SIRALES® PE 8205

PRODUCT
DATA SHEET
RS/312/071401/1

Description

Carboxylated polyester resin suitable for hybrid powder coatings.

Experimental resin. The specifications could be refined without any notice. In case of any question, please contact our sales department.

Applications

SIRALES® PE 8205 is suggested in combination 50/50 p.b.w. with EPOSIR® 7175 PG, 7168 PG and EPONAC® 700, to prepare powder coatings for low temperature curing cycles.
The main characteristics of the paints based on SIRALES® PE 8205 are high flexibility, good flow and appearance and storage stability.

Curing cycle : 7 min. at 160°C
(in real time) 12 min. at 150°C
20 min. at 140°C
35 min. at 130°C

Sales specification

Property	Value	Unit	Method
Acid number	70 ... 82	mg.KOH/gr	SIR 10328
Viscosity ICI at 200 °C	800 ... 3000	mPa.s	SIR 10391
Colour§	3 max.	Sc. Gardner	ASTM D 1544

(§) Determinated on 50% m/m solution in dimetilformammide

Typical properties

Property	Value	Unit	Method
Glass transition temperature (Tg)	55	°C	ASTM D 3418

Supply form

Product is available as irregular flakes packed in 25 Kg polyethylene bags.

Storage

The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (25°C) the resin should have a stability of one year.

Safety

The product is not flammable and no toxic effect has been determined.
Further informations are provided in the relevant safety data sheet.

SIRALES® PE 8205

APPLICATION DATA
RS/312/071401/2

Starting formulation

Component	[part by weight]
Sirales PE 8205	300
Eposir 7168 PG	300
Benzoin	4
Flow control agent(§)	10
Barium Sulphate(§§)	100
Titanium dioxide(§§§)	275

(§) Byk 360/P from BykChemie GmbH
(§§) Blanc Fixe HD 80 from Solvay Chemicals
(§§§) Kronos 2310 from Kronos Titan GmbH

Manufacturing method:
Extruder: Buss-Ko-Kneader PLK 46; Casing setting temp.: 100°C; Kneading screw temp.: cold; rpm: 180.

Application procedure :
Corona spray gun, voltage 60 kV; Unichim steel 0.5 mm thick

Stoving cycles :
7 min. at 160°C, 12 min. at 150°C, 20 min. at 140°C, 35 min. at 130°C (in real time).

Properties of cured film of starting formulation

Erichsen slow penetration	> 8	mm	DIN 53156
Impact front / rev ½" ball	> 6 / > 4	N.m	ASTM D 2794

SIRALES® PE 8210

PRODUCT
DATA SHEET
RS/164/040301/1

Description
Carboxylated polyester resin suitable for hybrid powder coatings.

Applications
SIRALES® PE 8210 is suggested in combination 50/50 p.b.w. with EPOSIR® 7175 PG, 7168 PG and EPONAC® 700, to manufacture powder coatings with high reactivity and mechanical properties, very good flow and overbaking resistance.

Curing cycle : 12…15 min. at 160°C
(in real time) 15…20 min. at 150°C.

Sales specification

Property	Value	Unit	Method
Acid number	68 ... 78	mg.KOH/gr	SIR 10328
Viscosity ICI at 200 °C	1200 ... 4000	mPa.s	SIR 10391
Colour§	3 max.	Sc. Gardner	ASTM D 1544

(§) Determinated on 50% m/m solution in dimetilformammide

Typical properties

Property	Value	Unit	Method
Glass transition temperature (Tg)	56	°C	ASTM D 3418

Supply form
Product is available as irregular flakes packed in 25 Kg polyethylene bags.

Storage
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (25°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further informations are provided in the relevant safety data sheet.

SIRALES® PE 8212.T

PRODUCT DATA SHEET
RS/207/111301/1

Description
Carboxylated polyester resin suitable for hybrid powder coatings.

