qvevri has shape of an egg and the narrowed part – below.

The shape and description are given in the Fig. 1



**Fig. 1 Qvevri Description**

*1 - Qvevri mouth; 2 - "Throat" opening; 3 - Qvevri ring; 4- Qvevri Belly;*

#### 5 - Qvevri Phil; 6 - Qvevri Bottom

- Qvevri mouth is flat and intended for insulated lidding;
- Qvevri bottom is sharp and ended with thickened rest to rely when embedded in the ground;
- Qvevri mouth diameter is quite wide to facilitate the work therewith.

#### c. Capacity and Size

Qvevri minimum capacity – no less than 20 l, Qvevri mouth diameter – no less than 25 cm,  
or

Qvevri height – no less than 50 cm.

It is preferable to use "the principle of golden ratio" or "golden mean", in accordance with which – "harmonic whole is divided into such non-equal parts, when ratios: small with large is equal to large with whole, and vice versa, whole with large is equal to large with small". (Gabrichidze Zh. (2014)).

#### d. Description of Ready Qvevri

Ready Qvevri has brownish-red color of backed clay without some cracks;

Porousness (wall clay open and clogged pores) – 7–20%;

Aeration – near to 0; and

Mechanical strength – no less than 400 kg/cm<sup>2</sup>.

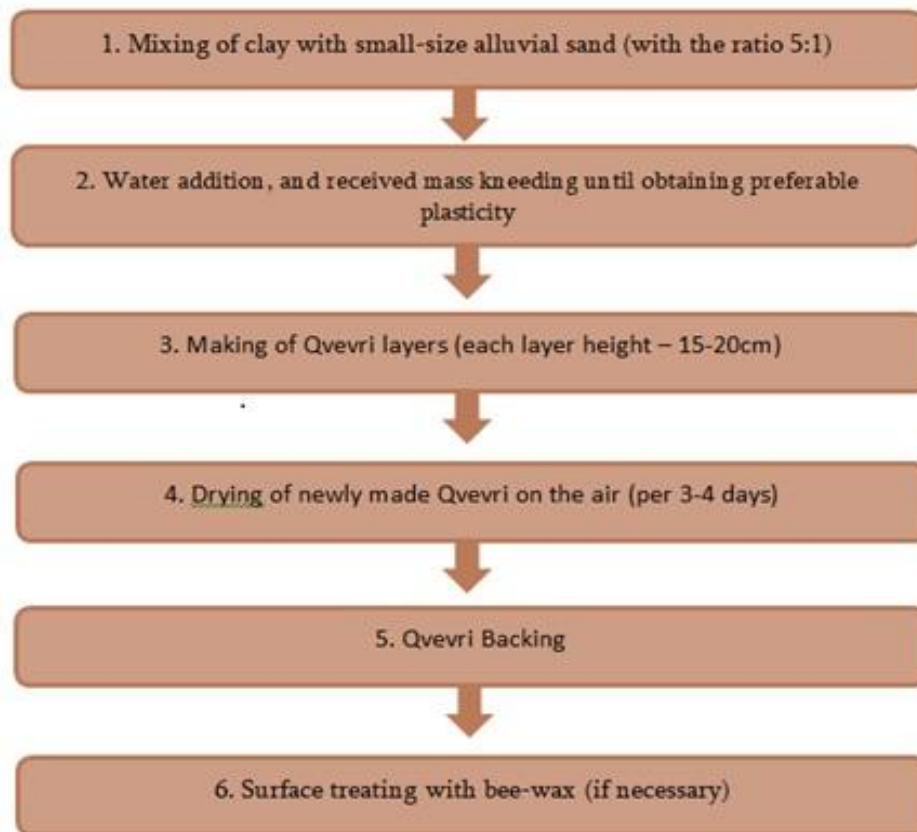
### III. RAW MATERIAL OF QVEVRI

Qvevri is made with the raw material – clay, obtained from various open-cast mines, and has the following mineral content:

- Clay mineral groups (kaolinite, montmorillonite), micas, hydro-micas (illite, glauconite, etc.) and chlorites total content – 50-60%;
- Crushed minerals (quartz, feldspars, amphiboles, pyroxenes) – 40-50%;
- Iron oxides, hydroxides, carbonates, sulfates, sulfides, phosphates – no more than 5%;
- Organic substance – no more than 10%.

### IV. MAKING STEPS OF QVEVRI

Qvevri making steps are given in the Fig. 2



**Fig. 2. Qvevri Making Steps**

**Step 1.** Clay is mixed with small-size alluvial sand. Said mixture with clay/sand ratio – 5:1 is kneed in special equipment.

**Step 2.** Drinking water is added into clay-sand mixture in adequate amount to made plastic mass. Mixture or mass is covered within two days. Added water amount is not exceed 25% of clay weight.

**Step 3.** Qvevri making begins from the bottom, in layers, with certain periodicity. Each new layer of 15-20cm height is added onto previous ready layer. Mass is covered with material allowing aeration avoiding Qvevri over-drying. Connection uniformity between layers is necessary to avoid crack creation. Depending on Qvevri capacity its wall thickness varies within 25-40mm.

**Step 4.** Already made Qvevri having preferable size is dried on the air during 3-4 days before its backing. The temperature, humidity, wind speed, sunshine direct influence are very important at Qvevri homogenic drying process without creation of any cracks. Qvevri drying is executed inside a building, wherein the tempereture is about 20-25°C and relative

humidity is 70%. Drying is finished when Qvevri surface color becomes homogeneous and light, without some wet points thereon. Qvevri is dried naturally.

**Step 5.** Qvevri backing takes place at no less than 1050°C and no more than 1200°C temperatures. Baking is executed in special furnace. Backing temperature, conditions and regime are selected in accordance with used raw materials. Backing in brick furnace continues during 6-8 days. The temperature is gradually increased in first two days, then, in third and fourth days 1050°C temperature is kept. Furnace cooling is executed in fifth and sixth days, the temperature is gradually lowered, and goes down to less than 100°C, then Qvevri is removed from the furnace.

