

EASTMAN

Eastman **SOLUS™** 2300
performance additive

**Enabling higher solids
while optimizing appearance**



The results of **insight™**

Eastman SOLUS™ 2300

performance additive

Enabling higher solids while optimizing appearance

Enhanced appearance for higher-solid coatings

The effects of rapidly tightening VOC restrictions and challenges in meeting productivity and performance goals are becoming increasingly apparent across the coatings market. Specifically engineered to maximize performance and throughput while meeting VOC goals, Eastman Solus™ 2300 performance additive is an ideal solution for formulators faced with the challenge of developing the next generation of high-solids (HS) compliant coatings.

Eastman Solus™ 2300 performance-additive benefits

- Superior performance
 - Optimized flake control/face brightness
 - Enhanced distinctness of image (DOI)
 - Reduced dry-to-touch times
 - Improved re-dissolve/strike-in resistance
 - Smoother films
- Helping lower Volatile Organic Compounds (VOC)
- Greater productivity by enabling higher solids (up to 50%)
- Reduced defects during and after coatings application
- Derived from natural and renewable cellulose materials

Ideally suited for high-solids automotive OEM coatings systems, Eastman Solus™ 2300 performance additive is a vital tool in the formulator's toolbox when trying to meet VOC and productivity targets without forfeiting appearance and performance.

Table 1 Typical properties of Eastman Solus™ 2300 performance additive

Property	Value
Appearance	Free-flowing white powder
Solids	100%
T _g	112°C
% OH	1.5
Density, cast film	10.3 lbs/gal (1.23 kg/l)





Basecoat performance

To analyze the superior performance attributes of Eastman Solus™ 2300 performance additive, generic OEM basecoats and basecoats containing Solus 2300 were prepared and applied using state-of-the-art robotic spray equipment. As illustrated in Table 2, the basecoat containing Solus 2300 out-performed the control (no rheology package) and microgel-containing basecoats in areas of flake control re-dissolve resistance and DOI.

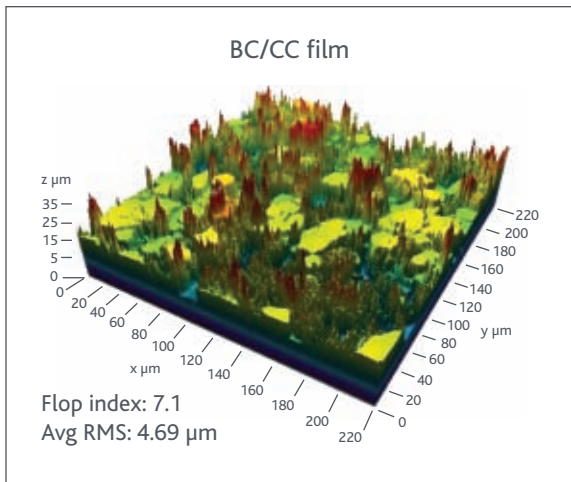
The two images in Figure 1 illustrate the significant and measurable effect of Eastman Solus™ 2300 performance additive on surface roughness, improved leveling and resistance to re-dissolve by the clear coat on the films listed in Table 2.

Table 2 Eastman Solus™ 2300 performance additive basecoat performance

Basecoat description	DOI	Flop index (BC)	Flop index (BC/CC)	Δ Flop index
Control	69.6	9.7	7.1	-2.6
Microgel	74.1	9.9	8.1	-1.9
Eastman Solus™ 2300 performance additive	79.6	10.8	10.0	-0.8