Applications
SIRALES® PE 8212.T is suggested in combination 50/50 p.b.w. with EPOSIR® 7175 PG, 7168 PG and EPONAC® 700, to manufacture powder coatings with enhanced gloss combined with both good flow and mechanical properties. SIRALES® PE 8212.T has been specifically designed to obtain matt or low gloss, high quality finish powder coatings, when formulated with small amounts of matting agents, like **Sirion® VP 1035.** Powder coatings manufactured with SIRALES PE 8212.T are suitable for tribo gun applications.

Curing cycle : 8…12 min. at 200°C
(in real time) 15…20 min. at 180°C.

Sales specification

Property	Value	Unit	Method
Acid number	70 ... 80	mg.KOH/gr	SIR 10328
Viscosity ICI at 200 °C	3000 ... 6000	mPa.s	SIR 10391
Colour§	2 max.	Sc. Gardner	ASTM D 1544

(§) Determinated on 50% m/m solution in dimetilformammide

Typical properties

Property	Value	Unit	Method
Glass transition temperature (Tg)	63	°C	ASTM D 3418

Supply form
Product is available as irregular flakes packed in 25 Kg polyethylene bags.

Storage
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (25°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further informations are provided in the relevant safety data sheet.

SIRALES® PE 8212.T

APPLICATION DATA
RS/207/081001/2

Starting formulation white matt powder coating

Component	[part by weight]
Sirales PE 8212.T	300
Eposir 7175	300
Sirion VP 1035	15
Benzoin	4
Flow control agent(§)	8
Calcium Carbonate(§§)	100
Titanium dioxide(§§§)	275

(§) Byk 360/P from BykChemie GmbH
(§§) Hydrocarb from Omya
(§§§) Kronos 2310 from Kronos Titan GmbH

Manufacturing method:
Extruder: Buss-Ko-Kneader PLK 46; Casing setting temp.: 120°C; Kneading screw temp.: cold; rpm: 150.

Application procedure :
Corona spray gun, voltage 60 kV; Unichim steel 1 mm thick

Stoving cycles :
10 minutes at 200°C; 15 minutes at 180°C (object temperature)

Film Properties

Whiteness index [DIN CIE 10°]	80
Gloss a 60°	**34**
Gloss a 20°	**7**
Impact front / rev [N.m]	> 10 / > 10

Overbaking Resistance

Baking Conditions	Film thickness µm	DE*
10 Min 180°C	81 - 87	
10 Min 200°C	80 - 85	**0,37**
10 Min. 220°C	81 - 86	**1,81**
10 Min. 240°C	80 - 86	**2,66**

SIRALES® PE 8220.T

PRODUCT DATA SHEET
RS/8220T/070601/1

Description
Carboxylated polyester resin suitable for hybrid powder coatings.

Applications
Sirales® PE 8220.T is suggested in combination 50/50 or 60/40 p.b.w. with EPOSIR® 7175 PG or EPONAC® 825, to manufacture powder coatings with very good flow and gloss, together with high flexibility.
Powder coatings manufactured with SIRALES® PE 8220.T are suitable for tribo gun applications.

Curing cycles (real time) 12 ... 15 min. at 200°C
15 ... 20 min. at 180°C

Sales specification

Property	Value	Unit	Method
Acid number	55 - 66	mg KOH/gr	SIR 103281
Viscosity ICI at 200°C	2300 - 4000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	56	°C	ASTM D 3418

(2) Determined on DSC (Perkin Elmer series 7) : 20°C/minute.

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (25°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8221.BS

PRODUCT DATA SHEET
RS/036/119902/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
SIRALES® PE 8221.BS is suggested in combination 60/40 and/or 50/50 p.b.w. with EPOSIR® 7175 PG or 7168 PG, to manufacture powder coatings with a very good flow and brightness and with a high flexibility. SIRALES® PE 8221.BS, for the particular filtration technology used for its production, is suitable for manufacturing of powder coatings for low thickness applications, 30÷50 μm.

