CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2023

DateRun: 08/24/2023

Experimenters: Amelia Wagner

ClientType: Department of Public Works

ProjectNumber: Project #2

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Asphalt

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To find an effective cleaner to remove asphalt staining, oil, grease, and adhered gravel from stainless steel coupons.

Experimental Procedure: Four cleaners were chosen for testing; 1. Orange terpenes 15%, 2. Soyclear 1500 100%, 3. DS-108 Wipe Solvent 100%, 4. Lemon Oil 15%. Three stainless steel coupons were assigned to each cleaner for a total of twelve coupons. Initial weights of the coupons were recorded. About a tablespoon of EZ Street Premium Cold Asphalt was placed on each coupon. The coupons were then placed between two steel plates. A car was driven over the steel plates five times in order to compress the asphalt to the coupons, releasing the oil and grease and causing gravel to become adhered to the coupons. The dirty weights of the coupons were then recorded. The coupons were then subjected to unheated immersion within their corresponding cleaner for 30 minutes with a stir bar set to 200rpm. Once removed, each coupon was wiped once with a paper towel to remove the dissolved soil. Clean weights of the coupons were then recorded.

Results:

Cleaner	Initial wt of cont.	Final wt of cont.	%Cont Removed	% AVG
Orange Terpenes 15%	0.5287	0.0028	99.47	99.60
	2.5633	0.0040	99.84	
	1.2285	0.0064	99.48	
Soyclear 1500 100%	0.6742	0.0030	99.56	99.51
	0.5646	0.0022	99.61	
	1.1966	0.0077	99.36	
DS 108 Wipe Solvent 100%	0.7251	0.0018	99.75	99.52
	0.1704	0.0005	99.71	
	0.3725	0.0034	99.09	
Lemon Oil 15%	1.9981	0.0015	99.92	99.41
	0.6714	0.0054	99.20	
	0.3284	0.0029	99.12	

After being wiped with a paper towel, the coupons cleaned with Orange Terpenes 15% had small spots of staining left over.

The Lemon Oil 15% left streaks on the coupons after being wiped with a paper towel.

Summary:

Conclusion: Soyclear 1500 100% and DS 108 Wipe Solvent 100% are effective cleaners in removing asphalt from stainless steel. They passed both gravimetric testing parameters and visual requirements. Future testing will include a reduction of time and a reduction in product concentration.