

Advanced research set to improve control

It is well established that oxygen influences many critical wine characteristics, such as aroma, flavour, taste, structure and colour, therefore, controlling the impact of oxygen on wine is crucial.

Wine tastings have shown that a significant percentage of wine is negatively affected by oxygen mismanagement, and most of the time those defects can be traced to the closure.

For example, the International Wine Challenge 2006 presented 13,477 bottles of wine for blind testing. Of those, 7.2 per cent were judged faulty, and 49.3pc of the wine faults were closure-related. Remarkably, of the total faults, reduction (which is mainly attributed to screwcaps) and oxidation were twice as large a problem (53.5pc) as cork taint (27.8pc).¹

However, the impact of post-bottling oxygen ingress in wines is still an area for scientific exploration. Although several studies exist on pre-bottling chemistry, there is very little credible research data on post-bottling chemistry that correlates oxygen's role to wine development.

In order to fill this gap, Nomacorc, the leading producer of alternative closures, has assembled a team of internal experts that are partnering with world-renowned institutions.

Collaboratively, they are conducting research to demonstrate how oxygen transfer through closures influences the evolution of wine after bottling.

New research

Initially, the Nomacorc research team translated sensory descriptors into chemical classes of molecules, creating a classification system grouping the various aroma classes – mercaptans and other volatile sulfur compounds; terpenes; norisoprenoids, esters and higher alcohols; and volatile phenols and aldehydes – with respect to their sensitivity to, or requirement for, oxygen.

The team noted pyrazines and anisoles as being significant in sensory contributions; however, as they are insensitive to oxygen, the chemistry was not of particular interest.

OTR impact on wine aroma classes

Analogous relationships between sensory attributes, phenolic chemistry and the influence of oxygen on month feel and structure were established.

Now, researchers at the Australian Wine Research Institute, the Institut National de la Recherche Agronomique and the University of California, Davis have initiated a three-year project focused on collecting in-

depth technical data tracking the evolution of key molecules under differing amounts of oxygen.

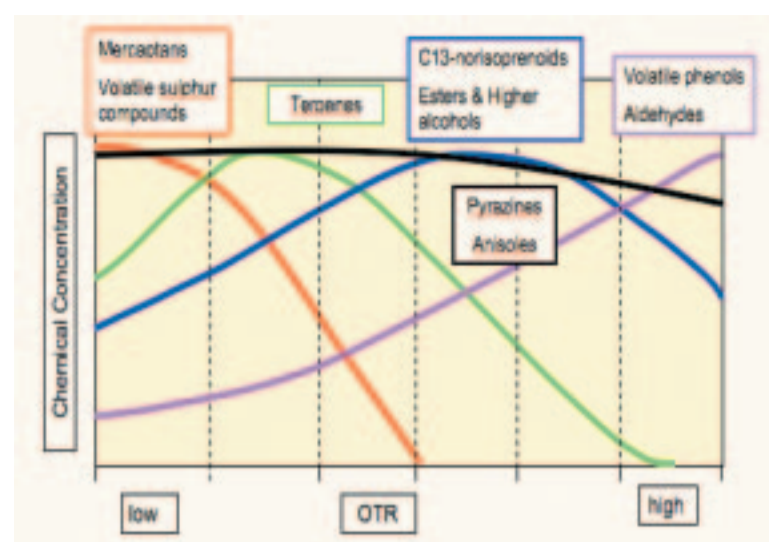
The first aspect of the study is to measure oxygen levels and the impact of oxygen, for which new measurement and analytical tools were developed. Likewise, since wines under different oxygen ingress levels age differently, special closures and ageing vessels were created to ensure wine ageing under specific amounts of oxygen ingress.

Using specific chemical markers, researchers will then map the impact of oxygen on sensory attributes and evaluate other factors, including the impact of grape variety, winemaking style, and bottling and storage conditions.

White, rosé and red wines will be made in the project, with each academic institution focusing on region-specific varietals. In addition, researchers will oversee production and bottling to control oxygen exposure throughout the winemaking process. Ultimately, for every grape pressing, up to 16 different wines will be produced.

AWRI, which published the results of the first significant closure trials in 2001, will specifically focus on sauvignon blanc and shiraz varietals.

The research team, led by



Elizabeth Waters, will study a number of factors, including the influence of oxygen on white wine colour development.

For sauvignon blanc, they will focus on the influence of winemaking variables, such as ageing over yeast lees and applying copper fining prior to bottling.

In addition, researchers will study the influence of oxygen ingress on reduced and oxidized aroma formation. For shiraz, they will look at the influence of heavy or light grape pressing and the application of micro-oxygenation prior to bottling.

By examining these winemaking variables, they will be able to assess the influence of post-bottling oxygen ingress on

shiraz aroma development and on the taste, astringency and colour of the shiraz after bottling and ageing.

With this knowledge, Nomacorc will be able to translate the desired sensory attributes into future closure design based on required oxygen transfer rates.

Winemakers will benefit from improved closure performance and can integrate closure design into their winemaking techniques.

The end result will be to improve winemakers' control of wine development after bottling and improve the wine quality delivered to the consumer.

1 Sam Harrop, MW, Wine & Spirits, October 2006

Details: www.nomacorc.com

Missed our deadline?

Don't lose Sales!

Ask for
a quote for
pre-printed

INSERTS



Graham Robertson
National sales manager

T: 08 8372 5228 F: 08 8372 5288 M: 0437 387 478
E: graham.robertson@ruralpress.com

The national voice of viticulture
Grape Growers & Vignerons

1214158N000308



Nomacorc is the leading producer of alternative closures.

Innovative manufacturer leads closure race

NOMACORC is the worldwide leader in the growing alternative wine closure category.

Dedicated to technological innovation, it manufactures its portfolio of products using a patented co-extrusion process. As a result, Nomacorc closures provide consistent, predictable oxygen management and protect against off-flavours due to oxidation,

reduction or cork taint. The company's products are available through a vast network of distributors and sales agents on six continents. With more than 400 employees worldwide and state-of-the-art manufacturing facilities in the United States, Belgium and China, Nomacorc produces closures at the rate of nearly 2 billion a year.
Details: www.nomacorc.com

Bibber International Staff
Visas
Adventures

VITICULTURE (New!) **CELLAR** **LABORATORY**

Use your skills to experience a **vintage overseas**. Have a great Wine Industry Adventure!
Many countries (Europe, USA, Canada) to choose from.
Call us now on **08 8227 1955** or visit our website to book your place *Payment plans available*

www.bibber.com.au

1213849N000308

Grape Vine Killer!

DON'T SPREAD PHYLLOXERA

Information:
(08) 8362 0488

www.phylloxera.com.au