CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2016

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ClientType:

ProjectNumber: Project #1

Substrates: Aluminum, Plastic

PartType: Part

Contaminants: Greases, Dirt

Cleaning Methods: Manual Wipe

Analytical Methods: Visual

Purpose: To evaluate the supplied products for Bicycle Gear surface cleaning effectiveness.

Experimental Procedure: The Toxic Use Reduction Institute (TURI) laboratory provided with five bike cleaning products for performance evaluation. The cleaners are meant for removing soil off of bike frames, but other areas of the bike (gears, frame, rim, and chains) were evaluated for performance of removing soil from the bike. To gain access to bike parts and real-world application, the University of Massachusetts Lowell Freewheelers Bike Shop collaborated in this evaluation.

The first step was to collect dirty bike parts to observe the consistency and texture of the common bike soil. This information would help with recreating a synthetic bike soil that would be used for future testing. Interviews with bike shop employees revealed that bike soil is mainly lubricant and the same dirt from the bottom of car tires. Using this information and a bottle of lubricant, the lab collected dirt off of the same car for consistency to create a soil that would look like the dirt on the dirty bike gears. A mixture of 50 drops of bike lubricant and 1.6g of bike soil was consistent with both appearance and removal performance as natural bike soil.

Below at the cleaning results for the bike gears, frame/rim, and the chains on common substrates used to make bicycles.

A pre-soiled bike pedal gear was obtained by the campus bike shop as an initial substrate for the five Troy Corp bike cleaners. After observing the bike cleaning process at the bike shop An initial visual analysis of the bicycle gear was acquired in order to use it as a standard and also to determine how much of the gear was cleaned after wiping with the cleaners. The bicycle gear was sprayed twice and then wiped clean with a fabric cloth for 5 minutes for each of the cleaners provided. After the wiping was completed, the bike gear was then subjected to a visual analysis in order to assess for cleaning effectiveness for each cleaner.

Results: The results from the testing are reported in the table below:

Cleaner #	Time (Mins)	Observations
Tetra T08867	5	Only small amount of bike soil removed
Tetra T08868	5	Performed just the same as cleaner one (Tetra T08867)
Tetra T08869	5	Performed better, bike gear looks glossier
Tetra T08870	5	Looks cleaner than Tetra T08869 (Previous cleaner)
Tetra T08871	5	Performed the same as Tetra T08867 (First cleaner)

Summary:

Substrates:	Aluminum, Plastic				
Contaminants:	Greases, Dirt				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Troy Corporation	Tetra T08867	100	0.00	☐	
Troy Corporation	Tetra T08868	100	0.00	☐	
Troy Corporation	Tetra T08869	100	0.00	☑	
Troy Corporation	Tetra T08870	100	0.00	☑	
Troy Corporation	Tetra T08871	100	0.00	☐	

Conclusion:

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It was found that the worst performing cleaner on the bicycle gear surface was T08867. Visually, it had less removal of the bike soil when compared to the other cleaners. The T08868 performed just the same as the first cleaner, with little to no removal of the bike gear soil.

The T08869 performed better than the previous two cleaners. Visually, it was seen to clean better and also provided gloss to the bike gear. The cleaner that was seen to outperform the others in cleaning effectiveness was the T08870. Visually, it was seen to remove the most amount of bike gear soil compared to the other cleaners used. T08871 cleaner was observed to perform to the same nature as cleaner one, T08867; it barely removed soil from the bike gear.