**Step 6.** If necessary, inner walls are treated with bee-wax immediately after backed Qvevri removal (when its temperature falls down to 70-90°C). Bee-wax should be of high quality, and it is applied on Qvevri heated surface whereon it is melted and penetrates into relatively large pores. Bee-wax is used to clog large pores and perforations facilitating keeping Qvevri cleanness.

## **V. GEOGRAPHICAL AREA OF QVEVRI PRODUCTION**

Raw materials obtained on the territory of Georgia shall be used at Qvevri making.

Qvevri shall be made only on the territory of Georgia.

## **VI. LINK BETWEEN PRODUCT QUALITY, REPUTATION OR OTHER CHARACTERISTICS AND GEOGRAPHICAL ORIGIN**

### **a. Reputation**

Qvevri protection with the "PGI" (Protected Geographical Indication) status is mainly based on its reputation as of wine jar of Georgian origin, and it is integral part of Georgian culture identity.

Qvevri identity is based on numerous modern, historical, archaeological studies unequivocally confirming its Georgian origin with national, international, ethnographic, literary and historical monuments.

In 2019, in an article "Marketing An 8,000-Year-Old Wine Story By The Black Sea" the American magazine "Forbes" writes:

"Archeologists have dated Georgian winemaking to the 6th millennia, BC (over 8,000 years ago). In many cases, wine produced in Georgia today follows ancient tradition; for instance, large earthenware vessels known as Qvevri (or Kvevri) have been used over myriad centuries to ferment, store and age wine underground, and they are still being used. The egg-shaped vessels that have lately been seen at many European and North American

wineries are a testament to the practice. The taste of such Georgian wine suggests clay minerals." (<https://forbes.ge/news/>).

This article is based on previous article – "Early Neolithic wine of Georgia in the South Caucasus" of the magazine – PNAS (Proceedings of the National Academy of Sciences of the United States of America, 2017. Together with Georgian scientists the co-authors of said article are from Pennsylvania, Montpellier, Copenhagen, Toronto Universities, Israel Weizmann Institute, and the INRA (French National Institute for Agricultural Research).

The article deals with the newly conducted multidisciplinary study of archeological material found on the territory of Georgia, which confirms that the tribes living here produced wine since 6000-5800 BC, i.e. 8000 years ago.

It is essential that as a result of bio-molecular researches conducted under the guidance of Pennsylvania University Professor Patrick McGovern was confirmed presence of organic acids characteristic of wine (tartaric acid, malic acid, carboxylic acid and citric acid) on the walls of pottery found during recent excavations on the Neolithic period archaeological monument of "Gadachrili Gora" and "Shulaveri Gora" located in Marneuli District, which is wine marker made from the vine variety of *Vitis vinifera*.

Thus, Qvevri winemaking in Georgia started about 8 thousand years ago, and this tradition still continues. According to historical and archeological sources, the oldest Qvevri-type vessel dates back to the VI-V millennia BC. This is confirmed with the Shulaveri-Shomutepe early farming culture – "Dergi" found on the territory of Kvemo Kartli and shows both: domestic vine seeds, and Qvevri-type clay wine vessel as well, embossed on both sides with relief image of grape bunches indicating that the vessel is intended for wine. Dergi shape is not only sophisticated, but also technologically purposeful. Its egg-shape with puffy sides and narrowed end indicates some knowledge and experience of winemaking.

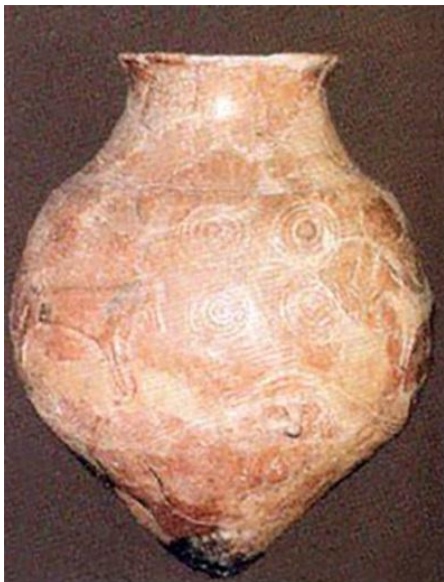


*Dergi – dating back to the VI-V millennia BC of developed Neolithic period, Shulaveri-Shomutepe early farming culture , found in Georgia, in the territory of Kvemo Kartli, displays cultivated vines, and Qvevri-type clay wine vessel as well, embossed on both sides with relief image of a bunch of grapes.*

Based on archaeological data the modern Qvevri can be considered as a result of hereditary development of the Shulaveri Dergi. This is confirmed with archeological materials of post- Neolithic-Eneolithic and early, middle and late Bronze Ages.

If clay wine vessel of the VI millennia BC has not the "throat" – opening the pottery with a small rounded "throat" was discovered in the IV millennia BC in Shida Kartli, at the confluence of the river Prone, during the ongoing archeological excavations in the Berikldeebi former settlement.

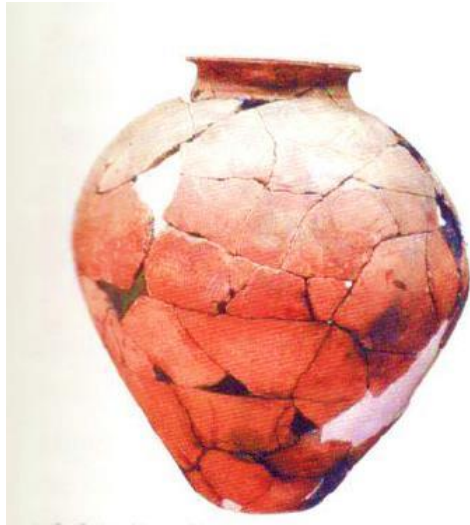
In the III millennia BC the larger wine pottery was found (Akhali Zhinvali, Kvatskheli).