Figure 1 Confocal images of BC/CC

Control



Film Containing Solus™ 2300

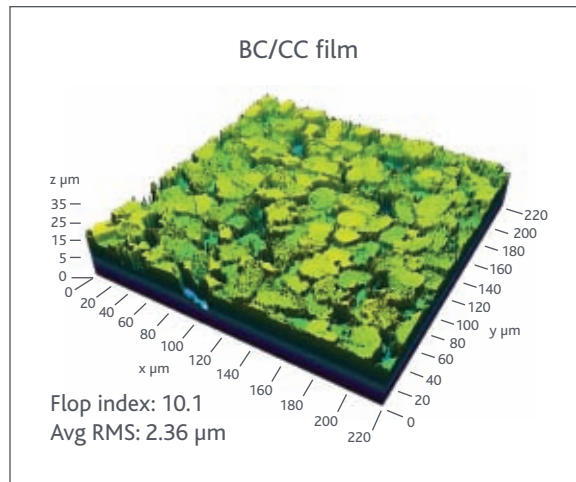


Table 3 Generic basecoat formulation

Formulation	Wt.	Formulation/application data	
Polyester polyol (60% NV)	40.7	Solids as prepared (%) prior to reducing to spray viscosity	46.90
Melamine resin (70% NV)	17.2	Application viscosity (#4 Ford cup), seconds	20.06
Eastman Solus™ 2300 performance additive (40% in n-butyl acetate)	9.4	Theoretical solids (%)	39.60
Wax dispersion (5% NV)	19.8	Measured solids (%) at application	39.40
Flow additive	0.7	Density (lb/gal)	8.25
Aluminum flake (70% NV)	11.2	Density (g/l)	989
Solvent blend	1.0	—	—
Total	100.0	NV = Non-volatile	—

A one-to-one replacement of Eastman Solus™ 2300 performance additive with the micro gel was used in the comparison formulations.

Figure 2 Viscosity response of Eastman Solus™ 2300 performance additive in various solvents

