



SIR INDUSTRIALE SpA



POWDER COATING RESINS



INDEX

POWDER COATING RESINS

WHO IS SIR?	1
RESINS FOR INDOOR	
• HYBRID SYSTEMS 50 : 50	3
• HYBRID SYSTEMS 60 : 40	3
• HYBRID SYSTEMS 70 : 30	4
RESINS FOR OUTDOOR	
• PROSID 95 : 5	6
• PROSID 96 : 4	7
• PROSID 97 : 3	7
• PT 910	8
• TGIC	8
SPECIAL RESINS	
• HYDROXYLATED RESINS	10
• MASTERBATCH FLOW AGENTS	10
• DRY BLEND RESINS FOR LOW GLOSS SYSTEMS	10
• RESINS FOR SUPERDURABLE COATINGS	11
• CRISTALLINE RESIN	11
• MASTERBATCH TRIBO ADDITIVE	11
HARDENERS & ADDITIVES	
• β -HYDROXYALKYLAMIDE HARDENERS FOR CARBOXYLATED POLYESTERS	13
• ADDITIVES	13
EPOXY RESINS	
• EPOXY RESINS (FUSION PROCESS)	14
• EPOXY RESINS ("TAFFY" PROCESS)	15
HARDENERS FOR EPOXY	
• PHENOLIC HARDENERS FOR EPOXY POWDER COATING	16



WHO IS **SIR**?

With more than **80 years of experience** in the development and manufacturing of **high quality materials**, **SIR INDUSTRIALE Spa** simply knows how to **find** the best solution for **your specific needs**.

SIR INDUSTRIALE Spa aims at finding the **best solution** for the customers through **cooperation** and **passion** for continuous **improvements**.

Driving by innovation, we always try to improve our resins for the best results. Our most distinguishing mark is a comprehensive products range for powder coatings:

SIRALES® – Saturated Polyester resins

EPOSIR® / EPONAC® – Epoxy resins

PROSID® – Hardeners

SIRION® – Additives and hardeners

Focusing on our **clients satisfaction**

and accurate order fulfilling, we keep a safe environment and we protect it at all steps.

The guide gives the key of the mentioned products. The product specifications were correct at the time of printing. However we recommend to contact our offices for any information you may require.

ADVANCED SERVICE CENTER:

SIR avails it self of a **centralized structure** for **study, research, design** and **development** activities that are indispensable to guarantee a constant **innovation-oriented** work.

MISSION:

To **create** optimum **value** for **all** customers, shareholders, employees and social partners applying safe, ethical and environmentally practice.



THE COMPANY

WE ARE READY FOR THE CHALLENGES
WHICH THE MARKET PROVIDES



HYBRID SYSTEMS 50 : 50

SIRALES	RATIO	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
PE 8205	50 : 50	70-82	800-3.000	07'/160 °C 12'/150 °C 20'/140 °C 35'/130 °C	58	Very high reactive resin for low temperature curing cycles. The main characteristics of the paints based on PE 8205 are high flexibility, good flow, appearance and storage stability.
PE 8210	50 : 50	68-78	1.200-4.000	15'/160 °C 20'/150 °C	56	Very high reactivity, good flow, mechanical properties and overbaking resistance.
PE 8212.T	50 : 50	70-80	3.000-6.000	08'/200 °C 15'/180 °C	63	Medium reactivity combined with good flow and mechanical properties. It is specifically designed to obtain "low yellowing matt coatings" in combination with matting agent SIRION® VP 1035 .
PE 8220.T	50 : 50/60 : 40	55-66	2.300-4.000	12'/200 °C 15'/180 °C	56	Very good flow and gloss, together with high flexibility.
PE 8221*	50 : 50/60 : 40	58-68	2.200-4.000	10'/200 °C 15'/180 °C	58	Very good flow and brightness and with a high flexibility.
PE 8222*	50 : 50/60 : 40	60-72	1.800-3.800	10'/180 °C 15'/160 °C	55	High reactivity, good flow and gloss.
PE 8223*	50 : 50/60 : 40	60-70	2.400-4.400	12'/160 °C 20'/150 °C	54	High reactivity and good over-baking resistance.
PE 8231	50 : 50	65-75	2.800-4.800	15'/200 °C 20'/180 °C	58	Medium reactivity and excellent flow.
PE 8240	50 : 50	60-70	1.800-4.000	15'/160 °C 30'/150 °C	56	High reactivity, good flow and gloss.
PE 8242	50 : 50/55 : 45	55-65	2.000-4.000	10'/180 °C 15'/170 °C	58	High reactivity combined with good mechanical and aesthetic properties.

