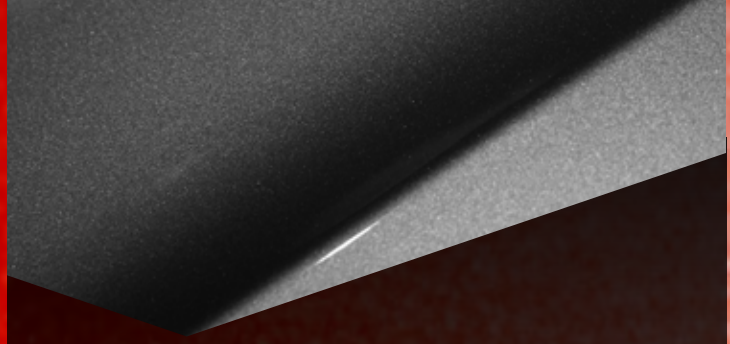


Eastman **TETRASHIELD**™
protective resin systems

High-performance resins for **automotive OEM clear coats**

EASTMAN

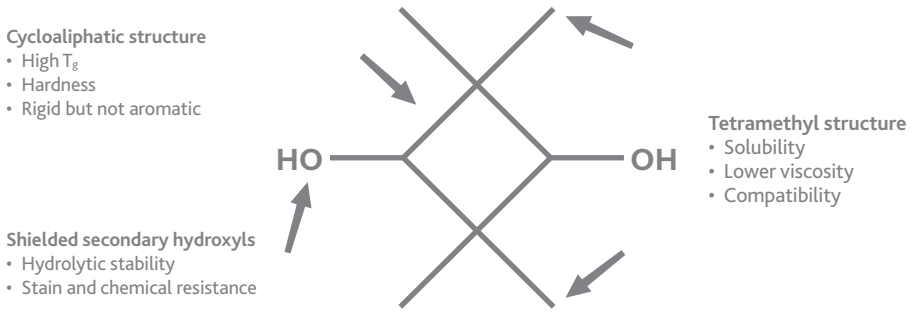
Protection without compromise

Consumers want great-looking coatings that last, while original equipment manufacturers (OEMs) seek affordable performance. That means formulators must manage complex variables, especially in resin selection. Eastman Tetrashield™ protective resin systems help with both, adding distinctive performance and increasing formulation latitude in automotive clear coat systems.

Durable and tough, Tetrashield-containing clear coats enhance appearance, improve weatherability, and bolster scratch resistance. Lab tests show that coating formulations with Tetrashield offer significant durability and aesthetic enhancements compared to coatings using other resins.

Tetrashield polyester resins demonstrate performance that can't be achieved with traditional polyesters. This is due to the inclusion of 2,2,4,4-tetramethyl-1,3-cyclobutane diol (TMCD). The unique features of TMCD enable beneficial properties in clear coat formulations. For example, its tetramethyl configuration gives polyester resins excellent solubility, very good compatibility with other resins, and lower viscosity at higher applied coating solids. The shielded secondary hydroxyls in polyesters containing TMCD contribute to improved stain, chemical, and humidity resistance. The cycloaliphatic structure increases resin glass transition temperature (T_g) for improved hardness without significantly impacting flexibility. These characteristics offer formulators and OEMs a sustainable solution to strengthen their coatings portfolio.

Figure 1. TMCD glycol



In a world where the environment is tough on cars—and consumers are tough critics—protect what's important with Eastman Tetrashield™ protective resin systems.

For more information, visit **eastman.com/Tetrashield**.

Eastman Tetrashield™ protective resin systems for automotive OEM clear coat applications

Table 1. Physical properties

Tetrashield resin	AC1001	AC1020	AC1040[a]
Solvent	*n*-Butyl acetate	*n*-Butyl acetate	*n*-Butyl acetate
% Nonvolatiles	75	75	70
Acid number, mg KOH/g (determined on resin solids)	8	≤ 10	≤ 5
Hydroxyl number, mg KOH/g (determined on resin solids)	135	150	305
Viscosity, poise Brookfield DV-II, 25°C	22	65	5–40
Color, APHA	60	≤ 75	≤ 75

[a]Not TSCA listed for use in North America

Table 2. Common uses and performance properties of clear coat formulations incorporating Tetrashield resins

Tetrashield resin[a]	1K	2K	Chemical resistance	Scratch resistance[b]	Flexibility	Durability	Florida acid etch[c]
AC1001	■	□	□	■	■	■	□
AC1020	■	□	■	□	□	■	□
AC1040	■	■	■	□	□	■	■

□ Recommended
■ Highly recommended

[a]Evaluated as a co-resin in an internal clear coat formulation; similar performance is also exhibited when 100% Tetrashield is used as a main binder [b]As determined by microscratch [c]Blount Island—Jacksonville, Fla., exposure

Tetrashield resins have been shown to enhance the performance of multiple clear coat technologies. Use level should be determined experimentally to ensure properties meet performance specifications.

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