CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2021

DateRun: 06/08/2021

Experimenters: Justin Kiander

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Food

Cleaning Methods: Manual Wipe

Analytical Methods: Visual

Purpose: The purpose of this experiment was to further test the effectiveness of the Blizzard reformulation products in removing frozen evaporated milk from aluminum substrates,

Experimental Procedure: The following products were prepared according to predetermined reformulation recipes: Blizzard with Calsolv, Blizzard with Augeo, Blizzard with Augeo and Linsurf 91-6. Three aluminum coupons were obtained for each of the cleaners being tested. Coupons were soiled with evaporated milk using a plastic pipette to spread the soil across the entire surface of the substrate. All coupons were then placed into a freezer to allow the soil to age for 24 hours. Following the aging process, individual paper towels were saturated with respective cleaning solutions and manual wiping was conducted for 30 seconds. After 30 seconds of wiping, a percentage of cleanliness was determined by visual observation. Cleaning then continued until the soil was completely removed. The total time to clean was recorded. After the cleaning process was completed, the three cleaners were placed into the freezer with observations being recorded at the 10, 20, 30, 60, 90, 120, and 1440-minute marks.

Results:

Cleaner	Percent Clean After 30 seconds	Total Time to Clean (seconds)
Blizzard with Calsolv	97	34
	85	40
	100	30
Blizzard with Augeo	96	35
	100	30
	99	31
Blizzard with Augeo and Linsurf 91-6	100	30
	96	34
	96	34

The frozen evaporated milk was not as easily removed compared to the mayonnaise. Where removal began almost instantly for mayonnaise, removal of the evaporated milk did not begin until after approximately 5 to 10 seconds of scrubbing. However, after the full 30 seconds most cleaners were effective at completely removing the evaporated milk. Streaking was also visually observed for some coupons after the cleaning process, leading to increased total cleaning times.

Across the entire 24-hour freezing period, there was no visual change in the cleaning solutions. They were verified to be effective in freezing conditions.

Summary:

Conclusion: All Blizzard products were effective at removing the frozen evaporated milk from aluminum substrates with 30 seconds of manual wiping. Some coupons did require a few additional seconds to remove streaking. After 24 hours of freezing, no visual changes were observed in the cleaning solutions. They were verified to be effective in freezing conditions. Next steps would be to discuss the results with the company.