HYBRID SYSTEMS 60 : 40

SIRALES	RATIO	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
PE 8224	60 : 40	55-66	2.300-4.000	08'/180 °C 15'/160 °C	58	High reactivity, good mechanical and aesthetic properties.
PE 8225	60 : 40	55-65	2.000-4.000	10'/180 °C 20'/160 °C	53	High reactivity, good mechanical and aesthetic properties.
PE 8241	60 : 40	45-55	3.000-5.000	10'/180 °C 15'/170 °C	55	High reactivity combined with good mechanical and aesthetic properties.
PE 8243.T	60 : 40	45-55	3.000-5.000	10'/180 °C 15'/170 °C	55	It is suggested in combination 60/40 p.b.w. with EPOSIR® 7175 PG or EPONAC® 825 , to manufacture powder coatings with high reactivity combined with good mechanical and aesthetic properties.
PE 8244	60 : 40	50-60	1.800-4.000	10'/180 °C 15'/170 °C	55	High reactivity and very good flow combined with good mechanical and aesthetic properties.
PE 8253	60 : 40	45-55	1.800-4.000	It depends from catalyst employed	52	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.
PE 8254	60 : 40	50-60	1.800-4.000	08'/160 °C 15'/150 °C	55	In combination with EPOSIR® 7168 PG or EPOSIR® 7175 PG , to manufacture powder coatings with good mechanical properties and extension.
PE 8560	60 : 40	50-60	1.000-3.000	10'/190 °C 15'/180 °C	65	High wetting ability of pigment and filler. It assures good flow and surface appearance with powder coatings with binder: pigment ratio of 50 : 50 and 45:55.

(1) ICI Cone & Plate viscosimeter (2) Object temperature (T) stands for triboo * Tribo version available

HYBRID SYSTEMS 70 : 30

SIRALES	RATIO	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
PE 8423/FT*	70 : 30	30-38	4.000-7.000	10'/180 °C 15'/160 °C	53	Is recommended to be used in coupling with EPOSIR® 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. Very good brightness together with high mechanical properties and very good storage stability.
PE 8412.T	70 : 30	35-45	3.500-6.500	10'/180 °C 12'/160 °C	54	High reactivity combined with good flow and mechanical properties with good yellowing resistance for overbaking.
PE 8417	70 : 30	32-40	4.000-7.000	06'/180 °C 10'/160 °C	53	High reactivity combined with good mechanical properties and flow.
PE 8418.T	70 : 30	30-38	3.000-6.000	10'/180 °C 15'/160 °C	50	High reactivity combined with good flow, good mechanical properties and with good wet ability of organic pigments.
PE 8419*	70 : 30	32-40	3.500-5.500	15'/170 °C 20'/160 °C	55	High reactivity combined with good flow and good mechanical properties.
PE 8420*	70 : 30	32-40	3.500-5.500	15'/200 °C 20'/180 °C	52	Good flow and gloss, good overbaking.
PE 8421*	70 : 30	32-40	3.500-5.500	15'/170 °C 20'/160 °C	54	High reactivity combined with good flow, good mechanical properties.
PE 8422*	70 : 30	28-36	4.500-7.000	10'/160 °C 15'/150 °C	54	High reactivity combined with optimum brightness and good mechanical properties.
PE 8425.T	70 : 30	30-38	3.500-5.500	15'/170 °C 20'/160 °C	54	High reactivity combined with good flow, good mechanical properties and good overbaking resistance.
PE 8429*	70 : 30	30-38	3.000-6.000	15'/170 °C 20'/160 °C	56	High reactivity combined with good flow and good mechanical properties.
PE 8439.T	70 : 30	30-38	3.000-6.000	15'/170 °C 20'/160 °C	56	High reactivity combined with good mechanical properties. Is specifically designed to prepare texture finish coatings.
PE 8440	70 : 30	32-40	5.000-9.000	08'/200 °C 10'/180 °C	65	Good flow and high mechanical properties.
PE 8470	70 : 30	32-40	3.500-5.500	According to catalyst employed	55	Good yellowing resistance to over-baking. To regulate cure cycles appropriate catalyst or accelerator SIRION® VP 1110 have to be used.

