PRODUCT INFORMATION

D.E.R.™ 6510-HT

High Service Temperature Solid Epoxy Resin

Please use this Technical Data Sheet (TDS) in conjunction with this product's country-specific Safety Data Sheet (SDS) and the Safe Use conditions as described therein. Current Safety Data Sheets can be requested from Olin at info@olin.com.

DESCRIPTION

D.E.R.™ 6510-HT solid epoxy resin has been developed for high-performance, fusion bonded epoxy coatings withstanding high operating temperatures. This resin also offers excellent chemical and corrosion resistance coupled with the outstanding heat performance.

INTRODUCTION

D.E.R. 6510-HT solid epoxy resin is a 2-functional epoxy resin which has been chemically modified to allow fusion bonded powder coating formulations to withstand operating temperatures up to 160 °C. D.E.R. 6510-HT solid epoxy resin enables fusion bonded binder systems to achieve an optimized balance of properties using commonly available, commercial crosslinkers and normal processing conditions.

D.E.R. 6510HT solid epoxy resin can be used in combination with standard and modified bisphenol A and novolac epoxy resins. This will help formulators to develop a powder coating system with the right balance of thermal and mechanical properties while still providing good corrosion resistance and chemical resistance.

TYPICAL APPLICATIONS

This product is suitable for use in applications such as:

- Functional (Pipe-) Powder Coatings

TYPICAL PROPERTIES

Property(1)	Value	Method
Epoxy Equivalent Weight, (g/eq)	400 – 450	ASTM D-1652
Epoxide Percentage, (%)	9,6 – 10,8	ASTM D-1652
Epoxide Group Content, (mmol/kg)	2,220 – 2,500	ASTM D-1652
Melt-viscosity @ 150 °C, (mPa.s)	7,500 – 9,500	ASTM D-4287
Shelf Life (Months)	24	

(1) Typical properties, not to be construed as specifications.

SAFETY AND HANDLING

This solid epoxy resin is supplied as solid flakes in 25 kg polyethylene bags. It is recommended that this low molecular weight solid epoxy resin be stored in a cool (<25 °C) and dry place in its original closed packaging to avoid sintering of the material.

SAFETY AND HANDLING (Cont.)

Flakes may fuse if subjected to excess heat or compression. Stacking bags of D.E.R. Low Molecular Weight Solid Epoxy Resin should be avoided whenever possible. See also further details in the Olin technical bulletin, Sintering of Low Molecular Weight Solid Epoxy Resins, Form No. 296-02119.

This low molecular weight solid epoxy resin should retain is chemical properties for a period of at least 24 months.

Olin Corporation provides its customers with a product specific Safety Data Sheet (SDS) to cover potential health effects, safe handling, storage, use and disposal information. Olin strongly encourages its customers to review the SDS on its products and other materials prior to their use.

FORMULATION GUIDANCE

D.E.R.™ 6510-HT solid epoxy resin is designed for pure epoxy fusion bonded epoxy (FBE) powder coatings used on pipelines and related equipment. Made using advanced molecular modeling and experimental techniques, this new polymer enables the formulation of corrosion resistant coatings capable of withstanding extreme operating temperatures, up to 160 °C, and conditions.

PRODUCT COMPARISON

Component		**Reference [wt%]**	**Generation 1 [wt%]**	**Generation2 [wt%]**
D.E.R.™ 664UE epoxy resin	epoxy resin	100		
D.E.R. 6508 epoxy resin	epoxy resin		100	
D.E.R. 6510-HT epoxy resin	epoxy resin			100
Dicyandiamide	curing agent	1,4	3,1	3,1
Epikure* P-101	catalyst	1,5	1,6	1,6
Curezol** 2PHZ 7/10 curing agent	catalyst		1,8	1,8
Minspar*** 7	filler	26	26	26
Modaflow® 2000	flow agent	1,0	0,7	0,7
Properties (1)				
Gel-time @ 180 °C (s)		25	30	27
Epoxy powder enthalpy [mJ]		94	165	171
Pill-flow [mm]		264	268	268
Coating Glass Transition Tg temperature [°C]		**112**	**159**	**169**
4-Point Bar bending, -32 °C, 2,5° pipe diameter		no cracks	no cracks	no cracks
Cathodic Disbondment [mm], 3,5V, 63 ± 3 °C for 48 hours		<4	6	7

(1) Typical properties not to be construed as specifications
® Trademark of Solutia
* Hexion Specialty Chemicals
** Evonik
*** IMERYS

FORMULATION GUIDANCE

The main value proposition of this high-performance solid epoxy resin is the excellent high temperature resistance in combination with good chemical and mechanical properties. For such demanding, high exposure temperature, applications typical Dicyandiamide (DiCy) type of curing agents are employed as can easily be observed in the coating formulation shown on the next page where a direct comparison is made between a DiCy cured and a phenolic hardener cured coating.

TYPICAL CLEAR COAT FORMULATION

Component		Formulation 1 [wt%]	Formulation 2 [wt%]
D.E.R.™ 6510-HT epoxy resin	solid epoxy resin	100	100
D.E.H.™ 85 curing agent	phenolic hardener	x	58,5
Dicyandiamide	curing agent	3,1	x
Epikure* P-101	Catalyst	1,6	0,6
Curezol** 2PHZ 7/10 curing agent	curing agent	1,8	0,7
Minspar*** 7	Filler	26	37
Modaflow® 2000	flow agent	0,7	1,0
Properties (1)			
Bake Schedule Temperature [°C] / Time [min]		240 / 3	230 / 3
Gel-time @ 204 °C [s] (CSA Z245.20-06)		26	47
Coating Glass Transition Tg temperature [°C]		**170**	**124**

(1) Typical properties not to be construed as specifications
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*** IMERYS

REGULATORY DATASHEET

Olin Corporation provides information on the regulatory status of its products under prominent regulatory programs in the Regulatory Datasheet (RDS). Regulatory Datasheets can be requested from Olin at info@olin.com.

PRODUCT STEWARDSHIP

At Olin, our Product Stewardship program is guided by our core values of Integrity, Customer Success, Innovation, and People. We are committed to the safe handling and use of our products – and enabling all of our collaborators throughout the value chain to do the same. As a Responsible Care® company, we assess the safety, health, and environmental information on our products, and then take appropriate steps to protect employees, public health, and the environment. Ultimately, the success of our product stewardship program rests with each and every individual involved with Olin products – from the initial concept and research to the manufacture, sale, distribution, use, disposal, and recycling of each product.

For further product stewardship related information consult also the Olin brochure entitled, Olin Epoxy Resins Product Stewardship Manual, Safe Handling and Storage, Form No. 296- 02176

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