

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2025

DateRun: 04/23/2025

Experimenters: Amelia Wagner

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Food

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To test the efficacy of Virdivis FB1000 in cleaning encrusted yeast and hops from stainless steel coupons in comparison to other safer alternatives to caustics and acidic descalers.

Experimental Procedure: Stainless steel coupons were chosen and had their initial weights recorded before beginning the 'brewing' process. To begin the 'brewing process' a slurry of 1.5 lbs of dry malt extract and warm water was made and added to 2 gallons of boiling water in the brewing pot. An entire packet of hops was then added to the brewing pot and continued to boil for ~1 hour until wort was created. The wort was allowed to cool to room temperature before transferring it into the plastic fermentation bucket. 6-7 grams of dry yeast was rehydrated with a small amount of warm water, and was left to rest for 5 minutes. The dry yeast mixture was then added into the fermentation bucket (without stirring). The coupons were hung in the fermentation bucket with fishing line so that the bottom of each coupon sat just above the wort level. The fermentation bucket was covered and left to ferment for 72 hours, checking for yeast activity every day. Once the coupons were removed, they were baked in the oven at 250F to fully solidify the yeast and hops soil to the surface. At this point, the dirty weights of the coupons were then recorded.

To clean, the coupons were subjected to 10 minutes of immersion in their respective cleaners with a stir bar set to 300rpm. After cleaning, each coupon was rinsed with tap water for 10 seconds. After allowing the coupons to air dry, the clean weights were recorded.

Results:

Temp	Cleaner	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG
Unheated	Virdivis FB1000 2%	0.0057	0.0010	82.46	75.55
		0.0089	0.0020	77.53	
		0.0015	0.0005	66.67	
	Virdivis FB1000 20%	0.0273	0.0005	98.17	98.14
		0.0375	0.0007	98.13	
		0.0211	0.0004	98.10	
	Proprietary A	0.0043	0.0004	90.70	91.91
		0.0094	0.0003	96.81	
		0.0051	0.0006	88.24	
	Proprietary B	0.0259	0.0005	98.07	97.73
		0.0289	0.0005	98.27	
		0.0317	0.0010	96.85	
	Proprietary C	0.0223	0.0004	98.21	98.71
		0.0203	0.0003	98.52	
		0.0171	0.0001	99.42	
120F	Virdivis FB1000 2%	0.0019	0.0003	84.21	85.67
		0.0116	0.0016	86.21	
		0.0112	0.0015	86.61	
	Virdivis FB1000 20%	0.0265	0.0002	99.25	96.96
		0.0172	0.0007	95.93	
		0.0163	0.0007	95.71	
	Proprietary A	0.0127	0.0000	100.00	95.59
		0.0088	0.0004	95.45	
		0.0046	0.0004	91.30	

Proprietary B and Proprietary C were not tested at 120F based on the vendor recommendation that heat would not be needed. Both products are designed for ambient temperatures.

CLEANING LABORATORY EVALUATION SUMMARY

The coupons cleaned with Proprietary B and Proprietary C still had a large amount of visible soil when immediately removed from immersion however, most of this soil was removed in the subsequent 10 second rinsing step. It is common industry practice for a rinse step to be included in the cleaning process.

Summary:

Substrates:	Stainless Steel				
Contaminants:	Food				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	2%	75.55	☐	unheated
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	20%	98.14	☒	unheated
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	2%	85.67	☒	120F
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	20%	96.96	☒	120F

Conclusion:

All products tested were found to be effective in removing encrusted yeast and hops from stainless steel coupons except for the Virdivis FB2100 2% unheated. The efficacy of Virdivis FB2100 2% was increased with addition of heat, while heat did not seem to affect the efficacy of the Virdivis FB2100 at a higher concentration of 20%. The higher concentration of 20% performed better overall compared to the 2% concentration.