(1) ICI Cone & Plate viscosimeter (2) Object temperature (T) stands for triboo * Tribo version available

CURING CYCLE / RATIO	50 : 50	60 : 40	70 : 30
130° C	PE 8205		
150° C	PE 8210 PE 8223* PE 8240	PE 8254	PE 8422*
160° C	PE 8222*	PE 8224 PE 8225	PE 8419* PE 8429* PE 8439.T PE 8418.T PE 8421* PE 8412.T PE 8417 PE 8425.T PE 8423/FT*
170° C	PE 8242	PE 8241 PE 8243.T PE 8244	
180° C	PE 8231 PE 8220.T PE 8212.T PE 8560	PE 8221*	PE 8420* PE 8440
Accordin to catalyst employed		PE 8253	PE 8470

PROSID 95 : 5

IND INDUSTRIAL ARC ARCHITECTURAL

SIRALES	RATIO	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
IND PE 7807*	95 : 5	30-38	4.000-7.000	10'/160 °C 15'/150 °C	61	High reactivity, good mechanical properties and flow; absence of blooming.
IND PE 7809*	95 : 5	30-38	3.000-5.500	10'/200 °C 15'/180 °C 20'/160 °C	62	Good durability, low yellowing and good flow. Absence of blooming.
IND PE 7810*	95 : 5	30-38	2.750-4.750	10'/200 °C 15'/180 °C	61	Good durability, low yellowing and very good flow.
ARC PE 7811*	95 : 5	30-38	3.000-6.000	10'/200 °C 15'/180 °C 20'/160 °C	60	Suitable for high transparency clear-coat, low yellowing and gas oven stability. Absence of blooming.
IND PE 7812	95 : 5	30-38	3.000-6.000	10'/160 °C 15'/150 °C	58	High reactivity and absence of blooming in combination with good flow and flexibility.
ARC PE 7813.T	95 : 5	30-38	2.000-5.000	10'/200 °C 15'/180 °C 20'/160 °C	58	Architectural quality , optimal mechanical properties, with an excellent flow, low yellowing even with high temperature curing cycles.
IND PE 7814.T	95 : 5	30-38	3.000-5.000	10'/200 °C 15'/180 °C	65	For outdoor purposes featuring very good storage stability, good weather resistance flow and mechanical properties together with high gloss.
ARC PE 7816.T	95 : 5	30-38	2.000-5.000	15'/200 °C 20'/180 °C	58	Architectural quality . Excellent durability, enhanced flow and low yellowing.
ARC PE 7817.T	95 : 5	30-38	2.500-4.500	10'/200 °C 15'/180 °C 20'/160 °C	55	Architectural quality . Improved outdoor resistance compared to PE 7816 with excellent flow, low yellowing and good mechanical properties.
ARC PE 7820*	95 : 5	30-38	4.000-7.000	10'/200 °C 15'/180 °C	66	Architectural quality , storage stability and low yellowing.
ARC PE 7827.T	95 : 5	30-38	1.500-3.500	10'/200 °C 15'/180 °C	54	Excellent flow and surface appearance; low yellowing and blooming free; very high resistance to weather agents for architectural purposes .
IND PE7832.T	95 : 5	34-40	3.500-5.500	6'-8'/180 °C 10'-12'/160 °C 15'-20'/150 °C	58	SIRALES® PE 7832.T , in combination with the hardener based on β -hydroalkylamides (ratio 95/5 or 94,5/5,5), makes achievable a powder coating for industrial and architectural purposes. The main characteristics are: low bake good mechanical properties; good flow and smoothness; absence of blooming for curing cycles above 150°C; suitable for tribo gun applications.
ARC PE 7860	95 : 5	30-38	1.500-3.500	10'/200 °C 15'/180 °C	55	For industrial and architectural purposes. Its low reactivity and low melt viscosity assures very good flow and surface appearance of powder coatings. Outgassing limit of paints based on it is enhanced of 20-30 microns than that of standard resins.
IND PE 7870.T	95 : 5	30-38	2.500-4.500	12'/200 °C 15'/180 °C	59	For outdoor purposes featuring a very good flow as well as mechanical and weather resistance properties, a low yellowing and a high resistance to overbaking.

(1) ICI Cone &Plate viscosimeter (2) Object temperature (T) stands for tribo * Tribo version available

PROSID 96 : 4

	SIRALES	RATIO	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
ARC	PE 7111.T	96 : 4	16-24	4.500-7.500	15'/200 °C 20'/180 °C 25'/160 °C	58	Architectural quality. Good durability, mechanical properties and flow with low yellowing.
IND	PE 7112.T	96 : 4	20-28	4.500-7.500	10'/200 °C 15'/180 °C	55	Good outdoor resistance, very good mechanical properties and flow, low yellowing.
IND	PE 7113.T	96 : 4	20-28	4.500-7.500	10'/200 °C 15'/180 °C	58	Optimal mechanical properties, with an excellent flow and gloss; good resistance to weather agents for industrial applications; very low yellowing even with high temperature curing cycles.
ARC	PE 7115.T	96 : 4	22-28	6.500-9.500	8'-10'/200 °C 10'-12'/180 °C	62	The resin SIRALES® PE 7115.T is suitable for architectural/ industrial powder coating based on hardener β-hydroxyalkylamides with ratio PE : HAA = 96 : 4. The paints prepared using this resin show the following characteristics: good mechanical properties and flow; optimum storage stability thanks to its high glass transition temperature.
ARC	PE 7117.T	96 : 4	20-28	4.500-7.500	10'-15'/200 °C 15'-20'/180 °C 20'-25'/160 °C	62	The resin SIRALES® PE 7117.T is suitable for the production of outdoor powder coatings with a low content of β-hydroxyalkylamide hardeners - ratio 96/4. It enables to obtain powder coatings with the following characteristics: very good TRIBO chargeability; optimal mechanical properties, with an excellent flow and gloss; excellent resistance to weather agents; very low yellowing even with high temperature curing cycles.
IND	PE 7200	96,5 : 3,5	16-24	4.500-7.500	10'/200 °C 15'/180 °C	56	Optimal mechanical properties, with an excellent flow and gloss; good resistance to weather agents for industrial applications; very low yellowing even with high temperature curing cycles.