*Dergi – pottery having wide mouth. New Zhinvali, the III millennia BC*

Large reddish backed wine pottery with "throat" having overfolded mouth (Trialeti) of first half of the II millennia BC indicates on new stage of Qvevri creative development.

Specialists of this field consider this moment as the first stage in the formation of modern Qvevri "throat" (Glonti T., Glonti Z. (2018). Qvevri and Kakhetian wine).



*Dergi – pottery with overfolded mouth (Trialeti), first half of the II millennium BC first half of the II millennium BC*

Treligorebi's former settlement of Late Bronze Age in Inner Kartli, in the Western suburb of Tbilisi is noteworthy. The population of these hills appeared from the second half of the II millennium BC and lived here until the middle of the I millennium BC. Agricultural storerooms in the village were sometimes adjacent to the residential building, wherein the Qvevris are often embedded in the ground (Muskhelishvili D., Japaridze O., Melikishvili G., Apakidze A., Lortkipanidze M., Metreveli R., Samsonadze M., Asatiani G., Otkhmezuri G., Natmeladze M., Bendianishvili Al., Daushvili Al. (2012). History of Georgia book. Vol. 1. From Ancient Times to the Adoption of Christianity. Tbilisi: Palitra L. p. 60). Pottery – wine vessels, drinking vessels, cellars as well as Qvevri, is associated with viticulture (p. 65).

According to scientific sources such fields of agriculture as viticulture and winemaking were developed in Kartli (Iberia), in the first centuries AD. Large cellar remains – more than fifty large Qvevris were found together with the tombs, baths and palace complex of pitiakhshes (great officials of Kartli kings) in Armaziskhevi. In one of such Qvevris from Bagineti (Armaztsikhe) the wine sediment was found, as well (Muskhelishvili D., Japaridze O., Melikishvili G., Apakidze A., Lortkipanidze M., Metreveli R., Samsonadze M., Asatiani N., Jamburia G., Otkhmezuri G., Natmeladze M., Bendianishvili Al., Daushvili Al. (2012). History of Georgia. Vol. 1. From Ancient Times to the Adoption of Christianity. Tbilisi: Palitra L).

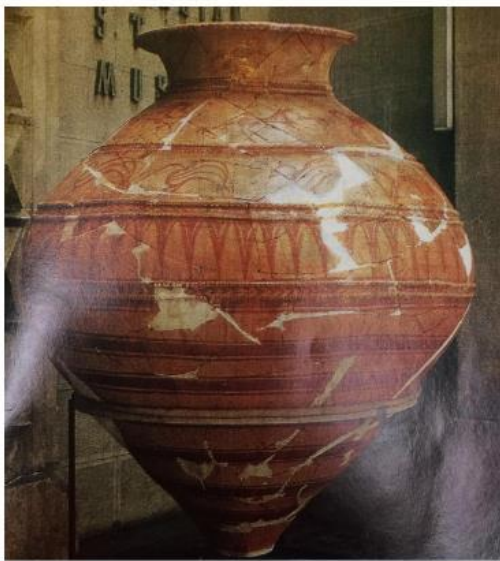
It is also mentioned that the pottery was developed in Georgia in the Late Bronze and Early Iron Ages, at this time large red Qvevris and similar tableware were prevailing; this new technology of clay processing should be considered as the most important achievement of ancient Georgia, which left trace on handicrafts. The specialization of craftsmen also corresponds to the variety of ceramics. In the circle of potters we can distinguish



ceramicists and Qvevri makers. Naturally, during this period, in both – the Alazani Valley and Shida Kartli, it was clearly observed that potters had met the needs of the country and were supplied it with large Qvevris and jugs, jars and, in general, wine vessels.

(Muskhelishvili D., Japaridze O., Melikishvili G., Apakidze A., Lortkipanidze M., Metreveli R., Samsonadze M., Asatiani N., Jamburia G., Otkhmezuri G., Natmeladze M., Bendianishvili AL., Daushvili AL. (2012). History of Georgia. Vol. 1. From Ancient Times to the Adoption of Christianity. Tbilisi: Palitra L).

It is noteworthy that on former settlement Samadlo (former town of the IV-II centuries BC, at the confluence of the Mtkvari and Ksani rivers, on the right bank of the Mtkvari River), a wide, open-mouth, wide-belly, narrow-throat ritual Qvevri was found, dated back to IV-III millennia, there is a wide variety of locally made ceramic materials: bowls, jars, jugs, Qvevris, etc. The surface of the dish is painted or covered with light yellowish or high quality red dye. Especially painted Qvevris are distinguished (Lortkipanidze D. (2003). At the Sources of the Old Georgian Civilization).



*Ritual open-mouth Qvevri of the IV-II centuries BC revealed in Samadlo*

Noteworthy is the fact that according to historical written sources, agricultural fields were developed in Urnisi in the IV-VII centuries, as well. Therefore, many remains and items of agricultural buildings are found in the layers of this period, including many Qvevris and several cellars.





*Urbnisi. The IV century AD.  
Cellar*

Interesting archeological material was also obtained during the archeological excavation of Jvarpatiosani Church in Akhmeta. The structure of the church first floor dates back to the IV-V centuries. There is an auxiliary storehouse and the presence of Qvevris of clergymen, i.e. cellar is confirmed (Description of the Historical and Cultural Monuments of Georgia, Vol. 2, Tbilisi, 2008).

In Samegrelo-Zemo Svaneti/Senaki, former town Nokalakevi the interesting Qvevri wall-side and a fragment of throat have been found, which is terracotta baked clay outer wall with relief stripes and dates back to the IV-VI centuries. It is kept in the department of Parmen Zakaraia Architectural-Archaeological Museum-Reserve in Nokalakevi.

