CERÁMICA INNOVA
VALENCIA (SPAIN)
3rd to 7th February 2020

7 th Technology - Business Networking Event

Habitat, construction, architecture and ceramics sector

Ceramics to produce wines with differentiated characteristics - GOVALMAVIN

GOVALMAVIN

Event organized by:

Event sponsored by:

GOVALMAVIN Project

- Project: **Valorization of traditional materials for the vinification of quality wines**
- Founded by: **Ministerio de Agricultura, Pesca y Alimentación**
- Call: Convocatoria de ayuda a proyectos innovadores de Grupos Operativos (2017), en el marco del Programa Nacional de Desarrollo Rural 2014-2020 (PNDR)
- Grant Agreement: 20180020012104
- Country: **Spain**
- Budget: 540.000 €
- Starting: **1st August 2018**
- Ending: **15th July 2020**
- More information: https://govalmavin.com/

GOVALMAVIN Project

- Main objectives:
  - Development and evaluation of **new Spanish wines** through alternative winemaking and aging methods, using traditional and newly designed technological **ceramic jars**.
  - To optimize the physical and mechanical properties of the jars.
  - To produce high quality wines fermented and/or aged in the jars of the main Spanish types of grapes: Tempranillo, Garnacha, Monastrell and Macabeo (Viura).
  - To promote Spanish wines produced and/or aged in ceramic jars to national and international markets.

- Consortium

Miembros Solicitantes

PTV Plataforma Tecnológica del Vino · celler del roure · AICE jtc Universitat Jaume I · alfatec Ingeniería • Consultoría · PRADOREY desde 1503 · VITEC Centro Tecnológico del Vino · AD LIBITUM · UNIVERSITAS Miguel Hernández

Miembros Subcontratados

ainia · Universitat Politècnica de València 50 anys · UCLM · UVa · artica+

Miembros Colaboradores

OeMv Observatorio Español del Mercado del Vino · Uclés Denominación de Origen · Valencia Denominación de Origen

- Coordination: PTV

GOVALMAVIN Project. ITC's tasks

- Technical characterization of:
  - ✓ Antique ceramic jars
  - ✓ Current ceramic jars
- Analysis of the production issues of current ceramic jars and propose solutions:
  - ✓ New compositions
  - ✓ Improved performance during manufacturing processes
  - ✓ Tailored properties of current ceramic jars
  - ✓ Different manufacturing techniques to increase the size of ceramic jars
- Advise and guide the consortium towards the production of new technologic ceramic jars

Technical characterization of antique ceramic jars

Real Sitio desde 1503
PRADOREY

celler del roure

GOVALMAVIN

jtc AICE 50 1969-2019 ANIVERSARIO

Technical characterization of antique ceramic jars

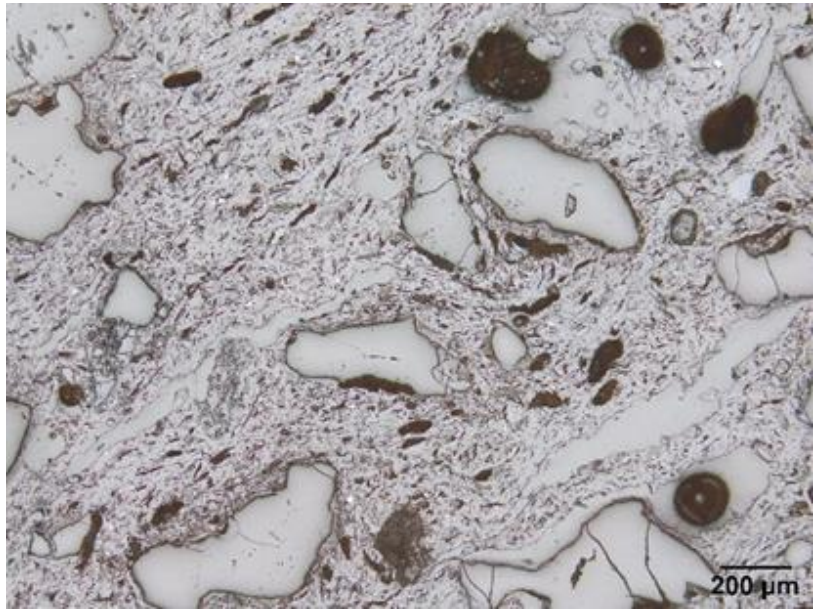
Sample	Neck	Base	Belly
Water absorption (%)	15,0	10,3	12,2-13,6
Bulk density (g/cm^3)	1,82	1,80	1,89-1,94
Open porosity (%)	27,4	18,5	23,0-25,9