Curing cycles (real time) 10 minutes at 200°C
15 minutes at 180°C

Sales specification

Property	Value	Unit	Method
Acid number	55…68	mg KOH/g r	SIR 10328
Viscosity ICI at 200°C	2200…4000	mPa.s	SIR 10391
Colour(℘)	3 max.	Sc. Gardner	ASTM D 1544

(℘) Determined on 50% m/m on dimethylformamide

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (T_g)	58	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determinated.
Further information are provided in the relevant safety data sheet.

Revised: SEPTEMBER, 2016

SIRALES® PE 8222.T

PRODUCT DATA SHEET
RS/8222T/030201/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
Sirales® PE 8222.T is suggested in combination 60/40 and/or 50/50 p.b.w. with EPOSIR® 7168 PG, EPOSIR® 7175 PG or EPONAC® 825, to manufacture powder coatings with high reactivity, very good flow and gloss.
Powder coatings manufactured with SIRALES® PE 8222.T are suitable for tribo gun applications.

Curing cycles (real time) 10 min. at 180°C
15 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	60 … 72	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	1800 … 3800	mPa.s	SIR 10391
Colour (1)	3 max.	Gardner unit	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	55	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further informations are provided in the relevant safety data sheet.

SIRALES® PE 8223 BS

PRODUCT DATA SHEET
RS/8223/129701/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
Sirales PE 8223 is suggested in combination 60/40 and/or 50/50 p.b.w. with EPOSIR 7168 PG or EPOSIR 7175 PG, to manufacture powder coatings with high reactivity combined with both good mechanical and appearance properties. SIRALES PE 8223 BS, for the particular filtration technology used for its production is suitable for manufacturing of powder coatings for low thickness applications, 30÷50 μm.

Curing cycles (real time)
12 min. at 160°C 20 min. at 150°C

Sales specification

Property	Value	Unit	Method
Acid number	60 - 70	mg KOH/gr	SIR 103281
Viscosity at 200°C (ICI cone plate)	2400 - 4400	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	54	°C	ASTM D 3418

(2) Determined on DSC (Perkin Elmer series 7) : 20°C/minute.

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

Revised: SEPTEMBER, 2016

SIRALES® PE 8223 BS

APPLICATION DATA

Typical formulation

SIRALES PE 8223	330
EPOSIR 7168 PG	198
EPOSIR 7170 PGF-10	80
BENZOIN	5
KRONOS 2310	287
Blanc Fixe F	100

Extrusion condition

Extruder	BUSS PLK 46
Casting temperature	100°C
Screw temperature	Cold
Speed	80 - 120 rpm

Film properties (curing cycle 12 min. at 160°C; 20 min. at 150°C real time)

Film thickness	60-100µm
Identation (DIN 53156)	> 9 mm
Direct gardner impact (ASTM D 2794)	> 10 Nm
Reverse gardner impact (ASTM D 2794)	> 10 Nm
Mandrel bend resistance (ASTM D 522)	pass

Formulation for domestic appliance

SIRALES PE 8231	300
EPOSIR 7175 PG*	300
KRONOS 2310	196
HYDROCARB (Omya)	196
BYK 360/P	11
BENZOIN	3

* or EPOSIR 7168 PG

Extrusion condition

Extruder	BUSS PLK 46
Casting temperature	100°C
Screw temperature	Cold
Speed	80 - 120 rpm

Curing cycle: 15 min. at 200°C; 20 min. at 180°C (real time)

Revised: SEPTEMBER, 2016

SIRALES® PE 8231

PRODUCT DATA SHEET
RS/056/120502/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
Sirales PE 8231 is suggested in combination 60/40 and/or 50/50 p.b.w. with EPOSIR 7168 PG, 7175 PG or EPONAC 825, to manufacture powder coatings with enhanced gloss combined with both good flow and mechanical properties. This resin has been specifically designed to obtain matt or low gloss, high quality finish, when formulated with standard matt agents.

