



DIAM FAQ's

What is the “DIAM Guarantee?”

We guarantee the levels of 2,4,6-Trichloroanisole (TCA) are below the limit of quantifiable detection (less than 0.5 ng/L by GC/MS) - this applies to each individual DIAM closure in every batch.

So every DIAM Closure is guaranteed to 0.5 ng/L of TCA by GC/MS, why not simply say that, “DIAM is TCA free?”

The current GC/MS technology has a limit of quantifiable detection of 0.5 ng/L – simply put, we cannot say that Diam is “TCA free” because that would mean 0 ng/L by GC/MS and no one is able to reliably test to that threshold. We are currently able to accurately quantify TCA levels to 0.5 ng/L so we guarantee that DIAM Closures are free of TCA tested to that limit.

The DIAM Guarantee is a bold claim, can you explain how Diam is manufactured?

In our manufacturing process, natural cork is granulated and that granulate is loaded into large autoclaves. Supercritical CO₂ is circulated through these autoclaves to clean the cork. Supercritical refers to a physical state between gas and liquid; in this state, the CO₂ becomes an effective solvent. When the supercritical CO₂ is distributed through the cork granulate it strips out the TCA. The supercritical CO₂ and TCA then circulate out of the autoclave, the CO₂ is cooled and the pressure is reduced so the CO₂ comes back to a gas and the TCA then falls out of the solution. The TCA and other compounds (the effluent) are then pumped out of the supercritical facility into a waste collection unit. After separation, the CO₂ is filtered through carbon and ceramic filters to ensure absolute cleanliness. The clean CO₂ is then heated and pressurized back to a supercritical state so it can be re-circulated back through the corkwood in the autoclave.

Aside from TCA, what else does the supercritical CO₂ process extract from the corkwood?

The DIAM-patented supercritical CO₂ process removes 150+ compounds

from corkwood, including: TCA, TCA precursors, other anisoles that behave similarly to TCA and other compounds that can lead to “off flavors” in wine. We are happy to provide a document that lists all of the compounds that we’ve been able to identify that are removed by the supercritical CO₂ process.

Is supercritical CO₂ used in other industries?

Yes. Originally, supercritical CO₂ was developed to decaffeinate coffee. Before the supercritical CO₂ technology was created, coffee was decaffeinated with chemical solvents that left residues on the coffee that could negatively alter its flavor. Supercritical CO₂ is also used in the flavor industry to remove flavor extracts from organic material, used in the beer industry to remove the bitter component from hops that can impact pilsner-style beers and even in the aerospace industry to clean space suits when astronauts return from outer space.

Is it possible to use supercritical CO₂ on punched, natural corks?

When the supercritical CO₂ process was originally in development for corkwood, Oeneo Bouchage tried to treat both punched corks as well as raw cork planks with supercritical CO₂. The punched corks and corkwood planks warped and deformed due to the pressures and temperatures required to achieve the supercritical state, making the wood unusable for effectively sealing wine. To make an effective closure that has been treated with supercritical CO₂, Oeneo Bouchage has to mill the corkwood into granulate (flour), treat it and then reform it into precise shape.

I understand that G3 Enterprises offers several DIAM products, can you tell me the difference in the products?

G3 Enterprises offers several DIAM still wine closures that are designed for different shelf-life (wine preservation) time frames ranging from a minimum of 2 years up to 10+ years. Every one of these products are cleaned with the supercritical CO₂ process. By varying the cork granulate size and the density of the cork granulate

we are able to engineer the permeability of the closure. G3 Enterprises also offers supercritical CO₂ treated corks designed to retain CO₂ and eliminate TCA and other flavors in sparkling wine called Mytik.

My winery has extensive QC procedures in place for punched, natural corks – can you tell me what QC procedures are necessary for Diam?

Many of our customers use the same QC procedures for DIAM closures as they use for natural punched corks – typically our customers find that the DIAM closures are so clean and neutral that they significantly reduce, or even eliminate, the extensive QC protocols that they have used in the past. The primary advantage of DIAM closures is that the effectiveness of the supercritical CO₂ process is steeped in engineering principles which are absolute in contrast to QC principles that are based on sample plans designed to avoid major catastrophes.

What QC protocols are in place to insure the DIAM Guarantee?

The cork granulate is tested by GC/MS before and after the supercritical CO₂ cleaning process to ensure compliance with the Diam Guarantee and all dimensional and elastic recovery properties are evaluated prior to shipping the closures from Europe. When G3 receives the DIAM closures in the US, the closures are tested again by GC/MS to ensure the DIAM closures have not been contaminated during transport. G3 then verifies all of the dimensional properties of the closures and processes the closures under extremely controlled conditions to ensure proper bottling line and wine preservation performance.

Do DIAM closures require different bottling line / corker settings than is typical with punched, natural corks?

No, DIAM closures are designed and processed to “plug and play” into existing bottling line operations where punched natural corks are used with no adjustments required. Many of our customers also appreciate the lack of dust when they bottle using DIAM closures.