



## Headline

**SERIES 599-B3730** is a new sprayable silver conductive coating for use on plastic substrates. It is unique in that it is formulated in **very mild solvents** that can tolerate higher built-in stresses which can be found in molded parts, and provides unequaled shielding at less than 0.5 mil (12.5 microns) dry film thickness. The dried conductive film is extremely hard, tough and durable. **599-B3730** contains no methyl ethyl ketone (MEK) or other strong solvents which can attack solvent-sensitive substrates, such as polycarbonate and polycarbonate blends. **599-B3730** is supplied as a concentrate, and it is designed with a fast drying solvent blend which is desirable in high volume production.

### OUTSTANDING CHARACTERISTICS:

- Compatible with sensitive plastics because of mild solvents.
- Effective shielding at less than 0.5 mil (12.5 microns) dry film.
- Contains no ketones, such as MEK, or other harsh solvents.
- 100% Silver as the conductive medium.
- Unmatched conductivity - superior to any other coating product.
- Cost saving because of superior conductivity performance at thin films.
- Excellent film cohesion.
- "Zero Tolerance" for loose particles in the film.
- Passes U.L. requirements.
- Excellent adhesion to most plastic substrates.
- Excellent abrasion resistance.
- Supplied as a viscous liquid for reduced settling.
- Minimal overspray and dusting during application.
- No rub-off due to handling.
- Fast drying.
- Passes ASTM D-3359-97 adhesion test.

Other products in the S.O.S. Series are 599-B3740 (silver/copper Hybrid) and 599-B3755 (silver-plated Copper).



PPG Industries, Inc.  
Springdale Plant  
125 Colfax St.  
Springdale, PA 15144  
ppgindustrialcoatings.com

## Product Description

<b>Percent Solids:</b>	47 ± 1.5% by weight.
<b>Density:</b>	11.5 ± .5 lbs. per gallon.
<b>Viscosity (as supplied):</b>	Thixotropic mixture.
<b>Dilution:</b>	1:1 by volume using Ethyl Alcohol.
<b>Application Viscosity:</b>	The thixotropic properties of 599-B3730 during application can be maintained by using a combination of Ethyl Alcohol* and B-4045 (Super Mega Thinner) as the diluent. The recommended viscosity range at application is 8 – 18 seconds #4 EZ Zahn Cup. Our testing has shown Cup. Our testing has shown that a viscosity of 13 seconds is ideal. Realize that a full range of custom viscosities can be created to satisfy any need.
<b>Bake Schedule:</b>	30 min air dry, followed by 30 min @ 160°F (71°C)
<b>Resistivity:</b>	Less than .015 ohm/square per 0.5 mil (12.5 microns) dry film.
<b>Environmental Testing:</b>	No change in resistivity after 7-day exposure to 85°C. @ 85% R.H.
<b>RCA Abrader:</b>	Pass 500+ cycles @ 1 mil dry with 55 gram weight
<b>Coverage:</b>	475.8 square feet/gallon/0.5 mils dry film (44.2 m <sup>2</sup> /gallon/0.5 mils dry film)

The technical data presented in this bulletin is based upon information believed by PPG to be currently accurate. However, no guarantees of accuracy, comprehensiveness, or performance are given or implied. Continuous improvements in coatings technology may cause future technical data to vary from what is in this bulletin. Contact your PPG representative for the most up-to-date information.



**Mask Cleaning:**

Use Challenge 485S @ 16 oz./gallon @ 180-185°F. @ 70 psi pump pressure. If necessary, use Challenge 1052 as a defoamer.

**Shelf Life:**

Nine (9) months from date of manufacture.

**Craze Test:**

In most applications, some degree of molding stress is inevitable. For this reason, a minimum "critical stress" value of 2000 psi was chosen as criteria for compatibility with polycarbonate. A compatible formulation is one which passes by producing no crazing or cracking at stresses of 2000 psi.

1. Pass - 10 minute immersion at 2000 psi stressed injection
2. Pass - spray applied to 2000 psi stressed injection molded clear
3. Pass - spray applied to 2000 psi stressed injection molded clear polycarbonate resin bars dried at temperatures ranging from room temperature to 160° F. over 10 minutes to duplicate production oven cycles which can accelerate crazing.

\*Ethyl Alcohol - 190 Proof (95% Ethyl Alcohol/5% Water)

Although 599-B3730 is formulated in mild solvents, the user must test the compatibility on the actual molded parts to determine its suitability for any specific application.