Curing cycles (real time) 15 min. at 200°C
20 min. at 180°C

Sales specification

Property	Value	Unit	Method
Acid number	65 - 75	mg KOH/gr	SIR 103281
Viscosity at 200°C (ICI cone plate)	2800 … 4800	mPa.s	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	58	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further informations are provided in the relevant safety data sheet.

SIRALES® PE 8240

PRODUCT DATA SHEET
RS/037/071704/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
Sirales PE 8240 is suggested in combination 60/40 and/or 50/50 p.b.w. with EPOSIR 7168 PG or EPOSIR 7175 PG, to manufacture powder coatings with high reactivity and good flow, mechanical and gloss characteristics.

Curing cycles (real time) 15 min. at 160°C
30 min. at 150°C

Sales specification

Property	Value	Unit	Method
Acid number	60 … 70	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	1800 … 4000	mPa.s	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% w/w solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	61	°C	ASTM D 3418

(2) Determined on DSC (Perkin Elmer mod Diamond) : 20°C/minute.

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further informations are provided in the relevant safety data sheet.

SIRALES® PE 8242

PRODUCT DATA SHEET
RS/194/010902/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
Sirales PE 8242 is suggested in combination 50/50 or 55/45 p.b.w. with EPOSIR® 7178 PG, 7175 PG or EPONAC® 825, to manufacture powder coatings with high reactivity combined with good mechanical and aesthetic properties.

Curing cycles (real time) 10 ... 15 min. at 180°C
15 … 20 min. at 170°C

Sales specification

Property	Value	Unit	Method
Acid number	55 – 65	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	2000 – 4000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	58	°C	ASTM D 3418

(2) Determined on DSC (Perkin Elmer series 7) : 20°C/minute.

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8224.T

PRODUCT DATA SHEET
RS/8224T/070101/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
Sirales PE 8224 is suggested in combination 60/40 p.b.w. with EPOSIR 7168 PG or EPOSIR 7175 PG, to manufacture powder coatings with high reactivity combined with good mechanical and aesthetic properties.
Powder coatings manufactured with SIRALES PE 8224.T are suitable for tribo gun applications.

Curing cycles (real time) 8..12 min. at 180°C
15..20 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	55 - 66	mg KOH/gr	SIR 103281
Viscosity ICI at 200°C	2300 - 4000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	58	°C	ASTM D 3418

(2) Determined on DSC (Perkin Elmer series 7) : 20°C/minute.

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (25°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8225

PRODUCT DATA SHEET
RS/0138/120101/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
SIRALES® PE 8225 is suggested in combination 50/50 and/or 60/40 p.b.w. with EPOSIR® 7168 PG or 7175 PG and EPONAC® 615 or 825, to manufacture powder coatings with high reactivity combined with very good mechanical properties and flow.

Curing cycles (real time) 8 .. 12 min. at 180°C
15 .. 20 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	55 – 65	mgKOH/g r	SIR 103281
Viscosity at 200°C (ICI cone plate)	2000 – 4000	mPa s	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	53	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8243.T

PRODUCT DATA SHEET
RS/160/121104/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings.

Applications
Sirales PE 8243 is suggested in combination 60/40 p.b.w. with EPOSIR® 7178 PG, 7175 PG or EPONAC® 825, to manufacture powder coatings with high reactivity combined with good mechanical and aesthetic properties.
Powder coatings manufactured with SIRALES PE 8243 are suitable for tribo gun applications.

Curing cycles (real time) 10 ... 15 min. at 180°C
15 … 20 min. at 170°C

Sales specification

Property	Value	Unit	Method
Acid number	45 – 55	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3000 - 5000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	55	°C	ASTM D 3418

(2) Determined on DSC (Perkin Elmer series 7) : 20°C/minute.

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8253

PRODUCT DATA SHEET
RS/026/041201/1

Description
Carboxylated polyester resin suitable for epoxy polyester powder coatings based on FDA approved raw materials - 21 CFR Ch. I (4– 1– 02 Edition) § 175.300 contact with non alcoholic foods.