Kviratskhoveli tomb and church located beyond the Village Zhinvali, on the left bank of Aragvi, completely destroyed in 1976, as a result construction of the Khevsureti temporary highway, were studied archeologically, in 1972-73. Excavations revealed several groups of ceramic materials, including fragments of late medieval Qvevris. (Rcheulishvili M. (1975) Archaeological Research on Kviratskhoveli, Zhinvali Expedition. Short Reports of the First Scientific Session. Tbilisi).

In the Aragvi Gorge, nearby Zhinvali, former villages of the XI-XIII centuries also have been studied archeologically, wherein the existence of cellars and Qvevris in all family complexes is confirmed (Rcheulishvili G. (1990). Archaeological Monuments of the Aragvi Gorge in Pshavi. (p. 99, 106) Tbilisi). It is noteworthy that although there were nor vine neither viticulture, Iv. Javakhishvili established the facts of economic relations between different communities/historical-ethnographic areas of Georgia. Vakhushti Bagrationi also noted the same. With reference to Vakhushti Batonishvili (Vakhushti Batonishvili (1745) Description

of the Kingdom of Georgia), Iv. Javakhishvili wrote: Although Trialeti was community without vineyards the winemaking was developed there too. In accordance to the words of Vakhushti: "The inhabitants of Trialeti had brought grape juice from the plain, poured them into Qvevris and made nice tasty wine" (Javakhishvili Iv. (1986), Vol. V. p. 671).

In the IX-X centuries, in Georgia nearly all fields of handicrafts that were generally known in the medieval world were represented. The materials confirmed by written sources and obtained by archeological excavations prove that craftsmen of different fields existed in every corner of the country, but mostly they were concentrated in the cities, where they had their own workshops, in most cases they were also trade shops, and therefrom they sold their handicraft items. The production of pottery was widespread in medieval Georgia and in the IX-X centuries. They used to make a variety of household vessels, plates, jugs, pots, jars, Qvevris, building materials, bricks, tiles, "Shorenketsis", etc., as well as highly artistic glazed pottery. There were ceramic workshops in Tbilisi, Dmanisi, Rustavi and other cities. The existence of many ceramic workshops was conditioned by wide demand for their products – Georgia from the Adoption of Christianity until the Death of Queen Tamar. The authors: Muskhelishvili D., Japaridze O., Melikishvili G., Apakidze A., Lortkipanidze M., Metreveli R., Samsonadze M., Asatiani N., Jamburia G., Otkhmezuri G., Natmeladze M., Bendianishvili Al., Daushvili Al. (2012) History of Georgia. T. 2. Tbilisi: Palitra L).

In the testimonial of the Father Superior of the Nikortsminda Monastery, written in the 11th century is noted: "for Nikolaos Tsminda, I had built limestone house: the upper house is a good oak: a: the cellar is of limestone: a: and Churi from Navardzuli is embedded inside", which clearly indicates the existence and usage of Qvevri-cellar (Berdzenishvili M. (1962). The XI century Georgian Historical Sources on the Socio-Economic History of Georgia "Written by Nikortsminda". Tbilisi)

M. Balas, in 1877, mentions about making Kakhetian wine in Qvevri, and writes: "Kakhetian winemakers have a good habit of fermenting and storing Kakhetian wine in Churis embedded in the ground, thus achieving uniformity of fermentation and constant temperature..." (Баллас М. (1877). Очерк виноделия в России (Кавказ и Крым), Историко-статистический сборник виноделия т. I).

The great Georgian writer and public figure Ilia Chavchavadze, in 1887, wrote about Qvevri: "Almost everywhere in our country Qvevri embedded in the ground is known". He also notes - "It is deeply embedded in the ground and does not stand in the air, outside. Why? By the way, because neither outside nor heat neither cold can reach the soil so quickly and intensively. The soil keeps Qvevri in the unchanged conditions and outside changes does not reach Qvevri and grape juice fermented therein" (Chavchavadze I. (1887). Georgian Winemaking. Tbilisi).

The originality of Qvevri is also related to the issues of ancient Georgian script. E.g. the inscription on the mouth of Nekresi Qvevri "Mb m embedded this Ch(u)ri" dates back to the II-III centuries. It is believed that Qvevri whereon the inscription is made may have been intended for sacrificial wine (Chilashvili L. (2004) Ancient Georgian Inscriptions of Nekresi and Issues of the History of the Georgian Script).



*Nekresi Qvevri mouth with ancient Georgian inscription – II-III centuries.*

Known ancient names used in Georgia to refer wine storage vessels of different sizes and shapes are the following: Qvevri, Churi, Dergi, Lagvini, Lagvani, Lagvinari, Kvibari, Qvibari, Kubari, Lakhuti, Chasavali, Khalani, Sazedashe Qvevri and Kotso; Sulokhan-Saba Orbeliani notes this, and gives the following definition of Churi in his "Sitkvis Kona" (Wisp of Words): **"...Churi is a vessel among Ketsis: Qvevri, Kvibari, Kotso, Khalani, Dergi, Lagvini, Lagvinari, etc.", ("Sitkvis Kona", 1685–1716. Georgian Academy of Sciences, Sulokhan-Saba Orbeliani, Georgian Dictionary, Tbilisi, 1993, Vol. II).**

As regards the antiquity of word "Churi" (Chilashvili L. (2004). Ancient Georgian Inscriptions of Nekresi and Issues of the History of Georgian Script), it is noteworthy that Ivane Javakhishvili in his fundamental work on the history of viticulture notes that "Churi" is more earlier lexical unit than Qvevri, and in ancient Georgian exactly the word "Churi" was used to denote a vessel for pouring and storing wine. Later, in addition to Churi, Qvevri also appears in the documents and monuments of that time" (Javakhishvili Iv. (1986). Vol. V. p. 652)

According to Academician Iv. Javakhishvili: "There are two names in Guria and Samegrelo denoting the vessels of different sizes. Namely, large and medium-sized pottery was called Churi – in Guria, Lagvani – in Odishi, and smaller one having 5 bucket capacity, Kvibari – Guria, and Lakhuti – in Odishi".(Javakhishvili Iv. (1964). Materials for the Economic History of Georgia).

