

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2025

DateRun: 03/06/2025

Experimenters: Amelia Wagner

ClientType: Department of Public Works

ProjectNumber: Project #2

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Asphalt

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual, Timing

**Purpose:** To find an effective alternative cleaner to remove asphalt, tar, and staining from road maintenance tools and work truck beds. From previous testing, it is known that the chosen alternatives and the currently used products have approximately the same efficacy based on soil percentage removal in 20 mins. This testing will compare the amount of time it takes each product to be effective.

**Experimental Procedure:** Three stainless steel coupons were assigned to each cleaner. A tablespoon of EZ Street Premium Cold Asphalt was placed on each coupon before sandwiching the contaminated coupon between two steel plates. A mid-size compact car (curb weight: 3,186lbs-3,559lbs) rolled over the steel plates five times in a forward motion to compress the asphalt to the coupons which released the oil and grease to allow the gravel to adhere to the substrate. Visual observations and visual ranking of the soiled coupons were recorded before testing the cleaners using unheated immersion for 20 minutes with a stir bar set to 200rpm. Each coupon was observed and visually ranked at 5 minute intervals within the cleaning process (at 5 mins, 10 mins, 15 mins, 20 mins). Upon removal, each coupon was wiped once with a wypall. If all soil was removed with the wipe, the coupons were removed from testing. If soil remained, the coupon was placed back into its cleaner for the next 5 min interval.

## Results:

Cleaner	Dirty Visual	5min Visual	5min AVG	10min Visual	10min AVG	15min Visual	15min AVG	20min Visual	20min AVG
Big Orange E	5	3	2.8	2.5	2	1.5	1.3	1	1
	5	2.5		1.5		1		1	
	5	3		2		1.5		1	
Solvs-it	5	3.5	3.8	2.5	2.8	2	1.8	1.5	1.5
	5	4		3		2		1.5	
	5	4		3		1.5		1.5	
Diesel	5	2	2.2	1.5	1.5	1	1	1	1
	5	2.5		1.5		1		1	
	5	2		1.5		1		1	
Anisole	5	3.5	3.2	1.5	1.5	1	1	1	1
	5	4		2		1		1	
	5	2		1		1		1	
Ethyl Benzoate	5	3.5	3.3	2	2	1	1	1	1
	5	3.5		1.5		1		1	
	5	3		2.5		1		1	
Kinzua Thunderbolt	5	4	3.5	2	2.5	1.5	1.2	1	1
	5	3		2.5		1		1	
	5	3.5		2		1		1	

Big Orange E: Fully effective at 20 mins

Solvs-it: Not fully effective within 20 mins

Diesel: Fully effective at 15 mins

Anisole: Fully effective at 15 mins

Ethyl Benzoate: Fully effective at 15 mins

Kinzua Thunderbolt: Fully effective at 20 mins

## Summary:

**Conclusion:** Solvs-it was not able to fully remove soil within the 20 minute time frame. Big Orange E fully removed the soil at 20 minutes. While the Kinzua thunderbolt also needed the full 20 mins to fully remove the soil, it did have a lower visual ranking at 15 mins than the Big Orange E, alluding to the Kinzua Thunderbolt it

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working slightly faster than the Big Orange E. Ethyl Benzoate and Anisole were fully effective at 15 minutes, matching the efficacy of the original cleaning product of Diesel.