PROSID 97 : 3

	SIRALES	RATIO	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
IND	PE 7204.T	97 : 3	18-24	4.500-7.000	10'-12'/200 °C 15'-20'/180 °C	60	SIRALES® PE 7204.T , in combination with β-hydroxyalkylamide (ratio 97/3) makes achievable a low-demand of hardener powder coating durable for outdoor purposes featuring a good flow, as well as mechanical and ageing characteristics. When combined by dry-blend technique with high reactivity coatings, based on SIRALES® PE 7220, PE 7260 and PE 7270 , allows to obtain a very good matt finishing. The paints based on SIRALES® PE 7204.T show a good tribochargeability.

PT 910

SIRALES	RATIO	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
PE 7901*	93 : 7	24-32	6.500-10.000	15'/200 °C 20'/180 °C	70	Good outdoor durability characteristics, very good storage stability and low yellowing.

TGIC

SIRALES	RATIO	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
PE 7112.T	95 : 5	20-28	4.500-7.500	15'/200 °C 20'/180 °C	55	Medium reactivity, good weather resistance and flow, low yellowing. Specifically designed to obtain high matt efficiency, when formulated with SIRION® VP 1016 and VP 1035 .
PE 7200	96 : 4	16-24	4.500-7.500	10'/200 °C 15'/180 °C	56	Optimal mechanical properties, with an excellent flow and gloss; good resistance to weather agents for industrial applications; very low yellowing even with high temperature curing cycles.
PE 7310	93 : 7	30-38	3.500-5.500	15'/200 °C 20'/180 °C	60	High flow, very high overbaking resistance, high gloss, good mechanical property and good weathering resistance.
PE 7315	93 : 7	30-38	3.500-6.500	20'/160 °C 25'/150 °C	55	High reactivity, high outdoor durability; very good gloss and mechanical properties; blooming-free cured films.
PE 7320.A	93 : 7	30-38	3.500-5.500	15'/200 °C 20'/180 °C	68	Durable for outdoor, gloss and weather resistance characteristics.
PE 7321	93 : 7	30-38	3.000-5.000	10'/200 °C 15'/180 °C	65	Durable for outdoor purposes, very good flow and mechanical properties together with high gloss. The powder coatings prepared with it show an excellent storage stability.
PE 7322*	93 : 7	30-38	3.500-5.500	15'/200 °C 20'/180 °C	66	Durable for outdoor purposes featuring high weather resistance, very good flow and gloss and very good mechanical properties.

(1) ICI Cone & Plate viscosimeter (2) Object temperature (T) stands for tribo * Tribo version available





HYDROXYLATED RESINS

SIRALES	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	HYDROXYL VALUE (mgKOH/g resin)	CURING CYCLE ⁽²⁾	Tg	APPLICATIONS / PROPERTIES
PE 6110	< 8	4.500-7.500	30-45	15/200 °C 20'/180 °C	60	Suitable for preparations of outdoor powder coatings in combination with blocked aliphatic isocyanates hardeners. Good reactivity with self-blocked isocyanate.
PE 6220	< 8	500-2.500	65-85	-	50	Suitable for preparation of masterbatches with additives and pigments commonly used in thermosetting powder coating production. Its particular composition guarantee optimum compatibility , fillers and pigments wettability and resistance to ageing.

MASTERBATCH FLOW AGENTS

SIRALES	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	HYDROXYL VALUE (mgKOH/g resin)	Tg	APPLICATIONS / PROPERTIES
PE 6210/F	< 8	1.500-3.500	35-50	58	Masterbatch of 10% acrylic flow agent in hydroxylated resin.
PE 6215/F	< 8	1.200-3.200	35-50	58	Masterbatch of 15% acrylic flow agent in hydroxylated resin.
PE 6310/F	< 8	1.500-4.500	35-50	54	Hydroxylated polyester resin with 10% flow agent suitable for clear powder coatings. Excellent weathering resistance.