In the Western Georgia, Churi is used with a meaning of Qvevri, but now the term "Qvevri" is used as a common literary name for this type of vessel determined by historical-economic necessity (Pruidze L. (1974). Viticulture and Winemaking in Georgia).

There was also experience of Qvevri large-scale production in Georgia. In this respect, the modern Qvevri enterprise held in the Telavi Ceramic Plant in the 50-s of the last century is

outstanding, the operation whereof is based on geological research conducted in accordance with the standard requirements of Vardisubani clay deposit, analysis of chemical and physical properties of clay and non-plastic material, and scientific-technical documentation compiled taking into account the experience of many well-known Qvevris construction officials and the advice of qualified scientific ceramicists (Геолого-разведочная кантора Грузпромсовета. Отчет геолого-разведочных работ по Телавскому (село Вардис-убани) месторождению глин для производства винных кувшинов «КВЕВРИ» большой емкости. Тбилиси, 1955).

Although there are a number of proven historically and scientifically facts about Qvevri, no regulated technical requirements have been met for it as a wine vessel unless we take into account the Republican Standard of the Soviet Socialist Republic of Georgia (РС "Изделия Керамические гончарные" (81 -73), officially published in 1973. Later, in 1977, with appropriate changes, the general technical conditions were published (РС "Изделия Керамические гончарные" (81–73). The requirements of this standard apply to decorative and agricultural ceramics made of red plastic clay by forming or casting and further baking. In it, in connection with Qvevri, there is only a hint that it, according to its purpose, is a vessel for storing liquid. The standard provides general technical requirements and physical-mechanical characteristics for pottery ceramics for decorative and agricultural purposes and does not specify the characteristics of Qvevri as wine vessel. This was probably due to the socio-political reality of the 1960s, when there was a misguided policy of ignoring the traditional technology of Qvevri and Qvevri wine.

After the independence of Georgia, special attention is paid to the popularization of the wine placed in Qvevri. Although the issue of legislative regulation of Qvevri wine was issued in 1997-1998, only in 2018 significant changes were made in the Law of Georgia on "Vine and Wine". The term "Qvevri wine" was defined: "Qvevri wine is fermented and aged wine in Qvevri, at least until December 31, on full or partial chacha", and therefore "Qvevri wine" was added to the wine categories.

There are remarkable facts indicating the merits of the Georgian Orthodox Church to Qvevri protection and popularization. In autumn of 2007, wine was placed in Qvevris by the ancient traditional way in the cellar of the Alaverdi Monastery. The Georgian Traditional Wine Fund was established in 2010, and together with the Georgian Wine Association, the Wine Club and the Qvevri Wine Association, established the Qvevri Fund, in 2011. In autumn of 2011, with the support and encouragement of the United States Agency for International Development (USAID) Economic Prosperity Initiative (EPI), the Fund organized the First Qvevri Wine Scientific Symposium promoting term – "Qvevri" for wine vessel originated from Georgia, in the world.

The ancient historically formed tradition of winemaking in Qvevri continues to this day. The uniqueness of this method is indicated by the fact that in 2013, at the 8th session of the Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage of the United Nations Educational, Scientific and Cultural Organization - UNESCO the decision was made on the nomination submitted by Georgia on inclusion of – "Ancient Georgian traditional method of making Qvevri wine" in the List of Intangible Cultural Heritage (UNESCO (2-7.12. 2013). Protocol of the 8th Session on the Inclusion of Qvevri Wine in the List of Intangible Cultural Heritage of Humanity. Baku, Azerbaijan), accordingly, indicating the uniqueness of not only Qvevri wine, but also wine vessels.

Important is the fact that to mark the 70th anniversary of the founding of the United Nations, Georgian Qvevri donated by Georgia to the UN on the occasion of the UN's anniversary was placed in the yard of the UN Office in Geneva. Original size clay Qvevri, made in the Village Makatubani, Georgia, and "საქართველო Georgia" is engraved on it in Georgian and English. The official Qvevri installation ceremony was held at the UN yard, on March 1, 2016.



And in 2017, in the City Bordeaux, France, the exhibition "Georgia – the Cradle of Winemaking" was officially opened at the Cité des Civilizations Du Vin. To celebrate the first exposition of the "Invited Wine Country" exhibition cycle dedicated to Georgia, large Qvevri was placed at the entrance. On October 11 of the same year, Patrick McGovern – professor of biochemistry and wine historian at the Museum of University of Pennsylvania, represented scientific research report to the National Center for Wine Civilization. According to which, after 3 years of research, the leading specialists of the country confirmed that Georgia is the homeland of wine, and winemaking in Qvevri in Georgia had taken place 8 thousand years ago, and there is a continuous tradition of winemaking and the oldest Qvevri-type vessel found in Georgia belongs to the VI-V millennia BC.





This once again confirms not only the uniqueness and world importance of winemaking method in Qvevri, but also the special cultural and social value of Qvevri and the fact that its reputation is inseparable from Georgia.

#### **b. Human Factors**



Making Qvevri is a result of Georgian people's intellect. Our ancestors were able to create a craft, industry and tradition that continues to this day. Qvevri is a kind of applied art that has developed industrially and is determined by human factors.

iv. Javakhishvili gives the information on some details of Qvevri and Churi making: "Due to the widespread use of winemaking in ancient Georgia, it is clear that the making of Qvevri should have become a separate field of handicrafts, as well as the places famous for their best pottery should have appeared in different communities. The circumstance that the document of Nikolaos-Tsminda, or Nikortsminda of the XI century says about the cellar: I embeded "Churi Navardzuli" 16 allows us to conclude that Churis made in Navardzeti were considered to be the best in this area."