Ceramic characterization of antique clay jars

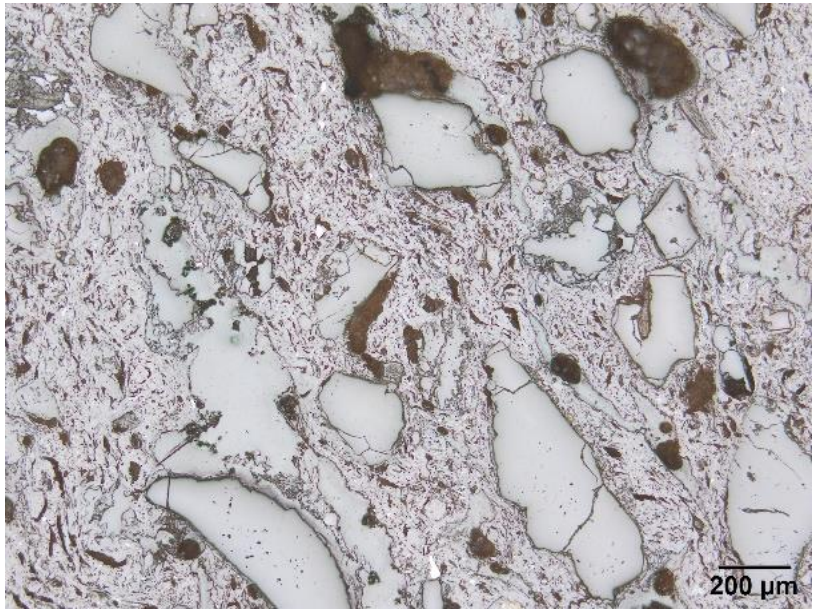
Optical microscope observation

Clear field

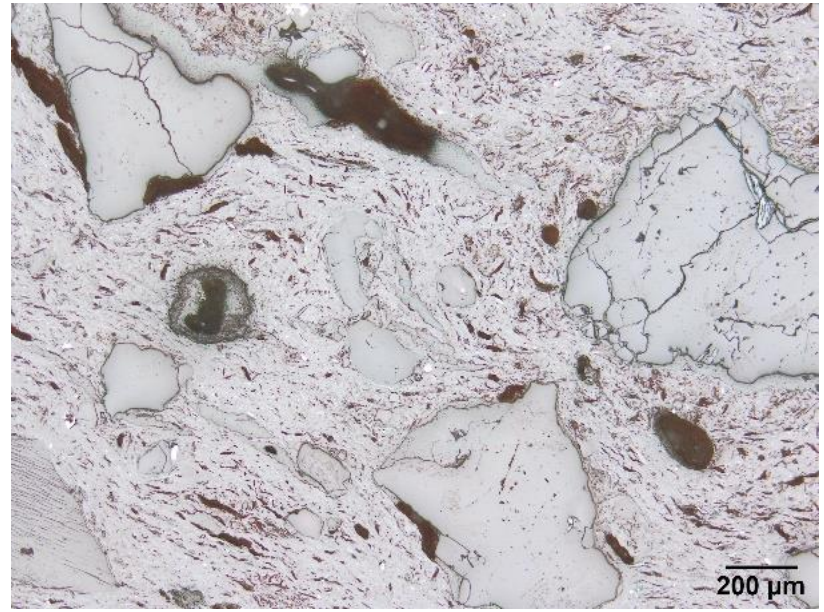
Neck



Belly



Base

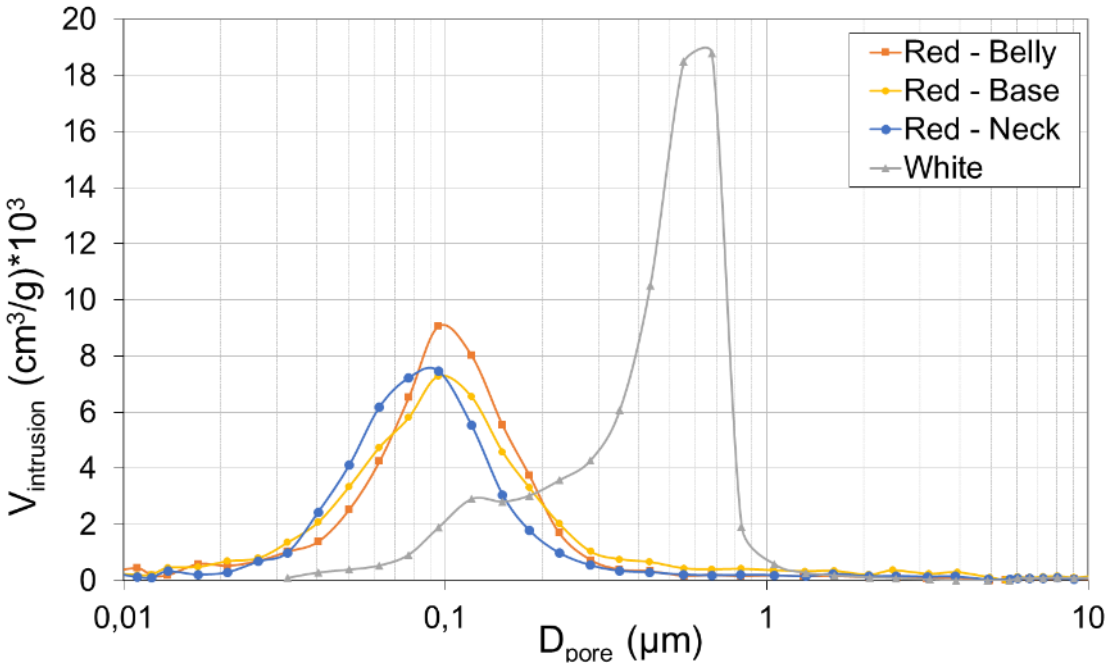


Technical characterization of current ceramic jars

- Made by Alfatec by traditional and mechanical methods
- Lower volume (120-130 l)
- Use of local clays from South Spain
- 2 types of compositions: white and red
- Problems:
  - ✓ Reduced dimensional stability
  - ✓ Deformation of neck and opening
  - ✓ Low productivity

Technical characterization of current ceramic jars

Sample	Red			White
	Neck	Belly	Base	
Water absorption (%)	1,9	3,6	1,5	7,6
Bulk density (g/cm^3)	2,29	2,25	2,27	2,16
Open porosity (%)	4,3	8,0	3,4	16,4
Air permeability K_p (m^2) $\cdot 10^{-17}$	0,01	↓↓	0,04	2,5
d_{50} (µm)	0,10	0,11	0,12	0,57