DRY BLEND RESINS FOR LOW GLOSS SYSTEMS

SIRALES	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	RATIO RESIN/ HARDENERS	Tg	APPLICATIONS / PROPERTIES
PE 7201.T	16-24	3.500-6.500	15'/200 °C 20'/180 °C	96,5 : 3,5 PROSID 96 : 4 TGIC	55	Good outdoor durability characteristics, mechanical properties and flow.
PE 7202.T	17-23	5.500-8.500	10'-12'/180 °C 15'-20'/170 °C	97: 3 PROSID	55	Good outdoor durability characteristics, mechanical properties and storage stability. In combination with SIRALES® PE 7220 .
PE 7220.T	46-54	3.000-6.000	10'-15'/200 °C 15'-20'/180 °C	93 : 7 PROSID 90 : 10 TGIC	63	Good outdoor durability characteristics and mechanical properties. In combination with SIRALES® PE 7201 or SIRALES® PE 7202 .
PE 7203.T	14-20	4.000-7.000	15'/200 °C 20'/180 °C	97 : 3 PROSID	52	SIRALES® PE 7203.T , in combination with β -hydroxyalkylamide (ratio 97/3) makes achievable a low-demand of hardener powder coating durable for outdoor purposes featuring a good flow, as well as mechanical and ageing characteristics. When combined by dry-blend technique with high reactivity coatings, based on Siraless® PE 7220 , PE 7260 and PE 7270, allows to obtain a very good matt finishing. The paints based on SIRALES® PE 7203.T show a good tribochargeability.

(1) ICI Cone &Plate viscosimeter (2) Object temperature (T) stands for triboo * Tribo version available

RESINS FOR SUPERDURABLE COATINGS

SIRALES	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	CURING CYCLE ⁽²⁾	RATIO RESIN/ HARDENERS	Tg	APPLICATIONS / PROPERTIES
PE 7290	46-54	1.500-3.000	12'/180 °C 20'/160 °C	93 : 7 PROSID	55	In combination with β-hydroxyalkylamides (ratio 93:7) makes achievable outdoor powder coatings for architectural purposes. The main characteristic are high reactivity; enhanced weather resistance; good flow and flexibility; absence of blooming.
PE 7499	28-36	3.000-6.000	10'-15'/180 °C 15'-20'/160 °C	95 : 5 PROSID	64	Excellent resistance to outdoor exposure. Good flow and yellowing resistance. High mechanical properties with SIRALES® PE 5900 .
PE 7500	28-36	3.000-7.000	10'-12'/180 °C 15'-20'/160 °C	95 : 5 PROSID	53	Excellent resistance to weather, optimal mechanical properties, very low yellowing.
PE 7550	52-58	2.500-4.500	10'/180 °C 15'/160 °C	93 : 7 PROSID	65	The resin SIRALES® PE 7550 is suitable for the production of superdurable powder coatings with β-hydroxyalkylamide hardeners (ratio 93:7). It enables to obtain powder coatings with the following characteristics: excellent resistance to weather agents; very low yellowing even with high temperature curing cycles; very high reactivity.

CRYSTALLINE RESIN

SIRALES	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	MELTING RANGE	APPLICATIONS / PROPERTIES
PE 5900	28-36	1.500	105-120	Replacing 10-20% of polyester resin in super durable powder coating formulations increases flow and mechanical properties , without affecting weather resistance.

MASTERBATCH TRIBO ADDITIVE

SIRALES	ACID VALUE (mgKOH/g resin)	VISCOSITY at 200°C (mPa.s) ⁽¹⁾	HYDROXYL VALUE (mgKOH/g resin)	Tg	APPLICATIONS / PROPERTIES
PE 7400	30-38	2.500-5.500	-	60	Masterbatch of 5% tribo additive in carboxylated resin. Good outdoor resistance.

(1) ICI Cone &Plate viscosimeter (2) Object temperature (T) stands for tribo * Tribo version available

PROSID®

β - HYDROXYALKYLAMIDE

CURING CYCLE / HARDENER	PROSID 95 : 5	PROSID 96 : 4	PROSID 96,5 : 3,5	PROSID 93 : 7	PROSID 97 : 3
150° C	PE 7832.T				
160° C	PE 7499 PE 7500 PE 7807* PE 7809* PE 7811* PE 7812 PE 7813.T PE 7817.T	PE 7117.T		PE 7290 PE 7550	
170° C			PE 7202.T		
180° C	PE 7809 PE 7810* PE 7814.T PE 7816.T PE 7820* PE 7827.T PE 7860 PE 7870.T	PE 7111.T PE 7112.T PE 7113.T PE 7115.T	PE 7200 PE 7201.T	PE 7220.T	PE 7204.T PE 7203.T