In Kakheti in the XIX century, Qvevris were made in many places, but the best therefrom were considered made in Anagi (Пиралов А. С. и Шавердов С. Б. (1896). Очерк виноградарства и виноделия Кахетии. Сборник сведений по винограду и виноделию на Кавказе. вып. VII. Тифлис).

Qvevris were made in different villages in Kartli, as well, but those made in Imereti were considered to be the best, namely, in Zemo Imereti villages: Boslevi, Shrosha, etc. (Кандуралов П. (1897). Сборник сведений по винограду и виноделию на Кавказе. вып. VIII. Тифлис).

„Churis and Qvevris were made in Imereti, the Village Sarke of Argveti too, but best of all were of the villages: Chireuli and Boslevi, as well as of the Village Sairme of Lechkhumi, wherefrom Rachians brought for sale.“ (Накашидзе Е., Дандуров Е., Яковлев А., Вацадзе Е. (1896). Сборник сведений по винограду и виноделию на Кавказе. вып. III. Тифлис).

„In Lechkhumi, this craft, except Alpna community Village Sairme, was followed in the Okreshi Society villages: Zubi and Opitara“ (Накашидзе Е., Дандуров Е., Яковлев А., Вацадзе Е. (1896). Сборник сведений по винограду и виноделию на Кавказе. вып. III. Тифлис).

In Guria and Samegrelo, Churis and Qvevris were made locally. In Guria this craft were followed the villages: Aketi and Atsana, and in Samegrelo – Old Senaki, Mukhuri, Jvari, Pakhulani, Chale, Chkadua, Kortskheli, etc. But the most famous was the Village Namkoli (Тимофеев С. Н., Накашидзе Е. К. (1896). Сборник сведений по винограду и виноделию на Кавказе. вып. IV, Тифлис, Javakhishvili iv. History of Economics of Georgia. Vol. V.).

Levan Jorjadze writes in his work: "Although Qvevris are made in many different places in Georgia, but, no matter how well made and backed, still some of them keep the wine well, while others do not. It is mentioned in the note that, as in the past, so in the present times, Qvevri made in the Village Antok in Sartichala Uchastka, of Tbilisi Uezd is better than in all other places; and those who have taken Qvevri from this place, past or present, they are all



satisfied and say that they have stored the wine well and for a long time, and the sound of praise is spread everywhere of Qvevris from this village." (Jorjadze L. (1876) Viticulture and Winemaking and Improving the Leadership of Kakhetian Winemakers. Tbilisi).

Vakhushti Batonishvili notes at description of the Alistskali Gorge: "Ali Castle is disposed above Ali, on the slopes of the Likhi Mountains. Behind the castle, the Village Utslevi is located, in the mountains. Here they make good Churi for wine, the best of all"... (Janashvili M. (1904). Description of the Kingdom of Georgia. Vakhushti Batonishvili/Bagrationi).

Based on important ethnographic materials, L. Bochorishvili describes the process of "Qvevri making", where he notes: "in front of furnace, visavi of furnace eyes, and nearby, hollow firewood is lit to keep the furnace slightly smoky and heat for two days, some say to – heat for three days, on the third or fourth day the fire is brought closer to furnace eyes and gradually intensified, both – well-backed Qvevri and the fire are bluish" (Bochorishvili L. (1949). Kakhetian Ceramics).

Regarding Qvevri backing, also with reference to ethnographic materials, I. Nanobashvili notes, "Qvevri must go through several steps in the furnace. Backing occurs over several periods. At the beginning and at the end the different fire is needed, how well Qvevri is backed, possible to know this accordingly perspiration, which depends on the fire. Fire is fourfold and perspiration too – black, white, ember-colored and red. To get black perspiration, the fire is lit one meter away from furnace eyes, and Qvevri takes the smoke from there, during three days. After three days, the fire is lit half a meter away from the eyes, during one day. The fire will then be got directly into the oven and intensified. Fourth fire will be more intense and in double layers. Fire is thrown into Qvevris with long sticks. This will be the final moment of backing. After backed Qvevri removal from the furnace, it needs tempering" (Nanobashvili I. (1960). Ancient Vine Culture in Kiziki (according to the Ethnographic Records). Tbilisi: S. Janashia State Museum of Georgia of the Academy of Sciences).

### **c. Qvevri as an Article Contacting with Foodstuff**

Qvevri is clay article, item contacting with the foodstuff, and it shall satisfy the following requirements established in accordance with the Legislation of Georgia:

"It shall be made by means of industrial practice so that, at its usage in usual, normal or previously predicted conditions, the componentry could not transfer therefrom into the foodstuff in such amount that happened any from the following:

- a) Create danger for health;
- b) Cause undesirable change of foodstuff content;

c) Cause worsening of foodstuff organoleptic characteristics".

#### **d. General Characteristics of Main Raw Material**

In accordance with temporary researches, the clay belongs to fine-grained (fine-dispersed) sedimentary crushed rock group of minerals. It is polymineralic, and more than 30% of particles has size less than 1  $\mu\text{m}$  (1 micron – 0.001mm).

Qvevri raw material mineral grain particles or separate rock crush size upper range would be 60-70  $\mu\text{m}$ .

At that, clay is characterized with various chemical, physical and mechanical features mostly depend on crystal-chemical structure of clay mineral. Based on said above, there are some important raw material (clay) features, such as:

- Chemical content – depends on mineral content defining clay chemical content and substances causing Qvevri structural infraction (e.g. organic carbon high concentration delays clay baking and has negative influence on baked Qvevri strength);
- Mineral content – clay mineral (plastic) content, including hydromicas and chlorites averagely create half of whole mass, and crushed rock content (quartz, feldspars, etc.) is no less than 40%;
- Granulation – defines clay usefulness, recommended clay mineral grain particle or separate rock crush size upper range is 60-70  $\mu\text{m}$ ;
- Baking (thermal action) and baked clay strength – it is necessary to follow baking technical process precisely at quality Qvevri making. Contrary from clay the minerals – quartz and feldspars are more widening at their baking on high temperature, and correspondingly, narrowing at cooling if their grains have big sizes, and the cracks and microcracks appeare in high content. If baking temperature is very low the clay minerals do not transfer into amorphous (glass-like), homogenous, stable mass and remain unstable mass, and as a result of that Qvevri consistancy and strength is damaged.