Technical characterization of current ceramic jars

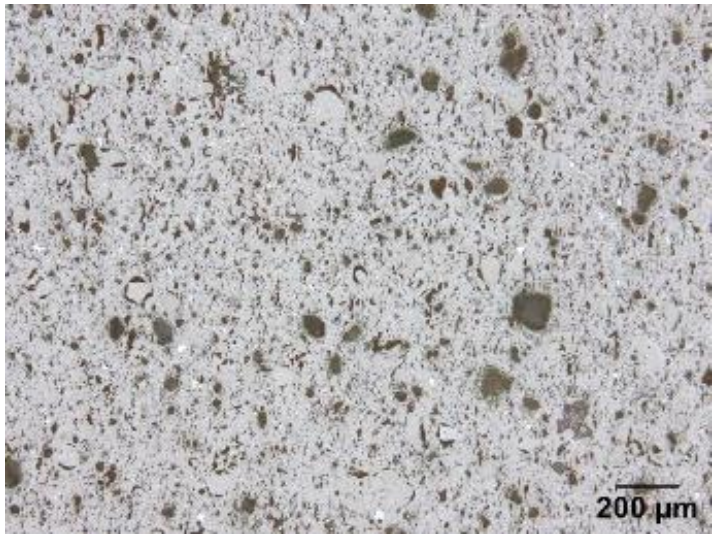
Optical microscope observation

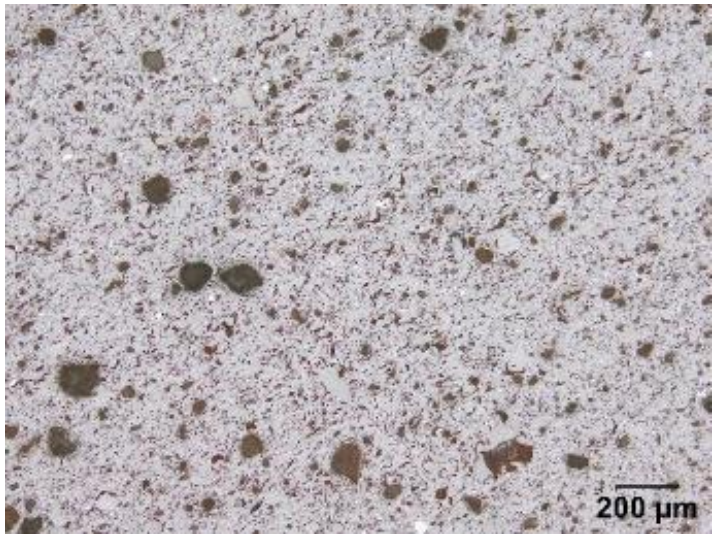
Neck

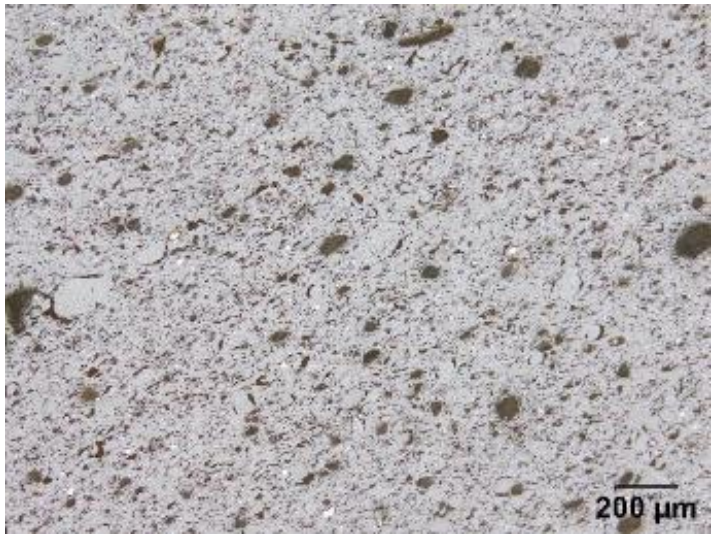
Belly

Base

RED







WHITE

Clear field

Conclussions

Technical characterization of ceramic jars:

ANTIQUE CERAMIC JARS	CURRENT CERAMIC JARS
Heterogenous properties between different areas of the jar	
Heterogenous properties between different jars	
High open porosity: it is necessary to seal them to avoid sweating	Lower open porosity: in red jars, it is not necessary to seal them
Heterogenous microstructure	Reduced pore size
	Small differences in open porosity and pore size provoke big differences in behaviour

Thanks!

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New Materials Area

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