

# SIRALES<sup>®</sup> PE 5900

PRODUCT DATA  
SHEET  
RS/172/090601/1

## Description

Carboxylated polyester resin with high cristallinity.

## Applications

Replacement of 10 – 20% of polyester resin in superdurable powder coating formulations with Siraless PE 5900 increases flow and mechanical properties of cured films, without affect weather resistance.

## Sales specification

Property	Value	Unit	Method
Acid number	28 .... 36	mg.KOH/gr	SIR 10328
Melting Range	105 .... 120	°C	SIR 10000

## Typical Properties

Property	Value	Unit	Method
Viscosity ICI at 125°C	1500	mPa.s	SIR 10391

## Supply Form

The 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.

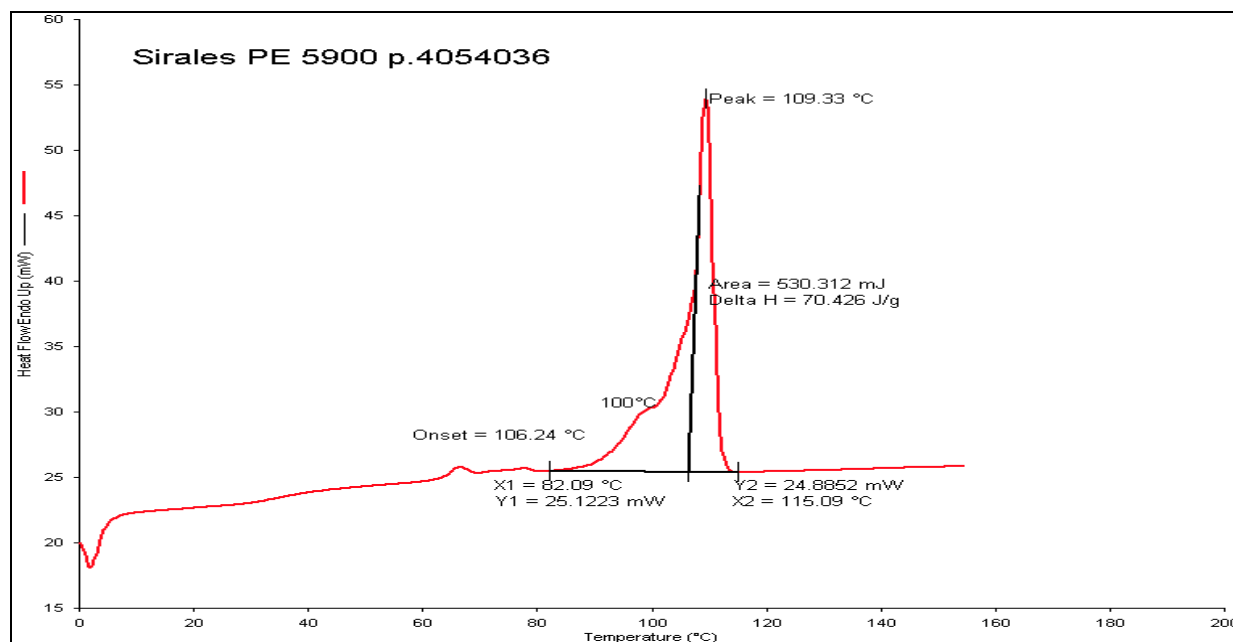
SIRALES<sup>®</sup>, PROSID<sup>®</sup>: SIR INDUSTRIALE registered trade mark.

N.B.: The data given in this brochure do not constitute characteristic properties of the single product.

To our best knowledge, the information contained in this brochure is accurate and corresponds to the truth.

However, any recommendations or suggestions are provided without any guarantee, since the conditions in which the products are used are not under our control. Furthermore, nothing contained in this brochure shall be interpreted as a recommendation for using the product in violation of any patents relating to the material and their uses.

**Cristallinity of Sirales PE 5900 is showed by DSC analysis.**  
The resin shows a sharp melting point with high enthalpy of fusion.



DSC Perkin Elmer Series 7, 20 deg.min

## Powder Coating Applications

Formulation	A without	B with 10%
Highly branched carboxylated polyester based only on Isophthalic acid	618	556
Sirales PE 5900		62
Prosid H (β-hydroxyalkylamide hardener)		32
Byk 360/P		10
Benzoin		3
Kronos 2310		350

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APPLICATION DATA  
RS/172/090601/2