Baked clay water absorption capability and intensity, in accordance to which the Qvevri strength and water leakage possibility is defined, depends on raw material content and baking process.

In general, Qvevri raw material (clay) is not homogeneous (identical) and equal in the nature even on the same mine. Often, the samples taken from various depth of the same mine are different with their mineral and chemical content and granulometric sizes as well,

reflected in differences of their chemical and physico-mechanical features (Poporadze N., etc. (2017). Qvevri Mineral Content. Business-Engineering N3). The carriers comprising raw materials (clay) with homogeneous content are rare; as a result of that, mixing of clays taken from various ores is recommended giving the opportunity to make Qvevri having sufficient physical consistency. At the same time, the interaction between Qvevri and wine should improve wine features, in the purpose of that, at Qvevri making the following is considered:

- Availability of more amount of two or three layered clays in content for the purpose to receive homogeneous raw material, in particular, clay mineral content including hydromica and chlorites should be greater (averagely, half of whole) part of mass than crushed rocks (quartz, feldspars, etc.);
- Carbon content small amount for the purpose to avoid creation of so called "black cores" and necessity to provide previous baking process;
- Less danger of cracks and gaps appearance depends on this that how balanced is amount of various particles, particularly, clay and crushed rocks;
- Large pores creation opportunity is less at appearance of small amount of large particles in clay providing clay plasticity maintain on appropriate level; it is significant that clay minerals amount defines raw material plasticity (high, average and low), with big amount of clay mineral fine particles and less crushed impurities the raw material is more plastic; although, at appearance of only clay minerals or in excessive amount, when crushed rock amount is very small, Qvevri will be reduced in size and damaged at drying and baking processes;
- Chemical componentry transfer is important for Qvevri minerals and wine interaction, and such reacting mineral type should be selected, which will improve wine mineral content; and as a reason of that, the presence of calcium, magnesium and potassium ions is more important than silicon, sodium and other minerals, in the eluate.

#### **e. Qvevri Shape, Description, Capacity and Place of Disposition – Historical-Ethnographic and Archeological Data**

Present-day Qvevri was formed in the III-II millennia BC; before of this, mainly, small-size Qvevri was spread, having height not exceeding 1-1.5m, flat bottom and wide belly. Modern Qvevri has shape of an egg.

Qvevri Georgian origin is confirmed by the fact that each part thereof has its name. This is indicated by numerous historical and ethnographic sources. "Qvevri has a "mouth" –

rounded flatness, "throat" or "neck" as narrowed part bellow the mouth, then "rings" (Gardapkhadze-Kikodze P., "Pottery and Qvevri-making in Lechkhumi", Georgian State Museum "Moambe" XIV, 1947) next below is wide "belly" gradually narrowing (Petriashvili V., "Winemaking", 1895), this narrowed part is called "Mujuro", and the rest from the outside – "kvititi".

Qvevri rest is defined by S. Menteshashvili, he notes that Qvevri rest is the rounded end thereof (Menteshashvili S. (1943) Kizikian Dictionary). N. Topuria has defined Qvevri bottom as "pochochiki" and "kursuli" (Topuria N. (1955). Georgian Cellar, Materials for the Ethnography of Georgia. Vol. VII). It is the rest that holds Qvevri to the ground and protects it from breaking. Each of these parts has its purpose (Pruidze L. (1974). Viticulture and Winemaking in Georgia. Book one).

Qvevri description is given by G. Shatberashvili as well. According to him:

"Qvevri "head" same mouth – the part left above the ground, closed with a lid of equal size;

Qvevri "mouth" – the part left above the ground, closed and covered with mud;

Qvevri "throat" – opening – upper narrowed part;

Qvevri "ring" – down part;

Qvevri "belly" – middle part, called the "belt", as well;

Qvevri "phil" – the bottom. When wine is in small amount, "wine only in phil" – is old saying. (Shatberashvili G. (1975). Essays. Vol. 4. Letters. Tvaladuri Georgian Chashniki. p. 438 Tbilisi: Soviet Georgia).

It is noteworthy that the 8000-year-old Neolithic period Shulaveri-Shomutepe egg-shaped pottery confirming the pre terrestrial culture is made without a "throat" and rings, and Qvevri found during the excavation of Zhinvali area belonging to the third millennia, already has been made therewith.

Ethnographic sources confirm that Qvevri sizes might have been different in various parts of Georgia. Iv. Javakhishvili, on the basis of various sources noted: " Qvevris in Kartli were and still are of different sizes: of 5-30 "koka"(jug) capacity" (Кандуралов П. (1897) Сборник сведений по винограду и виноделию на Кавказе, вып. VIII, Тифлис).

"There were big, medium and small Qvevris in Kakheti. The smallest would hold 1 jug wine, the largest – up to 106, but according to some people, there were even larger ones than that." (Пиралов А., Шавердов С. (1896). Очерк винограду и виноделию Кахетии. Сборник сведений по винограду и виноделию на Кавказе. вып. VII. Тифлис).

In some communities of Western Georgia, the name Churi was used and still is, and Qvevri is not used. The height of the Rachian Churi was 2/3-2 m, and contained 100 seven-jug capacity barrels of wine, and the Lechkhumian Churi – 5-60 poods of juice." (Пиралов А., Шавердов С. (1896) Очерк виноградарства и виноделия Кахетии. Сборник сведений по виноградарству и виноделию на Кавказе. вып. VII. Тифлис).