TGIC

CURING CYCLE / HARDENER	TGIC 90 : 10	TGIC 95 : 5	TGIC 96 : 4	PT 910 TGIC 93 : 7	TGIC 97 : 3
150° C				PE 7315	
180° C	PE 7220.T	PE 7112.T	PE 7200 PE 7201.T	PE 7320.A PE 7901*	PE 7322* PE 7310 PE 7321

β-HYDROXYALKYLAMIDE HARDENERS FOR CARBOXYLATED POLYESTERS

PROSID	APPAREANCE	MELTING RANGE	HYDROXYL EQUIVALENT WEIGHT (g/eq.)	REMARKS
411	Coarse powder	116-126 °C	84-88	Based on β-hydroxyalkylamide and suitable for production of outdoor powder coatings with a very high outdoor resistance.
H30A	White flakes	80-100 °C	270-290	Masterbatch 30% β hydroxyalkylamide hardener with outdoor polyester resin.
H50A	White flakes	80-100 °C	170-180	Masterbatch 50% β-hydroxyalkylamide hardener with outdoor polyester resin.

ADDITIVES

SIRION	APPAREANCE	MELTING RANGE	PARTICLES SIZE WEIGHT (g/eq.)	REMARKS
VP 1016	Light yellow coarse powder	105-117 °C	< 2 mm	Matting agent for outdoor powder coatings based on triglycidylisocyanate and epoxy/polyester hybrids.
VP 1035	Light yellow powder	80-100 °C	< 180 μm	Matting agent for outdoor powder coatings based on epoxy/polyester hybrids.
VP 1110	White coarse powder	80-100 °C	< 2 mm	Accelerator to increase reactivity in hybrids, polyester/TGIC, polyester/ epoxy ester.
VP 1115	Light yellow small flakes	80-100 °C	< 8 mm	SIRION® VP 1115 is particularly indicated to prevent yellowing of powder coatings during curing in presence of NOx (gas oven).



EPOXY RESINS (FUSION process)

FLW FLOW AGENT

EPOSIR®	DESCRIPTION	EPOXY EQUIVALENT WEIGHT (g/eq.) ⁽¹⁾	EPOXY GROUP CONTENT (mmol/kg) ⁽¹⁾	GARDNER VISCOSITY at 25°C ⁽²⁾	COLOUR	APPLICATIONS
7166 PG	Low molecular weight Bisphenol A based solid epoxy resin.	570-620	1.610-1.755	H-M	< 120	BPA based suitable for formulation of hybrid powder coatings with carboxyl-terminated polyester resins.
7167 PG	"Type-2" solid epoxy resins	600-660	1.515-1.666	H-P	< 150	Suggested for powder coatings with excellent flow.
7168 PG	"Type-2,5" solid epoxy resins	650-720	1.388-1.538	K-R	< 150	Epoxy resin specially designed for hybrid powder coatings application requiring excellent flow and gloss.
7175 PG	"Type-3" solid epoxy resins	710-780	1.282-1.408	M-U	< 120	Epoxy resins for both pure epoxy and hybrid epoxy-polyester powder coatings with excellent flow and gloss.
7178 PG	"Type-3,5" solid epoxy resins	770-840	1.190-1.298	O-U	< 150	Epoxy resin with higher viscosity than EPOSIR® 7175 PG . Special version designed mainly for pure epoxy powder coatings.
7170 PG	"Type-4" solid epoxy resins	800-900	1.111-1.250	Q-V	< 150	Epoxy resin suitable for decorative and functional coatings with good flexibility and mechanical properties. Designed for pure epoxy powder coatings and the preparation of epoxy sters.
7179	Bisphenol A based higher MW solid epoxy resin	800-910	1.100-1.250	V-Z	< 150	Special grade , In blend with standard epoxy resins for powder coatings to increase adhesion and mechanical properties.
FLW 7168 PGF	"Type-2,5" solid epoxy resins containing of flow agents	600-730	1.369-1.666	K-R	< 150	BPA based solid epoxy containing of flow agents. Especially designed for formulation of decorative hybrid and pure epoxy powder coatings with excellent flow and gloss.
FLW 7170 PGF 10	BPA based masterbatch epoxy resin containing flow agents	780-900	1.111-1.282	-	-	BPA based solid epoxy containing of flow agents. Suitable for use in powder coatings formulation. Suggested as masterbatch in combination with standard epoxy resins without flow agents.