## Extrusion condition

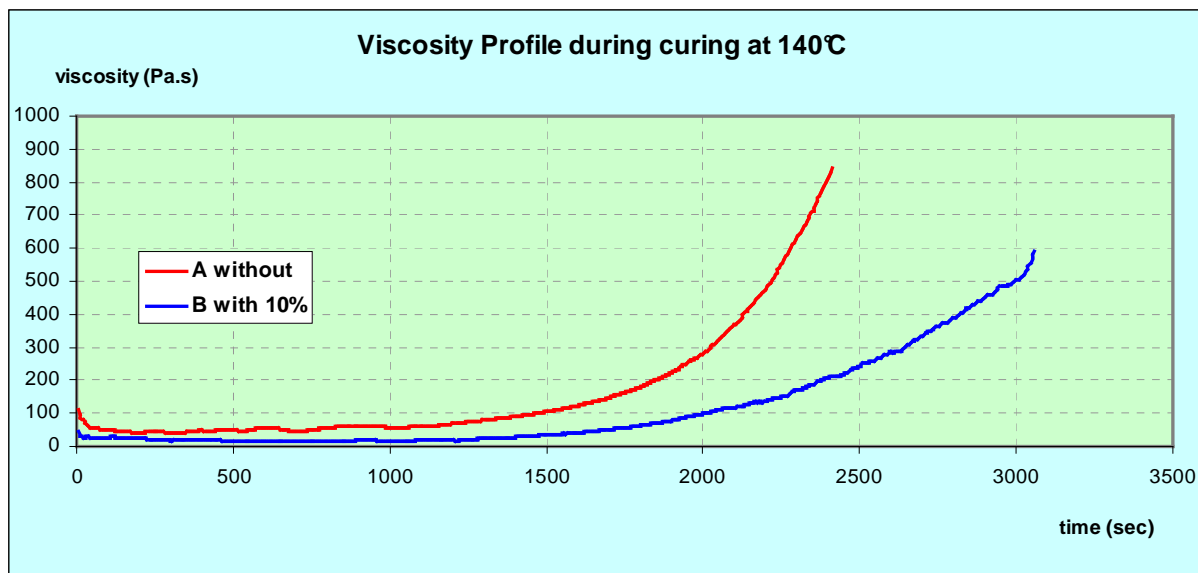
Extruder	BUSS PLK 46
Casting temperature	120°C
Screw temperature	Cold
Speed	110-130 rpm

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

	A without	B with 10%
Film thickness	60-80µm	60-80µm
Indentation (DIN 53156)	> 2 mm	> 9 mm
Direct gardner impact (ASTM D 2794)	1 Nm	> 10 Nm
Reverse gardner impact (ASTM D 2794)	0 Nm	> 10 Nm
Mandrel bend resistance (ASTM D 522)	fail	pass

## Rheology

The better flow of the coating with Sirales PE 5900 inside, was evaluated measuring the viscosity of the powder during curing at 140°C.



Dynamic Stress Rheometer; plate-plate geometry, dynamic time sweep (oscillatory frequency = 1Hz)