Applications
Sirales® PE 8253 is suggested in combination 60/40 p.b.w. with EPOSIR® 7178 PG, 7175 PG or EPONAC® 825, to manufacture powder coatings with good mechanical properties, high brightness and flow. To regulate curing cycles it is necessary to employ appropriate catalysts or accelerators, like Sirion VP 1110, or Actiron NXZ 30 from Synthron when food contact it is required

Suggested curing cycles: It depends from catalyst employed.

Sales specification

Property	Value	Unit	Method
Acid number	45 – 55	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	1800 – 4000	m.Pa.s.	SIR 10391
Colour (1)	2 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	52	°C	ASTM D 3418

Supply Form
Product is available as irregular granules packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (25°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8254

PRODUCT
DATA SHEET
RS/049/129902/1

Description
Carboxylated polyester resin suitable for epoxy polyester powder coatings.

Applications
Sirales PE 8254 is suggested in combination 60/40 p.b.w. with EPOSIR 7168 PG or EPOSIR 7175 PG, to manufacture powder coatings with good mechanical properties and extension.

Curing cycles (real time) 8...10 min. at 160°C
15...20 min. at 150°C

Sales specification

Property	Value	Unit	Method
Acid number	50 … 60	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	1800 … 4000	mPa.s	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	55	°C	ASTM D 3418

Supply Form
Product is available as irregular granules packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (25°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further informations are provided in the relevant safety data sheet.

SIRALES® PE 8254

APPLICATION DATA

Typical formulation

SIRALES PE 8254	360
EPOSIR 7168 PG	168
EPOSIR 7170 PGF-10	80
BENZOIN	5
KRONOS 2310	287
Blanc Fixe F	100

Extrusion condition

Extruder	BUSS PLK 46
Casting temperature	100°C
Screw temperature	Cold
Speed	80 - 120 rpm

Film properties (curing cycle 10 min. at 160°C; 20 min. at 150°C real time)

Film thickness	60-100µm
Identation (DIN 53156)	> 9 mm
Direct gardner impact (ASTM D 2794)	> 10 Nm
Reverse gardner impact (ASTM D 2794)	> 10 Nm
Mandrel bend resistance (ASTM D 522)	pass

SIRALES® PE 8560

PRODUCT DATA SHEET
RS/294/071401/1

Description

Carboxylated polyester resin suitable for HYBRID powder coatings.

Experimental resin. The specifications could be refined without any notice. In case of any question, please contact our sales department.

Applications

Sirales PE 8560 is suggested in combination 60/40 p.b.w. with EPOSIR® 7168 PG, 7175 PG or EPONAC® 825, to manufacture powder coatings with medium reactivity. Its high wetting ability of pigment and filler, mainly of titanium dioxide, assures good flow and surface appearance of powder coatings with binder : pigment ratio of 50 : 50 and 45 : 55.

Curing cycles (real time) 10 – 15 min. at 190°C
15 – 20 min. at 180°C

Sales specification

Property	Value	Unit	Method
Acid number	50 – 60	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI C&P)	1000 – 3000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	56	°C	ASTM D 3418

(2) Determined on DSC (Perkin Elmer mod Diamond) : 20°C/minute.

Supply Form

Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability

The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety

The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8412.T

PRODUCT DATA SHEET
PROVISIONAL
RS/191/100401/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings with very good tribochargeability.

Applications
Sirales® PE 8412.T is suggested in combination 70/30 p.b.w. with EPOSIR® 7168 PG, EPOSIR® 7175 PG or EPONAC® 825, to manufacture powder coatings with high reactivity combined with good flow and mechanical properties and with good yellowing resistance for overbaking.

Curing cycles (real time) 10 … 12 min. at 180°C
12 … 15 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	35 … 45	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3500 … 6500	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	54	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8417

PRODUCT DATA SHEET
RS/8417/051301/1

Description
Carboxylated polyester resin suitable for hybrid powder coatings without trimellitic anhydride.