(1) ICI Cone &Plate viscosimeter (2) Object temperature (T) stands for triboo * Tribo version available

EPOXY RESINS ('TAFFY' process)

EPONAC®	DESCRIPTION	EPOXY EQUIVALENT WEIGHT (g/eq.) ⁽¹⁾	EPOXY GROUP CONTENT (mmol/kg) ⁽¹⁾	GARDNER VISCOSITY AT 25°C ⁽²⁾	COLOUR	APPLICATIONS
85	Novolac modified low MW solid epoxy resin	600-700	1.428-1.666	Q-U	< 200	Novolac modified solid epoxy resins, with enhanced anticorrosion properties and excellent chemical resistances. Especially designed in combination with phenolic curing agents such as SIRION® VP 208 X series for pipe coatings and internal drums lining.
600	" Type-2 " solid epoxy resins	600-700	1.428-1.666	H-M	< 150	Excellent flow.
615	" Type-2,5 " solid epoxy resins	650-720	1.389-1.538	J-O	< 150	Excellent flow and gloss.
700	" Type-3 " solid epoxy resins	700-760	1.316-1.428	L-Q	< 150	Epoxy resin for both pure epoxy and hybrid epoxy-polyester. Excellent flow and gloss.
825	" Type-3 " solid epoxy resins	730-830	1.204-1.370	N-T	< 150	Epoxy resin for both pure epoxy and hybrid epoxy-polyester. Excellent flow and gloss.
945	" Type-4 " solid epoxy resins	820-950	1.052-1.220	Q-V	< 150	Epoxy resin suitable for decorative and functional coatings. Good mechanical proprieties.
1079	" Type-5 " solid epoxy resins	1.100-1.250	1.100-1.250	V-Z	< 150	Suitable for the formulation of epoxy poder coatign with better flexibility.
2065	" Type-7 " solid epoxy resins	500-666	1.500-2.000	X-Z ₁	< 200	Suitable for foodstuffs and hygienic materials contact , like toothpaste and can coatings.

(1) ICI Cone &Plate viscosimeter (2) Object temperature (T) stands for triboo * Tribo version available



