



ECO-FRIENDLY POLISHES

Polishes for automotive, marine and other uses are typically made as abrasive slurries in emulsions of organic solvents in water. These solvents are often petroleum distillates, such as kerosene, that are made from non-renewable resources and are not environmentally friendly.

“Eco-friendly” solvents, such as biodiesel, d-limonene, methyl soyate, ethyl lactate and pine oil, are made from renewal resources and will degrade in the environment without adverse impact. Certain eco-friendly solvents, such as biodiesel and methyl soyate, have higher flash points than kerosene and they do not contribute to the VOC of polish formulations. This allows the formulator to design polishes well below the EPA limit of 17% w/w for automotive rubbing and polishing compounds. Unlike polishes made with kerosene, those made with eco-friendly solvents are not considered hazardous waste.

The eco-friendly solvents also contribute lubricity and oil- and grease-cutting properties to the polish. Because they often are slower evaporating solvents than petroleum distillates, they can also contribute to extended buffing time.

The following typical rubbing compound formula was used to compare gloss development with eco-friendly solvents vs kerosene:

	% by weight
Water	46.9
Kaolin Clay	18.7
Tripoli Quartz	18.7
Suspending Agent	2.3
Glycerin	3.7
Preservative	0.1
Emulsifying Agent	0.1
Flash Rust Inhibitor	0.1
Solvent	9.4
Non-Silicone Defoamer	<u>< 0.1</u>
Total	100.0

Each polish was buffed out on a section of black hood that had been dulled by wet sanding with 1500 grit paper. Gloss measurements were made at 20° and 60° angles, parallel and perpendicular to the length of the hood. Any significant difference in parallel vs perpendicular readings is indicative of fine scratches. Haze was calculated as the difference between 20° and 60° values. For a given angle and orientation, gloss differences of less than 5 gloss units were considered indistinguishable by the naked eye. The following chart illustrates that results from eco-friendly solvents are equivalent in performance to those made with kerosene.

	VOC	Parallel			Perpendicular		
		20 °	60 °	Haze	20 °	60 °	Haze
Wet sanded with 1500 grit	-	2	15	-	1	13	-
Solvent:							
9.4% kerosene	9.4%	72	85	13	72	85	13
4.7% d-limonene/ 4.7% pine oil	9.4%	70	84	14	71	85	14
9.4% d-limonene	9.4%	69	84	15	69	83	14
4.7% biodiesel/ 4.7% ethyl lactate	4.7%	68	82	14	68	84	16

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