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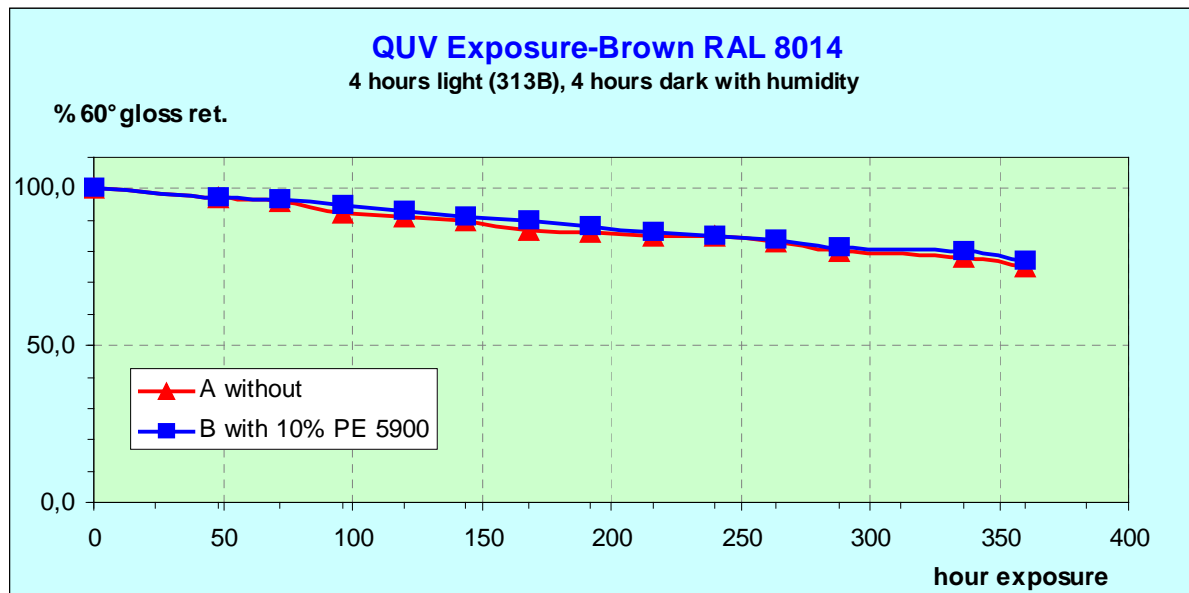
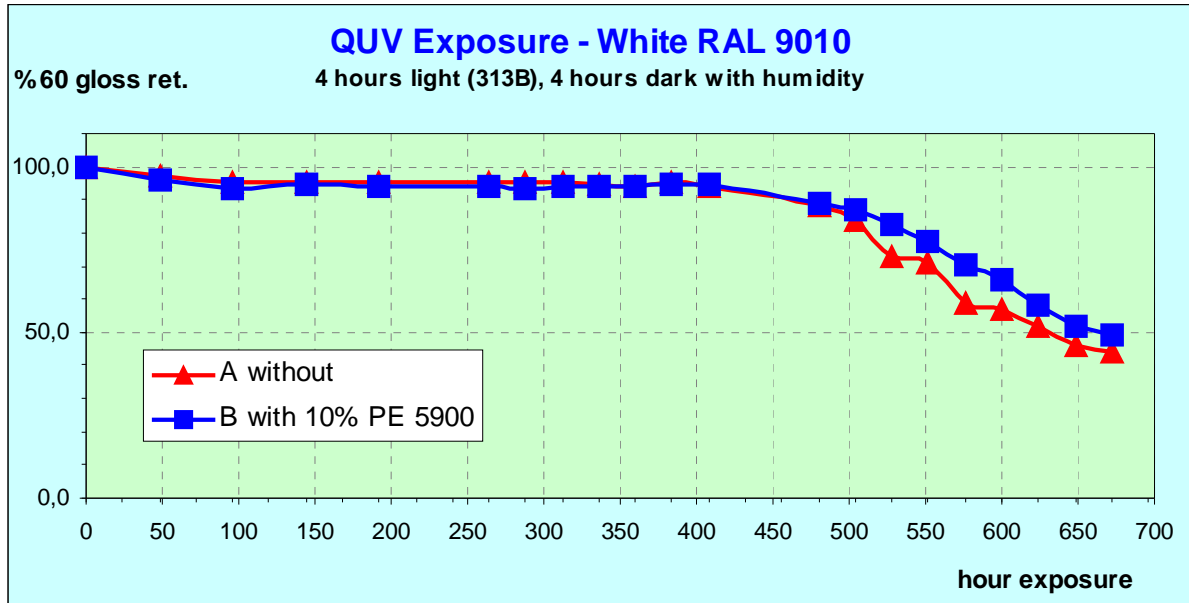
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## Accelerated weathering test

The resin Siraless PE 5900 doesn't affect weather resistance of the powder coatings that contain it.



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APPLICATION DATA  
RS/172/030901/4

## One-shot Matt powder coatings based on b-hydroxyalkylamides.

### Starting formulation white powder coating

Component [part by weight]	A	B	C	D see note
Sirales PE 7816.T	665	465	400	335
Sirales PE 5900		200	265	330
Prosid 411	35	35	35	35
Benzoin	3	3	3	3
Flow control agent(§)	10	10	10	10
Titanium dioxide (§§)	300	300	300	300

(§) Byk 360/P from BykChemie GmbH

(§§) Kronos 2310 from Kronos Titan GmbH

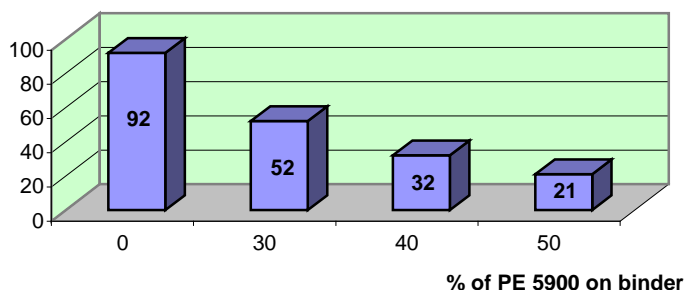
**Manufacturing method :** Extruder: Buss-Ko-Kneader PLK 46; Casing setting temp.: 120°C; Kneading screw temp.: cold; rpm: 150.

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

**Stoving cycles :** 15 minutes at 180°C; 20 minutes at 160°C (object temperature)

Property	A	B	C	D
Thickness [micron]	60 - 80			
Whiteness index [DIN CIE 10°]	80	78	76	75
Gloss a 60°	92	52	32	21
Gloss a 20°	40	18	9	5
Impact front [N.m]	> 10	> 10	> 10	> 10
Impact rev [N.m]	> 10	> 10	> 10	> 10

### Gloss 60°



**Note on D formulation :** quite difficult to extrude. The output melt sticks to the cooling rolls.

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