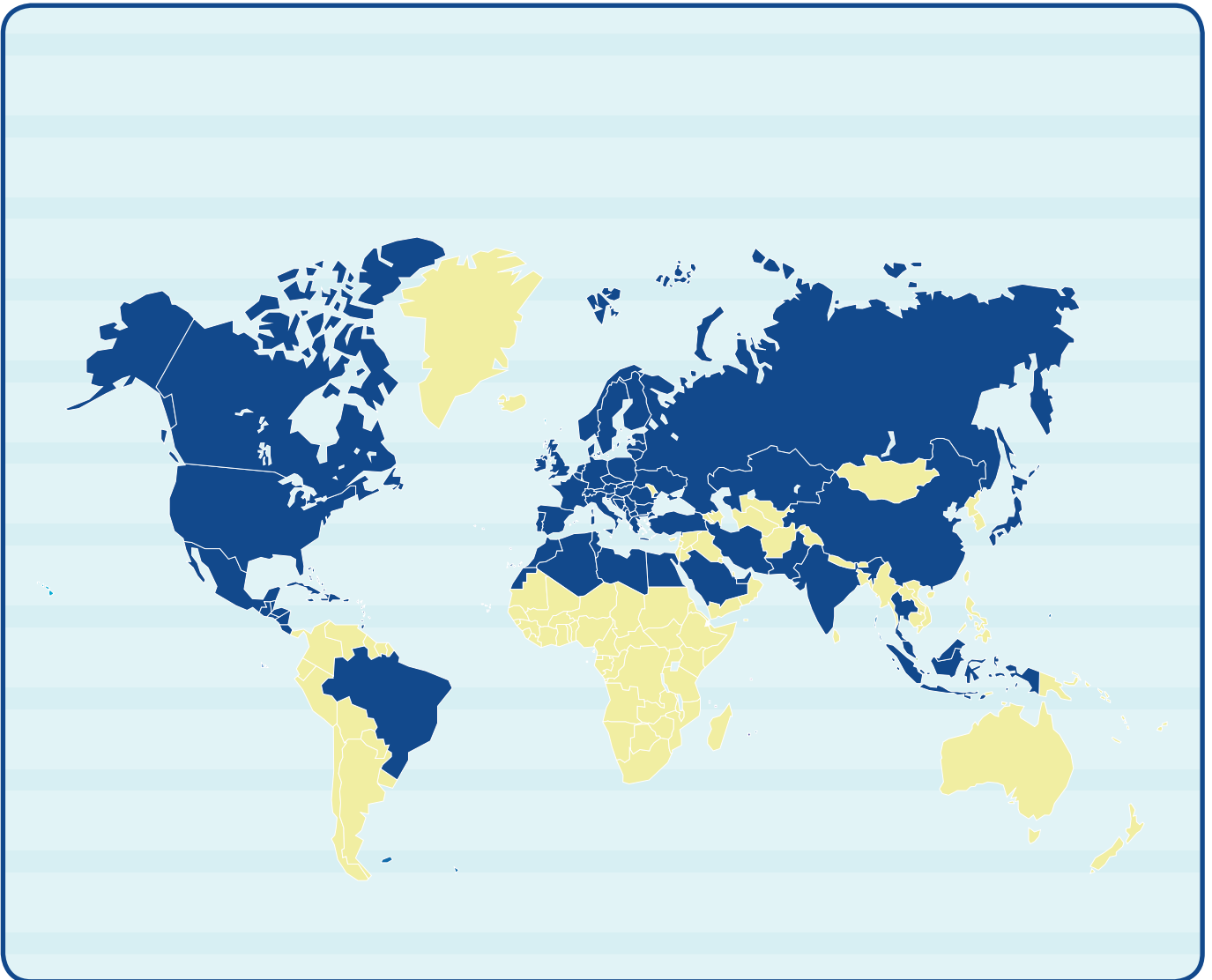
PHENOLIC HARDENERS FOR EPOXY POWDER COATING

SIRION	GARDNER VISCOSITY at 25 °C	MELTING RANGE	HYDROXYL EQUIVALENT WEIGHT (g/eq)	REACTIVITY	Tg	REMARKS
VP 2080	H-M	60-70 °C	< 250+/-30	+	54	SIRION® VP 2080 is a Phenolic Hardener based on unmodified solid reaction Product of liquid epoxy resin (LER) and BPA containing a polyacrylate flow modifier and curing accelerator. Designed for Powder Coatings, it is totally compatible with Epoxy Resins. Preferred applications include high flow decorative, protective and high gloss powder coating. Moderate reactivity.
VP 2081	H-M	60-70 °C	< 250+/-30	++	50	SIRION® VP 2081 is a Phenolic Hardener based on the unmodified solid reaction product of liquid epoxy resin (LER) and BPA containing a polyacrylate flowmodifier and curing accelerator. Designed for Powder Coatings it is totally compatible with Epoxy Resins. Preferred applications include high flow decorative, protective and high gloss powder coating. Medium reactivity.
VP 2082	H-M	60-70 °C	< 250+/-30	+++	50	SIRION® VP 2082 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA containing a polyacrylate flow modifier and curing accelerator. Designed for Powder Coating it is totally compatible with Epoxy Resins. Can be formulated into protective or decorative powder coating. Medium to high reactivity.
VP 2083	H-M	60-70 °C	< 250+/-30	++++	47	SIRION® VP 2083 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA containing a polyacrylate flow odifier and curing accelerator. Designed for powder Coating is totally compatible with Epoxy Resins. Very high reactivity.
VP 2084	H-M	60-70 °C	< 250+/-30	++	50	SIRION® VP 2084 is a Phenolic Hardener based on unmodified the solid reaction product of liquid epoxy resin (LER) and BPA containing a curing accelerator. Designed for Powder Coatings it is totally compatible with Epoxy Resins & can be formulated into protective or decorative systems. Medium reactivity.
VP 2085	H-M	60-70 °C	< 250+/-30	++++	52	SIRION® VP 2085 is a Phenolic Hardener based on unmodified solid reaction product of liquid epoxy resin (LER) and BPA. Designed for Powder Coating it is totally compatible with Epoxy Resins & can be formulated into protective or decorative systems. The product does not contain either curing accelerators or flowing modifiers. Useful for optimising reactivity of powder coating formulations already containing a curing accelerator.



SIR INDUSTRIALE SpA

WE ARE PRESENT IN OVER 50 COUNTRIES WITH A LARGE PORTFOLIO OF RESINS



■ OUR PRESENCE

Do you know our other products?

EPOSIR®:

- Liquid epoxy resins & solution
- Reactive diluents
- Modified epoxy resins
- Waterborne epoxy emulsions

EPONAC®: Solid epoxy resins & solution

SIRESTER®: Unsaturated polyester resins

SIRION®: Additives, hardeners and resins

Website: www.sirindustriale.com

Linkedin: Sir Industriale s.p.a.





SIR INDUSTRIALE SpA

Via V. Bellini 35 - 20846 Macherio (MB), Italy
VAT Number IT05379680969

phone

+39 039 2072.1

fax

+39 039 2072.307

e-mail

sir@sirindustriale.com

website

www.sirindustriale.com



OUR GROUP



olon s.p.a.



fidia
farmaceutici s.p.a.



SIR INDUSTRIALE SpA