Applications
Sirales® PE 8417 is suggested in combination 70/30 p.b.w. with EPOSIR® 7168 PG, EPOSIR® 7175 PG or EPONAC® 825, to manufacture powder coatings with very high reactivity combined with good mechanical properties and flow.

Curing cycles (real time) 6 … 10 min. at 180°C
10 … 15 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	32 … 40	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	4000 … 7000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	53	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8418.T

PRODUCT DATA SHEET
PROVISIONAL
RS/173/060402/1

Description
Carboxylated polyester resin suitable for HYBRID powder coatings with very good tribochargeability.

Applications
Sirales PE 8418.T is suggested in combination 70/30 p.b.w. with EPOSIR 7168 PG, EPOSIR 7175 PG or EPONAC 825, to manufacture powder coatings with high reactivity combined with good flow, good mechanical properties and with good wet ability of organic pigments.

Curing cycles (real time) 10 … 15 min. at 180°C
15 … 20 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	30 … 38	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3000 … 6000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	50	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8419

PRODUCT DATA SHEET
RS/8419/030602/1

Description
Carboxylated polyester resin, free from trimellitic anhydride, suitable for HYBRID powder coatings.

Applications
Sirales PE 8419 is suggested in combination 70/30 p.b.w. with EPOSIR 7167 PG or 7175 PG and EPONAC 615 or 700, to manufacture powder coatings with high reactivity combined with good flow and good mechanical properties.

Curing cycles (real time) 15 min. at 170°C
20 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	32 … 40	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3500 … 5500	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	55	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

Revised: SEPTEMBER, 2016

SIRALES® PE 8420

PRODUCT DATA SHEET
RS/034/030004/1

Description
Carboxylated polyester resin, free from trimellitic anhydride, suitable for HYBRID powder coatings.

Applications
Sirales PE 8420 is suggested in combination 70/30 p.b.w. with EPOSIR 7167 PG or EPOSIR 7175 PG, to manufacture powder coatings with very good flow and gloss, good overbaking and with good Tribo applicability.

Curing cycles (real time) 15 min. at 200°C
20 min. at 180°C

Sales specification

Property	Value	Unit	Method
Acid number	32 … 40	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3500 … 5500	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	54	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8420

APPLICATION DATA

Typical formulation

SIRALES PE 8420	420
EPOSIR 7168 PG	126
EPOSIR 7170 PGF-10	60
BENZOIN	4
KRONOS 2310	290
Blanc Fixe F	100

Extrusion condition

Extruder	BUSS PLK 46
Casting temperature	100°C
Screw temperature	Cold
Speed	80 - 120 rpm

Film properties (curing cycle 15 min. at 200°C; 20 min. at 180°C real time)

Film thickness	60-100µm
Identation (DIN 53156)	> 9 mm
Direct gardner impact (ASTM D 2794)	> 10 Nm
Reverse gardner impact (ASTM D 2794)	> 10 Nm
Mandrel bend resistance (ASTM D 522)	pass

Formulation MATT

SIRALES PE 8420	294
EPOSIR 7168 PG	288
HULLS B 68	18
BYK 360/P	12
KRONOS 2310	300
HYDROCARB (Omya)	100

Extrusion condition

Extruder	BUSS PLK 46
Casting temperature	100°C
Screw temperature	Cold
Speed	80 - 120 rpm

Film properties (curing cycle 15 min. at 200°C; 20 min. at 180°C real time)

Film thickness 60-100µm

	15'/200°C	20'/180°C
Gloss 60°	35	34
Gloss 20°	9	9

SIRALES® PE 8421

PRODUCT DATA SHEET
RS/045/050004/1

Description
Carboxylated polyester resin, free from trimellitic anhydride, suitable for HYBRID powder coatings.

Applications
Sirales PE 8421 is suggested in combination 70/30 p.b.w. with EPOSIR 7167 PG or EPOSIR 7175 PG, to manufacture powder coatings with high reactivity combined with good flow, good mechanical properties and with good Tribo applicability.

