

# EPOXY COATING POWDERS

INSULATING COATING POWDERS FOR AUTOMOTIVE,  
ELECTRICAL AND ELECTRONIC APPLICATIONS





## ABOUT CAPLINQ EUROPE BV

CAPLINQ is a manufacturer/distributor, comprised mainly of engineers and technical staff who work with customers to solve manufacturing problems. Unlike traditional manufacturers, CAPLINQ's core competence is designing products to meet customers' technical specifications.

We then combine our own in-house manufacturing expertise with that of our global network of manufacturing partners to meet both the technical and cost requirements of our customers.

### CAPLINQ EUROPE BV ADDS VALUE WHILE REDUCING COST

As SolEpoxy's exclusive European market partner, CAPLINQ is able to leverage its logistics expertise to pick up materials "Ex-works" from SolEpoxy's Olean, NY, USA facility and deliver them duty paid (DDP) to any address within the European Union at a fraction of the cost that SolEpoxy could do directly, or that the customer could do on its own.

Using Article 23 of the Turnover Tax Law in Dutch VAT-Legislation, CAPLINQ can also act as a fiscal representative to apply a "Transfer Rule" which makes it possible to bill customers without VAT, resulting in a unique, competitive liquidity advantage.

Furthermore, with a sales office in Amsterdam and a refrigerated (3°C to 8°C) warehouse facility in Europe's largest port, Rotterdam, CAPLINQ can keep a dedicated safety stock for its customers. This in turn guarantees that CAPLINQ can supply material to any European address within 72 hours and allows customers to have a "just-in-time" (JIT) inventory control system.

**Want to learn more?**  
**Check us out at [www.CAPLINQ.com](http://www.CAPLINQ.com).**



## SOLEPOXY INC.

SolEpoxy Inc. was founded in 2010 by Western New York investors who admired the remarkable legacy of innovation at the Olean R&D and manufacturing center. The company and the plant were formerly known as: Dexter Hysol, and Henkel. This plant is the basis for all the successes Hysol/Dexter and Henkel have made with producing innovative epoxy coating powders and mold compounds.

Today, SolEpoxy, Inc. stands upon the shoulders of giants, providing standard-setting epoxy-based specialty materials, along with the very best insight and know-how for customers who rely upon these materials to enable their own products to perform.



SolEpoxy is a niche player, compared with other giants in the market, and is proud of their huge R&D (7 labs) making it possible to develop tailor-made epoxies to protect your application from anything, nowadays still shipping thousands of tons of functional coating powders all over the world to the world's biggest OE suppliers.

**SolEpoxy retained their ISO 9001, ISO14001 and ISO 18000 certification together with:**

1. The same raw materials and suppliers
2. The same production facilities and quality control systems
3. The same product formulations and inspection programmes
4. The same experienced personnel





# COATING POWDERS FOR AUTOMOTIVE APPLICATIONS

## *Tailor-Made Coating Powders*

Over the years, SolEpoxy has developed two important epoxy coating powders. The first epoxy coating powder is used on automotive “enclosure” motors, window lift motors and wiper motors. The second epoxy coating powder was specifically developed for fuel pumps.

### **DK7-0953M FOR COIL WINDING APPLICATIONS**

DK7-0953M is a light blue coating powder for rotors and stators within Motor Armatures. This epoxy coating powder is used extensively by one of the biggest suppliers in the world of electric windows, wiper motors, and electric seat adjustments. This epoxy coating powder gives a beautiful result when coating using an Electrostatic Fluidised Bed coating machine. To our knowledge, it has the best edge coverage of all manufacturers of functional coating powders, which is very important for these applications.



### **CONTACT WITH AUTOMOTIVE FLUIDS**

DK15EG-05 is available in either black or green color and is a “solvent resistant” coating for smaller rotors and stators. This epoxy coating powder was tailor-made for a major, Tier 1 automotive supplier of car and mini-van fuel pumps. In addition to the excellent edge coverage, the DK15EG-05 is resistant against a range of automotive fluids including gasahol. It can also be used as an alternative to DK7-0953M if customers need specifically a black- or green-colored epoxy coating powder.

