



Product Innovation Press Release

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FOR IMMEDIATE RELEASE

Napa, California – Addressing Pyrazine in Wine

VA Filtration Services' Scientific Approach

Innovative Solutions from Napa Valley

Introduction

At VA Filtration Services, our mission is to empower winemakers to produce wines of the highest sensory quality. One of the challenges in modern winemaking is managing undesirable levels of pyrazines, particularly methoxypyrazines, which can impart green, herbaceous aromas that mask fruit character and complexity. Winemakers are left with two options: cover up the pyrazine (and potentially other attributes) or remove it through advances in pyrazine remediation practices.

The Problem: Pyrazines in Wine

Methoxypyrazines are naturally occurring compounds in certain grape varieties, such as Cabernet Sauvignon and Sauvignon Blanc. While subtle concentrations can add a sought-after freshness, excessive amounts lead to pronounced bell pepper and grassy notes, often perceived as faults—especially in premium reds. Often pyrazines present in wine due to environmental challenges winemakers are unable to prevent.

VA Filtration's Solution

Recognizing the limitations of traditional practices in mitigation or additive solutions, VA Filtration Services has partnered with amaea™ to provide targeted molecular filtration to remove these isobutyl-methoxypyrazines (IBMP) with their RMx process. Rather than attempt to mask these characteristics, as you would using tannin additions, VAF looks to remove the select



compounds that contribute to the negative sensory impact on your wine. Why add more, with varied results, when it's easier even to remove the cause in the first place?

Impact and Results

Our clients report significant improvements in wine aroma and market appeal after using our filtration service. The reduction of green, vegetal notes allows fruit and oak characters to shine, resulting in wines that are both balanced and commercially successful. By harnessing the power of targeted molecular filtration from amaea™, VA Filtration Services provides a scientific solution to a longstanding winemaking challenge.

** See Case Study Attached

CASE STUDY

Topic: Pyrazine remediation using **amaea RMx**
Organization: Sonoma Bespoke
Contact: Joe Uhr – Winemaker
Status: **Complete**

CASE STUDY:

Selective Pyrazine Remediation Advances Napa Valley Cabernet Sauvignon Up a Tier

When Sonoma Bespoke purchased a premium Napa Valley Cabernet Sauvignon, winemaker, Joe Uhr was tasked with improving the pyrazine-impacted wine to make it more approachable and attractive for sale.

Where many would have turned to traditional masking techniques, Uhr chose to trial **amaea RMx** – a new, highly selective pyrazine remediation technology delivered by the region’s leading wine filtration service provider, VA Filtration, located in Napa, California. The innovation successfully reduced the unwanted green characters, allowing the hallmark, fruit-forward descriptors Napa Valley Cabernet Sauvignons are renown for to shine. The resulting quality improvement advanced the wine into a higher price tier, positioning it as a profitable addition to Sonoma Bespoke’s portfolio.

Challenge

“The Oakville Cab came from a relatively cool site in the valley. It was a good wine, but for our wines, our style of winemaking and our market, we were looking for something that was a little more open, fruit forward, a little less obviously in that green spectrum of what Cabernet Sauvignons can be,” explains Uhr.

Pyrazines are a class of compounds that give wine green, vegetal aromas. In small amounts, they can serve as a distinctive regional or varietal hallmark. However, when present in higher concentrations, they can overshadow fruit expression and create sensory challenges.

Winemakers traditionally manage pyrazines through fining agents or additions that mask the green notes. For Uhr, the challenge was compounded by logistics as the wine was stored at a third-party facility.

Seeking a more selective and flexible solution, Uhr turned to VA Filtrations’ mobile molecular filtration system – which uses **amaea’s** advanced molecularly imprinted polymer (MIP) technology – with the aim to target the root cause of the green character and help realise his stylistic vision for the wine.

Solution

amaea RMx is a breakthrough molecular filtration technology designed for precision wine remediation. Using **amaea's** custom-engineered molecularly imprinted polymers (MIPs), it selectively captures compounds, such as pyrazines, through a single-pass, low-pressure filtration system.

VA Filtration began with a bench trial, working closely with Uhr to fine-tune the dose, flow and recirculation rate, and target duration. For the full-scale treatment, the mobile system was deployed on-site, allowing Uhr to taste the wine in real time and stop the process exactly when the desired sensory outcome was reached.