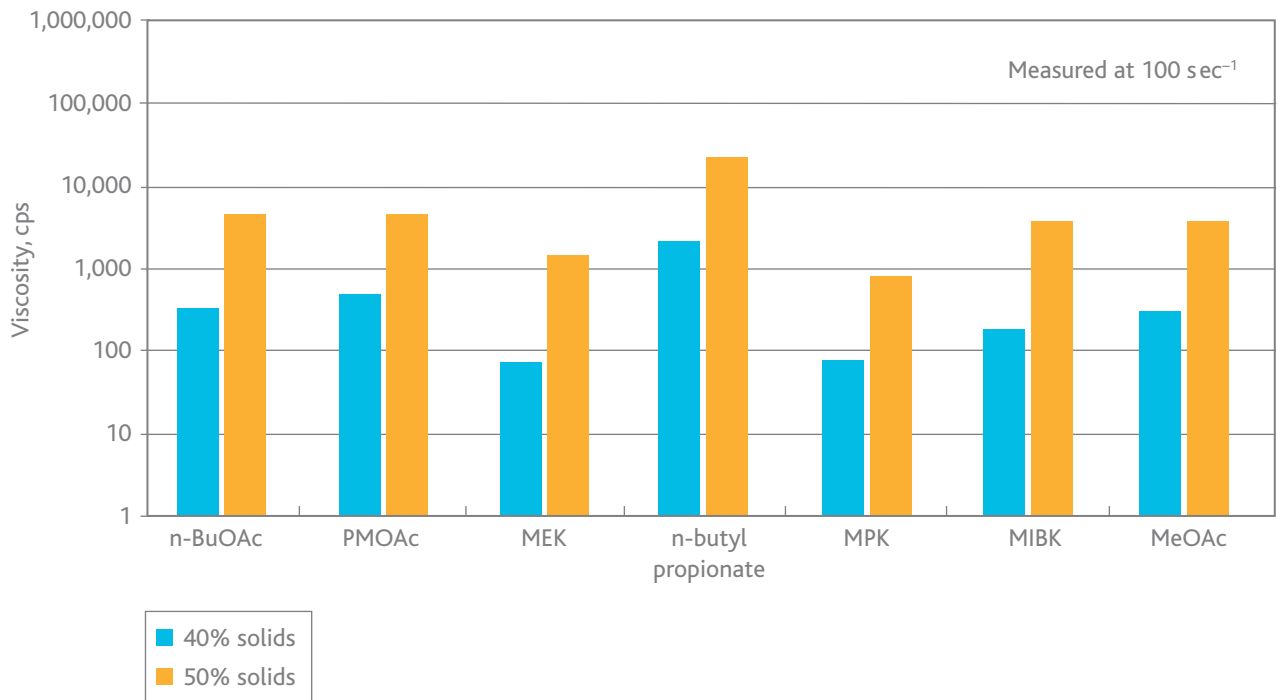


Table 4 Resin compatibility with Eastman Solus™ 2300 performance additive

	Appearance	Solution		Cast film	
		Blend ratio of resin/Eastman Solus™ 2300			
Resin type	Resin name	90/10	80/20	90/10	80/20
Acrylic polyol	Acrylamac HS 232-2328	C	C	SH	SH
	Acrylamac HS 232-2980	C	C	C	SH
	Acrylamac HS 232-2350	C	C	SH	SH
	Uracron CY 472E	C	C	C	C
	Uracron CY 474E	C	C	C	VSH
	Uracron CY 468	C	C	SH	H
	Uracron CY 499E	C	C	C	C
	Uracron CY 430E-70	C	C	SH	H
	Acryloid AU 608S	C	C	C	C
	Setalux 1152 SS-60	C	C	SH	H
	Macrynal VSM 2800/70BAC	C	C	C	VSH
	Macrynal SM 515/70BAC	C	C	VSH	H
Polyester polyol	Setal 1715 VX-74	C	C	C	C
	Uralac SY 941 X-95	C	C	C	C

Rating scale

C = Compatible and clear

VSH = Very slightly hazy

SH = Slightly hazy

H = Hazy

Eastman Solus™ 2300 joins Eastman Solus™ 2100 as the second member of Eastman's family of performance additives designed to improve the appearance and performance of regulatory-compliant coatings.

For more information, visit www.eastman.com/Solus.

EASTMAN

Eastman Chemical Company Corporate Headquarters

P.O. Box 431
Kingsport, TN 37662-5280 U.S.A.

Telephone:
U.S.A. and Canada, 800-EASTMAN
(800-327-8626)
Other Locations, (1) 423-229-2000
Fax: (1) 423-229-1193

Eastman Chemical Latin America

9155 South Dadeland Blvd.
Suite 1116
Miami, FL 33156 U.S.A.

Telephone: (1) 305-671-2800
Fax: (1) 305-671-2805

Eastman Chemical B.V.

Fascinatio Boulevard 602-614
2909 VA Capelle aan den IJssel
The Netherlands

Telephone: (31) 10 2402 111
Fax: (31) 10 2402 100

Eastman (Shanghai) Chemical Commercial Company, Ltd. Jingan Branch

1206, CITIC Square
No. 1168 Nanjing Road (W)
Shanghai 200041, P.R. China

Telephone: (86) 21 6120-8700
Fax: (86) 21 5213-5255

Eastman Chemical Japan, Ltd.

AIG Aoyama Building 5F
2-11-16 Minami Aoyama
Minato-ku, Tokyo 107-0062 Japan

Telephone: (81) 3-3475-9510
Fax: (81) 3-3475-9515

Eastman Chemical Asia Pacific Pte. Ltd.

#05-04 Winsland House
3 Killiney Road
Singapore 239519

Telephone: (65) 6831-3100
Fax: (65) 6732-4930

www.eastman.com

Material Safety Data Sheets providing safety precautions, that should be observed when handling and storing Eastman products, are available online or by request. You should obtain and review the available material safety information before handling any of these products. If any materials mentioned are not Eastman products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

Neither Eastman Chemical Company nor its marketing affiliates shall be responsible for the use of this information, or of any product, method or apparatus mentioned, and you must make your own determination of its suitability and completeness for your own use, for the protection of the environment and for the health and safety of your employees and purchasers of your products. NO WARRANTY IS MADE OF THE MERCHANTABILITY OR FITNESS OF ANY PRODUCT, AND NOTHING HEREIN WAIVES ANY OF THE SELLER'S CONDITIONS OF SALE.

Eastman, Solus, and The results of insight are trademarks of Eastman Chemical Company.

All other trademarks are the property of their respective owners.

© Eastman Chemical Company, 2009.