



Eastman EEH solvent in low-VOC automotive waterborne base coats

Eastman EEH solvent (ethylene glycol 2-ethylhexyl ether)



Eastman EEH is an excellent cosolvent that enables 2.0 lb/gal VOC in automotive waterborne base coat formulations. Its low water solubility and evaporation rate make it ideal as a cosolvent for extremely low-VOC waterborne base coat formulations.

EEH solvent characteristics

- Excellent cosolvent in waterborne base coats
- Low surface tension for better flow over a variety of surfaces
- Good solvent strength with relatively low odor
- Not a hazardous air pollutant (HAP) solvent
- VOC of 2.0 lb/gal is possible

Table 1. EEH solvent physical properties

Evaporation rate (<i>n</i> -BuOAc = 1)	0.003	Slow evaporation rate for smooth base coat
Specific gravity at 20°/20°C	0.967	Low to medium density
Vapor pressure, torr (25°C)	0.02	Provides less odor
Surface tension, dynes/cm (20°C)	27.6	Low surface tension; excellent for wettability

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Suggested general formulation guidance for OEM 1K WB base coat with 2.0 lb/gal VOC

Resin	15%–25%	Purpose
Acrylic/polyester resins	30–50	Main polymer backbone
Melamine(s)	15–25	Cross-linker
Urethane	0–5	Chip/adhesion
Large diols	0–10	Low VOC, smoothness
Plasticizers, polypropylene glycol	5–10	Low VOC, smoothness
Additives (wetting, defoamers, anti-popping)	1–5	Solve miscellaneous problems
Solvent	50%–80%	
DI water	65–75	Solvent, non-VOC
Eastman glycol ethers	8	Coalescing
Eastman EEH	3–10	Coalescing
Eastman 2-ethylhexanol	0–2	Pop/stability
Amine	0–1	Stability/pH
Pigment	5%–20%	
Flakes (aluminum, mica)	0–6	Effect
Red, blue, green	0–20	From tint paste
TiO ₂ for white*	20	Unique color
Bentone®, barytes, etc.	0–3	Pattern control

*TiO₂ is a unique color with a very high pigment load.

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