# AUTOMOTIVE APPLICATIONS OVERVIEW/CHARACTERISTICS



## Applications

General	Specific	Applications	DK7-0953M	DK15EG-05	DK15-02
		Fuel pumps		•	
		Wiper motors	•	•	•
Automotive	Motor Armatures/Rotors	Adjustments, roof enclosures, window enclosures, etc.	•	•	•

## Product Properties

• Outstanding chemical resistance, including motor oil, fuel, etc.		•	
• 100% solids content (VOC-free)	•	•	•
• Excellent cut-through resistance	•	•	•
• High service temperatures (RTI 105 C minimum)	•	•	•
• Both induction cure and oven cure chemistries	•	•	•
• Reduced cost vs. traditional slot liners	•	•	•
• Green (free of halogens and no bromine, antimony, or phosphorous)	•	•	•
• Superior edge coverage	•	•	
• High stable heat resistance	•	•	•
• High protection against Solvents (flex fuel – unleaded gasoline and methanol)		•	
• High thickness in powder building			•
• Superior dielectric insulation properties	•	•	
• Powder colour	•	•	•
• RoHS Compliant	•	•	•
• REACH Compliant	•	•	•

## Application Method

Electrostatic Fluidized Bed	■■■■■	■■■■■	
Induction Coil Curing	■■■■■	■■■■■	■■■■■
Blow Coating			■■■■■



## COATING POWDERS FOR POWER APPLICATIONS

### *Industry Proven Coating Powders*

For many years SolEpoxy has supplied a range of epoxy coating powders developed for medium voltage (600V–38,000V) busbar and switch gear applications.

In the USA, SolEpoxy is one of the few epoxy coating powder suppliers qualified for use in Power Distribution Switchboards. Given the critical nature of the application, the time and costs involved to pass UL-certification, major Power Management Companies rely on SolEpoxy and their family of UL-listed epoxy coating powders. All the products offered by SolEpoxy for busbar applications are UL-listed.

### **DK19 RED FOR MEDIUM VOLTAGE BUSBAR AND SWITCH GEAR APPLICATIONS**

DK19 RED is an excellent example of an industry standard epoxy coating powder for switchgear and medium voltage busbars. Used for years by major

Power Management Companies, DK19 is coated on busbars and switchgear applications that pass up to 38,000 Volts. Colored in red, the DK19 meets UL94 class V-0 and can be dipped multiple times to achieve the desired coating thickness. It is also available with longer gel times if needed for larger busbars that need a longer time to achieve a uniform coating thickness.

### **DK52 FOR FLEXIBLE POWER APPLICATIONS**

Not all applications require the high temperature resistance of the DK19. Unlike most other epoxy coating powders for power applications, DK52 is a very tough and flexible coating. Though the DK52 only meets the Relative Thermal Index (RTI) value of 105°C (DK19 RED meets an RTI value of 130°C), it has found applications on leaded fuses, and other applications where flexibility and toughness were the requirements while maintaining a minimum RTI value of 105°C.



# POWER APPLICATIONS OVERVIEW/CHARACTERISTICS



## Applications

General	Specific	Applications	DK15-0907	DK15-0463	DK19/LG	DK52
		Bus Bars medium voltage		•		•
		Bus Bars medium to low voltage	•	•	•	
Power Application		Switch gear	•	•	•	

## Product Properties

• 100% solids content (VOC-free)	•	•	•	•
• Excellent cut-through resistance	•	•	•	•
• High service temperatures	•	•	•	•
• Capability to provide a range of thermal conductivity	•	•	•	•
• Reduced cost vs. traditional slot liners	•	•	•	•
• Green (free of halogens and no bromine, antimony, or phosphorous)	•	•	•	
• High stable heat resistance	•			
• High thickness in powder building	•		•	
• Superior dielectric insulation properties	•	•	•	•
• Extremely flexible				•
• UL 94-V0	•	•	•	•
• Powder colour	•	•	•	•
• Improved moisture resistance		•		
• RohS compliant	•	•	•	•
• REACH compliant	•	•	•	•

## Application Method

Fluidized bed		■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
Fully fluidized bed coatable	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■