Curing cycles (real time) 15 min. at 170°C
20 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	32 … 40	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3500 … 5500	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	54	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8421

APPLICATION DATA

Typical formulation

SIRALES PE 8421	420
EPOSIR 7168 PG	108
EPOSIR 7170 PGF-10	80
BENZOIN	5
KRONOS 2310	287
Blanc Fixe F	100

Extrusion condition

Extruder	BUSS PLK 46
Casting temperature	100°C
Screw temperature	Cold
Speed	80 - 120 rpm

Film properties (curing cycle 15 min. at 170°C; 20 min. at 160°C real time)

Film thickness	60-100µm
Identation (DIN 53156)	> 9 mm
Direct gardner impact (ASTM D 2794)	> 10 Nm
Reverse gardner impact (ASTM D 2794)	> 10 Nm
Mandrel bend resistance (ASTM D 522)	pass

SIRALES® PE 8422.T

PRODUCT DATA SHEET
RS/8422T/050001/1

Description
Carboxylated polyester resin, suitable for HYBRID powder coatings.

Applications
SIRALES PE 8422.T is suggested in combination 70/30 p.b.w. with EPOSIR 7167 PG or EPOSIR 7175 PG, to manufacture powder coatings with high reactivity combined with optimum brightness and good mechanical properties. The powders formulated with SIRALES PE 8422.T are suitable for Tribo application systems.

Suggested curing cycles: 10…15 min. at 160°C
(real time) 15…20 min. at 150°C

Sales specification

Property	Value	Unit	Method
Acid number	28 – 36	mg KOH/gr	SIR 103281
Viscosity at 200°C (ICI cone plate)	4500 – 7000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (2)	51	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8423/FT

PRODUCT DATA SHEET
RS/0122/100102/1

Description
Carboxylated polyester resin with approximately 2% acrylic flow agent, suitable for epoxy-polyester powder coatings.

Applications
SIRALES® PE 8423/FT is recommended to be used in coupling with EPOSIR® 7178 PG, 7175 PG and EPONAC® 825, in the weight ratio of 70/30, in order to obtain high reactivity powder coatings with high flow without using the common flow agents. Moreover, the resin SIRALES® PE 8423/FT grants a very good brightness together with high mechanical properties and very good storage stability.
The powders made using this product are suitable for tribostatic applications.

Curing cycles (real time) 10……..15 minutes at 180°C
15……..20 minutes at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	30…38	mg KOH/g r	SIR 10328
Colour(℘)	3 max.	Sc. Gardner	ASTM D 1544
Viscosity ICI at 200°C	4000…7000	mPa.s	SIR 10391

(℘) Determined on 50% m/m on dimethylformamide

Typical Properties

Property	Value	Unit	Method
Glass transition temperature (T_g)	53	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determinated.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8425.T

PRODUCT DATA SHEET
RS/8425/021401/1

Description

Carboxylated polyester resin, free from trimellitic anhydride, suitable for hybrid powder coatings.

Experimental resin. The specifications could be refined without any notice. In case of any question, please contact our sales department.

Applications

Sirales® PE 8425.T is suggested in combination 70/30 p.b.w. with Eposir® 7178 PG, Eposir® 7175 PG and Eponac® 825, to manufacture powder coatings with high reactivity combined with good flow, good mechanical properties and good pverbaling resistance.
Powder coatings manufactured with Sirales® PE 8425.T are suitable for tribo gun applications.

Curing cycles (real time) 15 min. at 170°C
20 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	30 … 38	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3500 … 5500	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	54	°C	ASTM D 3418

Supply Form

Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability

The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety

The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8429

PRODUCT
DATA SHEET
PROVISIONAL
RS/235/050701/1

Description
Carboxylated polyester resin, free from trimellitic anhydride, suitable for hybrid powder coatings.

Applications
Sirales PE 8429 is suggested in combination 70/30 p.b.w. with EPOSIR 7167 PG or 7175 PG and EPONAC 615 or 700, to manufacture powder coatings with high reactivity combined with good flow and good mechanical properties.