“The process was super smooth and the team were really great to work with. The trial provided an approximation and when it came to the treatment, we could taste as we go. The technicians gave me a heads up as we were getting closer and then it worked,” describes Uhr. “With control, I was really able to dial in the quality.”

Results

Margin Uplift for Greater ROI

With **amaea RMx**, Uhr exceeded his expectations, transforming the wine into a higher-value product.

“**[amaea RMx]** definitely premiumized the wine, advancing it up a tier,” shares Uhr. “All in all, it made a much better wine that I think will over deliver on the price point that we are going to end up selling it for.”

Winemaker-Controlled Sensory Enhancement

Rather than masking the issue, **amaea RMx** targeted removing the offending pyrazines helping reveal the wine's inherent fruit character. “The fruit really came through. All those wonderful, riper Napa Valley Cab descriptors that you can think of were brought to the forefront,” says Uhr.

The ability to taste and adjust in real-time ensured the wine met Uhr's sensory goals. “I would absolutely recommend **[amaea RMx]**, especially if the wine isn't where it's desired or part of the stylistic goals,” he adds. “It can replace any masking additions or additives and that's where it is really valuable.”

Ease of Operation

Despite the wine being stored at a third-party facility, VA Filtration mobilised their **amaea RMx** MIP system and completed treatment on-site in less than two days. The combination of rapid processing and skilled technicians made the experience seamless. “They're the best, I've



worked with VA Filtration a lot over the years, and the team are awesome - that's why I keep coming back," says Uhr.

Summary

The selectivity and winemaker control offered by **amaea RMx** enabled Uhr to remove pyrazines to elevate Sonoma Bespoke's 2023 Oakville Cabernet Sauvignon into a higher price-tier, unlocking healthier profit margins.

Beyond the sensory gains, the treatment also overcame logistical constraints. With the wine stored at a third-party facility, VA Filtration mobilised their **amaea RMx** system on-site and completed the job in under two days, delivering a fast and seamless process.

"I'm really excited to have a seat, because that wine, up until we purchased it, just sat in-tank with no real winemaking, it was looking for a home behind it. So now that I've got it down to the base of what we want it to be, it's going to be really fun to watch that move through the process," shares Uhr.

He also points to broader benefits: "PVPP substitutes and fining addition substitutes have always been very judicious and with [**amaea's** technology], it provides different ways to explore non-allergen and non-animal protein finings. The options are quite a bit more. When you have USDA organic labeling rules to follow, technology like this can be extremely powerful, and that's what really matters to begin with."

About Joe Uhr – Winemaker, Sonoma Bespoke

A fourth-generation Sonoma County native with over 14 years of experience in the wine industry, Joe Uhr has worked across a diverse range of winery settings — from a leading sparkling wine house to a super-premium Napa Valley institution, to a historic family-owned estate with one of California's most storied legacies. Now a winemaker for Sonoma Bespoke, Uhr brings a breadth and depth of expertise that fuels his deep appreciation for the complexity of vineyards, sense of place, and art of winemaking.

About Sonoma Bespoke

Sonoma Bespoke provides state-of-the-art, all-in-one wine négociant services, supported by an award-winning winemaking team. Combining experience, tradition, and innovation, Sonoma Bespoke crafts wines of the highest quality, placing them among the leading wine producers in the U.S.

About VA Filtration USA

For 24 years, VA Filtration USA has been helping wineries improve their wine filtration processes. We offer a range of services to help with common wine issues and support you in making the best product possible. Our filtration machines can be found around the world, but they are designed and assembled right here in Napa, California.

In addition to our top-tier services, we offer a range of low-impact wine filtration solutions, specifically: filtration skids, food-grade membrane elements, ion exchange resins, adsorption resins, Solventum™ sterile filter cartridges, sterile cartridge housings, grape-based high-proof spirits, and amaea™ molecular filtration products.

Treatment Summary

- **Wine varietal:** 2023 Oakville Cabernet Sauvignon
- **Volume of wine processed:** 28,000 gallons
- **Treatment duration:** 1 – 2 days
- **Date of treatment:** July 2025
- **Applied dose rate:** 4 g/L
- **Applied flow rate:** 75 CV/hr
- **Tank recirculation:** 80%
- **Who conducted the treatment:** VA Filtration USA
- **amaea solution:** amaea RMx



Joe Uhr, Winemaker at Sonoma Bespoke, alongside VA Filtration's mobile **amaea RMx**, molecular filtration system

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