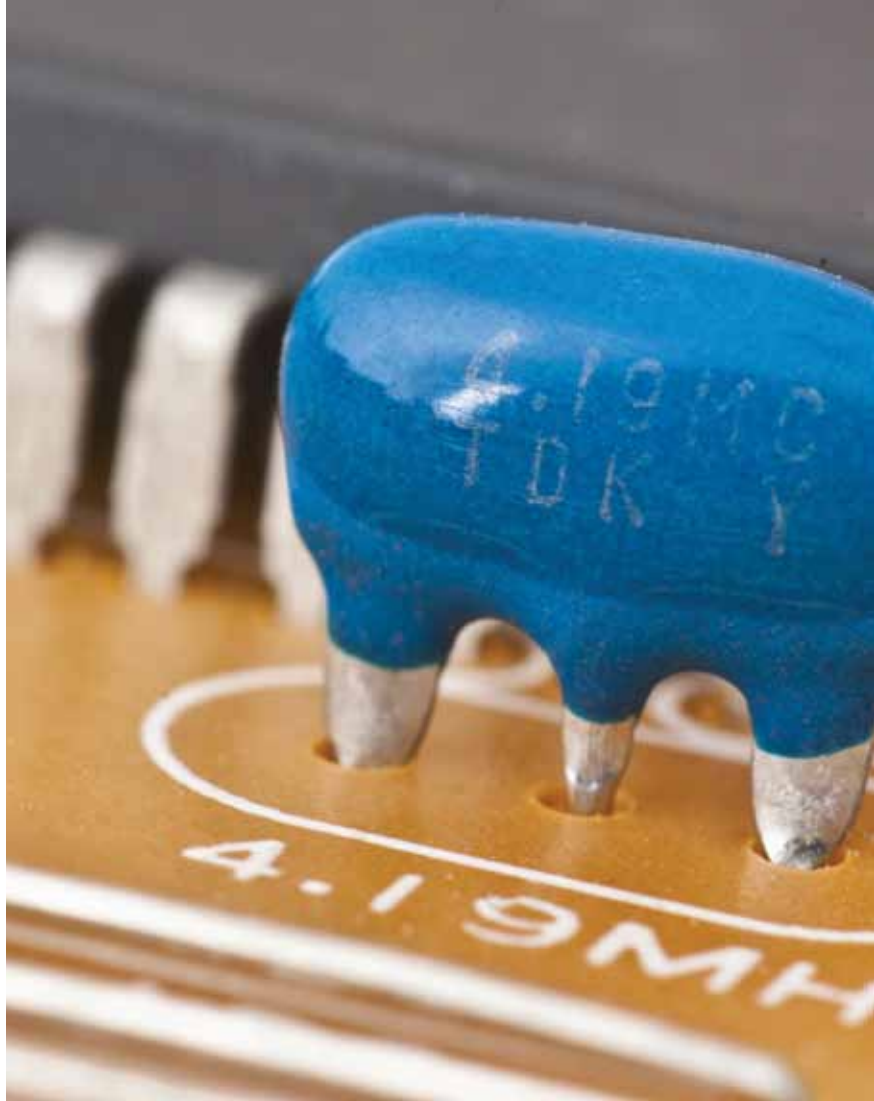
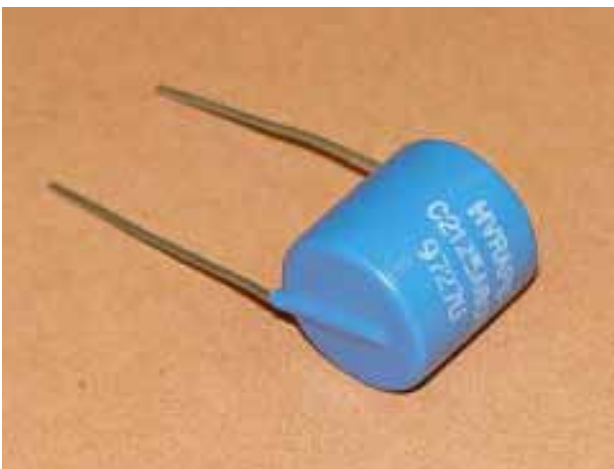
# COATING POWDERS FOR PASSIVE ELECTRONICS

*New generation products  
for new generation devices*

SolEpoxy has supplied epoxy coating powders to the passive electronics industry for over 30 years. Used to coat capacitors, varistors and resistors, DK18-05 Blue was for years the industry standard. Given the industry's push for "green" products, SolEpoxy developed a new series of materials to meet the new demands.

## DK18-05 - AN INDUSTRY STANDARD FOR PASSIVE ELECTRONIC COMPONENTS

Used for years for passive electronics, DK18-05 continues to fill a need with customers who are not yet ready to make the move to "environmentally green" products. Due to its wide processing window, DK18-05 can be manually dipped or automatically dipped into a fluidized bed. Though it is recommended for passive electronics, due to its versatile nature, DK18-05 is also used for (magnetic) cores, and other components. DK18-05 is available in blue, gold and black colors.



## DK40 GR FOR HALOGEN-FREE PASSIVE ELECTRONIC COMPONENTS

DK40 GR is available in both Blue and Gold and is the next-generation epoxy coating powder for passive electronic components. Formulated as an "environmentally green" product, it is a halogen-free material, which means it has been formulated without bromine, antimony, or phosphorous additives. Launched in 2012 into the European market, it is being evaluated by all major passive electronic manufacturers.