Curing cycles (real time) 15 min. at 170°C
20 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	30 … 38	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3000 … 6000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	56	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8439.T

PRODUCT
DATA SHEET
RS/291/051401/1

Description

Carboxylated polyester resin, free from trimellitic anhydride, suitable for hybrid powder coatings.
Experimental resin. The specifications could be refined without any notice. In case of any question, please contact our sales department.

Applications

Sirales® PE 8439.T is suggested in combination 70/30 p.b.w. with EPOSIR 7167 PG or 7175 PG and EPONAC 615 or 700, to manufacture powder coatings with high reactivity combined with good mechanical properties. Sirales® PE 8439.T is specifically designed to prepare texture finish coatings.
Powder coatings manufactured with Sirales® PE 8439.T are suitable for tribo gun applications.

Curing cycles (real time) 15 min. at 170°C
20 min. at 160°C

Sales specification

Property	Value	Unit	Method
Acid number	30 … 38	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3000 … 6000	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	56	°C	ASTM D 3418

Supply Form

Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability

The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety

The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.

SIRALES® PE 8440

PRODUCT
DATA SHEET
RS/086/071302/1

Description
Carboxylated polyester resin suitable for hybrid powder coatings, free from trimellitic anydride.

Applications
SIRALES® PE 8440 is suggested in combination 70/30 p.b.w. with EPOSIR® 7178 PG, 7175 PG and EPONAC® 825, to manufacture powder coatings with high storage stability. Using SIRALES® PE 8440 it is possible to obtain powder coatings with very good gloss, good flow and high mechanical properties.

Curing cycle : 8 … 12 min. at 200°C
(in real time) 10 … 15 min. at 180°C.

Sales specification

Property	Value	Unit	Method
Acid number	32 ... 40	mg.KOH/gr	SIR 10328
Viscosity ICI at 200 °C	5000 ... 9000	mPa.s	SIR 10391
Colour§	3 max.	Sc. Gardner	ASTM D 1544

(§) Determinated on 50% m/m solution in dimetilformammide

Typical properties

Property	Value	Unit	Method
Glass transition temperature (Tg)	65	°C	ASTM D 3418

Supply form
Product is available as irregular flakes packed in 25 Kg polyethylene bags.

Storage
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (25°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further informations are provided in the relevant safety data sheet.

SIRALES® PE 8470

PRODUCT DATA SHEET
RS/8470/040801/1

Description
Carboxylated polyester resin suitable for epoxy polyester powder coatings based on FDA approved raw materials - 21 CFR Ch. I (4– 1– 06 Edition) § 175.300 for contact with non alcoholic foods.

Applications
Sirales® PE 8470 is suggested in combination 70/30 p.b.w. with EPOSIR® 7167 PG or 7175 PG and EPONAC® 615 or 700, to manufacture powder coatings with good flow and mechanical properties and yellowing resistance for overbaking. To regulate curing cycles it is necessary to employ appropriate catalysts or accelerators like Sirion® VP 1110

Curing cycles (real time) It depends from catalyst employed.

Sales specification

Property	Value	Unit	Method
Acid number	32 … 40	mg KOH/gr	SIR 10328
Viscosity at 200°C (ICI cone plate)	3500 … 5500	m.Pa.s.	SIR 10391
Colour (1)	3 max.	Sc. Gardner	ASTM D 1544

(1) Determined on 50% m/m solution on dimethylformamide.

Typical Properties

Property	Value	Unit	Method
Glass transition temperature	55	°C	ASTM D 3418

Supply Form
Product is available as irregular flakes packed in 25 kg Polyethylene bags.

Storage stability
The product should be stored in the original bags kept tightly closed, away from sunshine and heat sources. Under these conditions and at a normal temperature (20°C) the resin should have a stability of one year.

Safety
The product is not flammable and no toxic effect has been determined.
Further information are provided in the relevant safety data sheet.