"In Imereti, Qvevri is capable to hold up to 40 buckets, and Churi – 40-160 buckets. The big Churi was also called "Chasavleli" (down entrance), because a person had to come down inside to wash such a wine capacity "(Vatsadze E. (1896). Очерк виноградарства и виноделия Кахетии. Сборник сведений по виноградарству и виноделию на Кавказе. вып. III. Тифлис).

"In Guria, Qvevri, which could hold up to 5 buckets of wine, was called Kvibari, and in Odisha – Lakhuti" (E. Vatsadze. Сборник сведений по виноградарству и виноделию на Кавказе. (1896) том III; Javakhishvili Iv. (1986). Economic history of Georgia. Vol. V).

"Ethnographers consider that the largest size of the Georgian Qvevri – Mindatsikhe Churi is found in Racha, the Vill. Tsesi, which according to Prof. G. Beridze, could hold 800 decalitres. According to the legend, so many barrels of wine were poured into the Mindatsikhe Churi as many days are in a year.

M. Balas writes in surprise about the "Chasavlebi" found in the yard of Kutaisi Gymnasium, where the bull would drown (Pruidze L. (1974) Viticulture and Winemaking in Georgia).

It is noteworthy that the capacity of egg-shaped pottery confirming the Shulaveri-Shomutepe early farming culture of the Neolithic period is 25-30 liters. The diameter of the mouth is 32 cm, and the bottom is 15 cm. Some scientists recommend to use "the principle of golden ratio", defined above.

Traditionally, Qvevri is always embedded deep in the ground, up to the throat, and placed in closed or open cellar.

Wine poured into Qvevri embedded in the ground is less affected by the variability of air temperature, although, soil moisture should be taken into account. "Where the humidity was excessive, the winemaker should avoid wine damage with such humidity. Therefore, embedding depth in such place was and still depends on the soil properties" (Javakhishvili Iv. (1986). Economic History of Georgia. Vol. V).

"Embedding of Qvevri in the ground is important achievement of Georgian winemaking, which is presumably started from the III century BC". (Bokhochadze Al. (1963). Viticulture and Winemaking According to Archeological Materials in Ancient Georgia. From ancient times to the II-III centuries AD. Tbilisi).

According to V. Javakhishvili, "inserting Tkemlour-Qvevri in the ground was called "setting of Churi", which is confirmed with the testimonial of 1475, given by Mamia Zevdginidze to Shio Mghvimeli. Wherein he says: I will sacrifice for Akhatani Batinuri, and "when that vineyard came out sweet, me – Mamia will set two Churis" (Javakhishvili Iv. (1986). Economic History of Georgia. Vol. V).

This fact was pointed by I. Chavchavadze, and he also noted: "Our perfect Qvevri, because it is made of clay strong as stone and embedded in the ground, serves us exactly as good underground, or cellar for Europeans" (Chavchavadze I. (1956). Georgian Winemaking. Vol. VII).

## **VII. EVIDENCE THAT PRODUCT COMES FROM SPECIAL GEOGRAPHICAL AREA (TRACEABILITY)**

### **a. Registration**

Each business partner, whose activity has link with Qvevri making may join the Organization of the PGI Qvevri Producers/Makers (Association and/or other Organizational Structure). The Organization of the PGI Qvevri Business Partners has list of registered persons having right to use particular PGI, established by the Legislation of Georgia; wherein the data on the business partners – names, addresses, identifying codes and contact information, is represented. The list shall be renewed regularly.

### **b. Traceability Requirements**

Obtaining of essential raw materials and passing all steps of Qvevri making shall take place in Georgia, under control and monitoring conditions in order to ensure Qvevri specialty/specificity.

Qvevri traceability shall be executed in the steps – obtaining raw materials, Qvevri making, and distribution.

For the purpose of traceability the business partner having link with any step of the PGI Qvevri making is obliged to have proper information about Qvevri, raw materials and distribution; to practice relevant documentation and records to carry out the correspondence of the origin of the raw materials, specifications and production/making conditions with established requirements, and which upon request shall be submitted to the authorized body providing state control.

Usually, to practice relevant documentation and records confirming the correspondence with established specifications to be submitted into the control body.

Traceability system is coordinated by the PGI Qvevri or other authorized body, and the marking shall accompany the product.

## **VIII. MARKING RULES**

The PGI Qvevri shall be marked with the relevant logo of the PGI Qvevri Producers/Makers or other authorized body giving an opportunity of traceability and identity of Qvevri; it is given in the Fig. 1.

Usage of removable label is prohibited.

Additional marking is possible and voluntary together with the PGI controlled by the state under the rule established by the Legislation of Georgia.

Usage of Latin font – "**Qvevri**" or "**Kvevri**" is permitted together with Georgian font, at marking.

## **IX. CONTROL BODIES**

The control mechanism of correspondence of ready product with the PGI Qvevri Specifications and production methods shall be executed in accordance to the rule established by the Legislation of Georgia:

- Self control provided by Qvevri producer;
- Inner control provided by the PGI Organization providing local control on the appreciation of correspondence with PGI Qvevri Specifications; control of discoverability records, documentation, and other proper information, as well; assists business partner to provide state control, as well;
- Outer control – state control provided by competent body – the Ministry of Environment Protection and Agriculture of Georgia or control body – legal entity delegated by the Ministry to carry out the particular task related with the state control, and accredited by the relevant body of Georgia or the EU member states and The Organisation for Economic Co-operation and Development (OECD).
- The control of Qvevri as a material having contact with the foodstuff in accordance with the rule established by the Legislation of Georgia is provided by the LEPL – National Food Agency or control body – legal entity delegated by the LEPL – National Food Agency to execute particular task and accredited by the relevant body of Georgia or the EU member states and The Organisation for Economic Co-operation and Development (OECD).