# PASSIVE ELECTRONIC APPLICATIONS OVERVIEW/CHARACTERISTICS



## Applications

General	Specific	Applications	DK17-01	DK18-05	DK40
	Torroid Cores			•	
	Alternator components	Magnet Wire & Hybrid Circuits	•	•	
	Electrical housings and modules	Varistors/Thermistors	•	•	•
Passive Electronics	Ceramic, tantalum, and film capacitors	Capacitors & Resistors	•	•	•

## Product Properties

• 100% solids content (VOC-free)	•	•	•
• Green (free of halogens and no bromine, antimony, or phosphorous)		•	•
• Laser markable	•	•	•
• Superior dielectric insulation properties	•	•	•
• High thermal shock resistance	•		•
• UL 94 V-0 passed		•	•
• Powder colour	•	•	•
• Improved moisture resistance	•		•
• Low stress			•
• Low temperature fusing and curing			•
• RoHS compliant	•	•	•
• REACH compliant	•	•	•

## Application Method

Fluidized Bed	■■■■	■■■■	■■■■
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# TROUBLE SHOOTING GUIDE: COATING POWDERS

This guide may provide tips to help you troubleshoot production problems related to your coating application. If your problems continue, contact your SolEpoxy representative.

Application Method	Defect	Reduce preheat temp.	Increase preheat temp.	Reduce post-cure temp.	Increase post-cure temp.	Increase post-cure time	Dry parts	Clean parts	Check clean, dry air supply	Contaminated powder	Adjust spray time, direction	Nozzle spray or alignment	Decrease voltage	Increase voltage	Check grounding	Notes
Fluidized Bed	Low Impact		•		•	•										
	Chipping															
	Brittle		•		•	•	•	•								
	Poor adhesion															
	Pinholes	•		•												
	"Orange peel"	•	•													
	Blisters	•	•													
	"Fisheye"						•	•	•							
	Insufficient powder fluidization								•	•						1, 2
Spray	"Orange peel"		•		•		•									
	Excessive coating	•									•	•				
	Lumpy or not uniform	•								•		•				1
	Irregular slot coverage										•	•				
	Poor powder feed								•			•				
	Blisters	•		•												
	Powder voids on part							•	•	•		•				1
	Poor edge coverage										•	•				
	Overspray on parts										•	•				
Electrostatic Spray	Poor powder adhesion						•	•		•				•	•	1
	"Orange peel"		•	•												
	Poor coating adhesion		•				•	•								
	Excessive coating	•									•		•			
	Insufficient coating		•								•			•		
	Webbing, arcing	•									•	•	•			
Notes		1 Powder may contain moisture, excess cured material, or static charge. 2 Porous filter maybe clogged														

# ENVIRONMENTAL PHILOSOPHY + SUSTAINABILITY = **GREEN** CHEMISTRY!

At SolEpoxy, we care about the environment and the role that we can play in preserving it for our children and generations to come. This means that we think about the applications where our products are used and make a conscious choice to use develop formulations that can be used for years to come with as little environmental impact as possible.

As a means to measure this impact, SolEpoxy designs materials that are compliant to REACH and RoHS industry standards.

## About REACH

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) is a European Union Regulation that addresses the production and use of chemical substances, and their potential impacts on both human health and the environment. REACH entered into force on 1 June 2007, with an aim to streamline and improve the legislative framework on chemicals entering into the European Union and place greater responsibility on industry to manage the risks that chemicals may pose to human health and the environment.

## About RoHS

The Restriction of Hazardous Substances Directive (RoHS) took effect on 1 July 2006, and is enforced by all countries within the European Union. RoHS is often referred to as the lead-free directive, but it restricts the use of the following six substances:

1. Lead (Pb)
2. Mercury (Hg)
3. Cadmium (Cd)
4. Hexavalent chromium (Cr6+)
5. Polybrominated biphenyls (PBB)
6. Polybrominated diphenyl ether (PBDE)
7. PBB and PBDE are flame retardants used in several plastics.

For SolEpoxy, this means not only, developing materials that meet these directives, but developing materials that are compatible with other raw materials that also meet these directives. Since SolEpoxy acquired the former Henkel manufacturing facility, focus has been on developing REACH and RoHS-compliant materials.

As a result, more than five new mold compounds and coating powders have been developed that are not only free of halogens, bromine, antimony and phosphorous, but also can withstand the higher process temperatures imposed by lead-free solder materials.

These materials are of course REACH and RoHS compliant and are prime examples of the innovative solutions SolEpoxy can develop for your company and application.



## SOLEPOXY – YOUR PARTNER WORLDWIDE

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