**NOTE: 599-B3730** dries rapidly. Keep container closed. If skins develop, do not attempt to dissolve - strain through a coarse filter. Clean equipment after each use. Ethyl alcohol can be used to clean equipment. If strong solvents are used, flush the system with ethyl alcohol before use.



The following are the results from an independent study conducted by PLASTICS TECHNOLOGY LABORATORIES, INC in Pittsfield, MA

**COMPATIBILITY REPORT**

**Testing:** Chemical Compatibility Results  
**Projects:** GE #25980304 PTLI 98-442  
**Customer:** GE Plastics  
**Attention:** John Donega  
**Analyst:** T. Keith  
**Date:** March 20, 1998  
**Material:** Lexan SP 6400R-M 7548 Lot #LDN 345  
**Exposure**  
**Time:** 10 minutes  
**Temperature:** See Below  
**Agent:** **Spraylat 599-B3730 Conductive Silver Control D-8P321**  
**Agent Contact:** Direct Wipe  
**Procedure:** Tensile bars of the material were exposed to the chemical agent at the stress levels and temperatures indicated. The samples were then visually evaluated as shown below.

**TEMPERATURE**

<u>STRESS(PSI)</u>	<u>RT</u>	<u>100°F</u>	<u>130°F</u>	<u>160°F</u>
1500	0	0	0	0
2000	0	0	0	0
2500	0	0	0	0

Visual Evaluation:

- 0 = No Attack
- 1 = Slight Attack
- 2 = Moderate Attack
- 3 = Severe Attack
- 4 = Broken
- 5 = Discolored



**COMPATIBILITY REPORT**

**Testing:** Chemical Compatibility Results  
**Projects:** GE #25980304 PTLI 98-442  
**Customer:** GE Plastics  
**Attention:** John Donega  
**Analyst:** T. Keith  
**Date:** March 20, 1998  
**Material:** Lexan SP 6400R-M 7548 Lot #LDN 345  
**Exposure**  
**Time:** See Below  
**Temperature:** Room Temperature  
**Agent:** **Spraylat 599-B3730 Conductive Silver Control D-8P321**  
**Agent Contact:** Direct Wipe  
**Procedure:** Tensile bars of the material were exposed to the chemical agent at the stress levels and temperatures indicated. The samples were then visually evaluated as shown below.

<u>STRESS</u> (psi)	<u>1 HOUR</u>	<u>24 HOURS</u>
1500	0	0
2000	0	0
2500	0	0

**Visual Evaluation:**

- 0 = No Attack
- 1 = Slight Attack
- 2 = Moderate Attack
- 3 = Severe Attack
- 4 = Broken
- 5 = Discolored



**COMPATIBILITY REPORT**

**Testing:** Chemical Compatibility Results  
**Projects:** GE #25980304 PTLI 98-442  
**Customer:** GE Plastics  
**Attention:** John Donega  
**Analyst:** T. Keith  
**Date:** March 20, 1998  
**Material:** Lexan SP 6400R-M 7548 Lot #LDN 345  
**Exposure**  
**Time:** 10 Minutes  
**Temperature:** Room Temperature  
**Agent:** **Spraylat 599-B3730 Conductive Silver Control D-8P321**  
**Agent Contact:** Immersion  
**Procedure:** Tensile bars of the material were exposed to the chemical agent at the stress levels and temperatures indicated. The samples were then visually evaluated as shown below.

**STRESS**

(psi)	
1500	0
2000	0
2500	0

Visual Evaluation:

- 0 = No Attack
- 1 = Slight Attack
- 2 = Moderate Attack
- 3 = Severe Attack
- 4 = Broken
- 5 = Discolored



**DILUTION PROCEDURE FOR 599-B3730**

**Objective:** To achieve 11 - 16 seconds #4 Zahn cup when diluted with a blend of EA (Ethyl Alcohol) and MT (Mega Thinner B-4045). The ideal viscosity would be 13 seconds #4 Zahn cup.

**Total Dilution Ratio:** 1 gallon B-3730: 8 pints EA/MT

**STEP 1:** Add to one gallon: 5 pints EA 1 pint MT

**STEP 2:**

Viscosity	<11 seconds	11 - 16 seconds	>16 seconds
Add	1 pint MT	½ pint EA ½ pint MT	1 pint EA
Viscosity			

**STEP 3:**

Viscosity	<11 seconds	11 - 12 seconds	13 -14 seconds	15 - 16 seconds	>16 seconds
Add	1 pint MT	½ pint EA ½ pint MT	¾ pint EA ¼ pint MT	1 pint EA	1 pint EA
Viscosity					



**599-B3730**

Resistivity vs. Film Thickness Profile

OHMS/SQ.

