

YINCAI CHINA POWDER COATING ADDITIVES



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武汉银彩科技有限公司

Powder coating in China

There are 3000 powder coating manufacturers in China and the annual output has reached around 2 million tons. At this background, China is now capable of producing whole powder coating machines, raw material and additives, also export to overseas.

Wuhan Yincai Technology Co., Ltd.

Wuhan Yincai Technology Co., Ltd., one of the major powder coating additives manufacturers, is specialized in producing and selling powder coating additives for 20 years. The company has 30000 square meters modernized plant where lies in chemical industrial estate, 7 well - equipped reactors and several senior R&D technicians.

Main products: GMA Resin, Leveling agent, Degassing Agent, Defoaming Agent, Matting Agent, Curing Agent, Texture Agent, Charge Enhancer.

The company's senior technician who has 20years powder coating experience can supply good technical service and solution for customers.

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Factory



Office building



Laboratory building



Garden-type plant



Visiting delegation



Powder coating lab



Sales team



Visiting customers

Matting Agent

Matting Agent for indoor	Item	Gloss	Characteristics
	L2032	5-50%	no react with epoxy,widely use
	L2035C	3-50%	1:2react with epoxy
	L2036C	5-50%	1:1react with epoxy,good flow on semigloss mating

Matting Agent for outdoor	Item	Gloss	Characteristics
	L2018C	5-50%	Widely use for Polyester/TGIC
	G570	1-10%	Best choice for out door dead gloss matting GMA resin
	L2011	20-70%	super good flow on semigloss mating,economic type

COMPARISON CHART OF

YINCAI MATTING AGENT AND 68MATT HARDENER

Matting agent	L2032 matting agent	68 matting agent
Formulation cost	cheap	expensive
Color changing	No yellowing	yellowing
Surface (gloss 1-10%)	Very good flow	Good flow
Surface (gloss 10-30%)	Very good flow	Orange peel
Impact	50KG pass	50KG fail
Curing temperature	180°C	200°C
Formulation adjusting	No need to change formulation	Need to change formulation
Storage	Pay attention to high temperature storage	Good

Conventional Agent

Item	Application	Characteristics	Dosage
L88	Leveling Agent	Obtain smooth surface by adjusting surface tension Stronger ability to overcome pitting and cratering Because a special group contained in L88,the utilization rate of powder is higher when added L88 Substitute for PV88, BYK386,P67,Modaflow6000	1.0-1.5%
L89	Leveling Agent	Base on L88,but improved ,strong in anti-interference performance	1.0-1.5%
L701	Gloss Enhancing Agent	Obtain smooth surface,enhance gloss by adjusting surface tension Stronger ability to overcome pitting and cratering Because a special group contained in L701,the utilization rate of powder is higher when added L701	1.0-1.5%
L306	Benzoin	Degassing and eliminating pinholes	0.5%
L307	Degassing Agent	Degassing and eliminating pinholes	0.5-1%
L307B	Defoaming Agent	Degassing and eliminate small molecule volatile substances. Suitable for castings	0.5-1%
L961	Specific Defoaming Agent	It can eliminate bubbles and pinholes Applicable to porous casting	1%
L502A	Hardening Agent	Improve surface hardness. Does not affect leveling.	0.5%
C308	Charge Modifier	Granule size Enhance the conductivity to improve powder coating transfer -efficiency Overcome Faraday effect Excellent flow and appearance of powder coatings Substitute for Lubrizol Lanco Stat308	0.3-1%
L528	Charge Enhancer	Appearance is flaky solid Remarkable in charge enhancing The utilization rate of powder is higher when added L528, less recycling powder	0.3-1%
L5281	Charge Enhancer for Tribo Gun	Enhance the conductivity both in tribo gun and electrostatic spray gun	0.1-0.3%

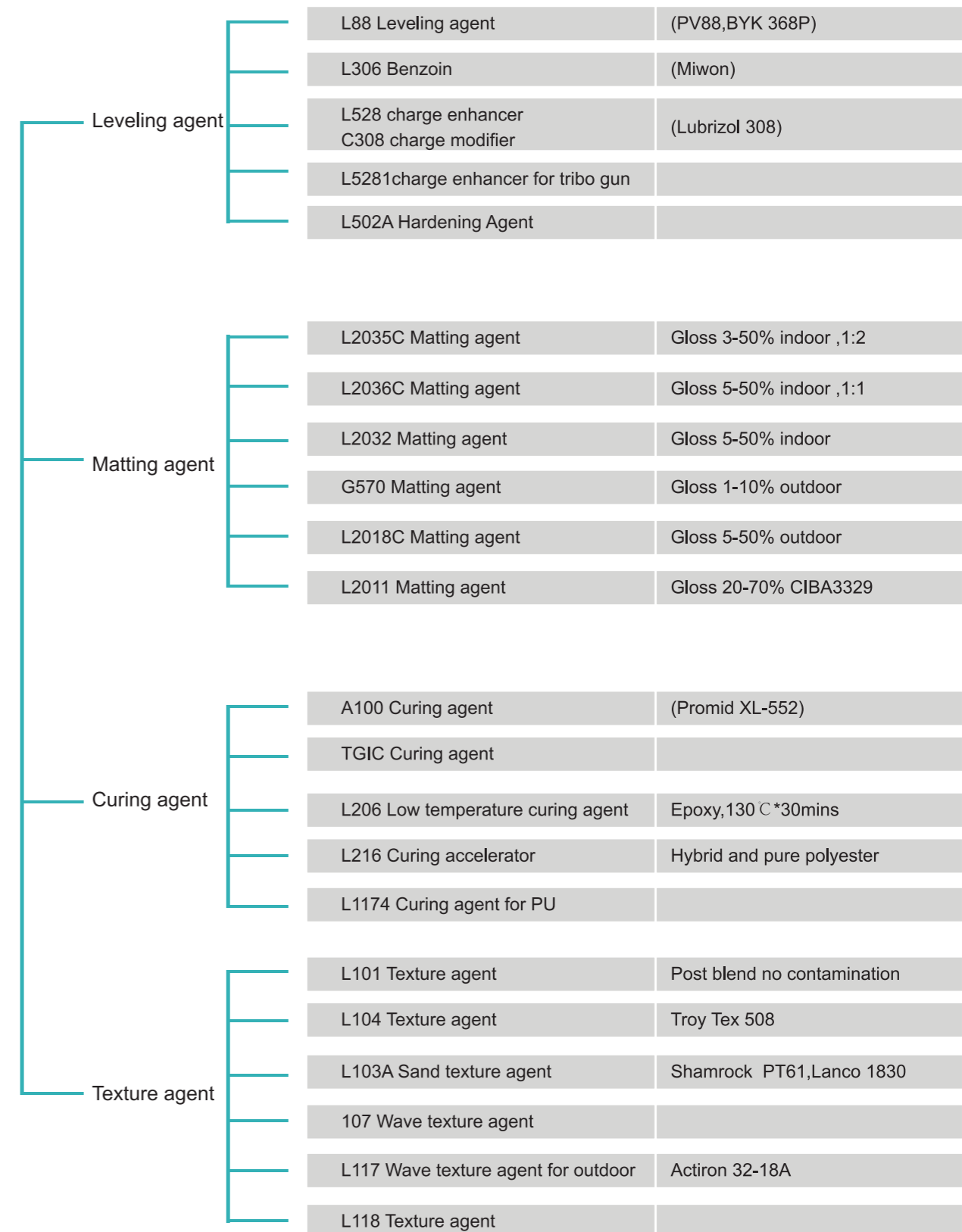
Texture Agent

Item	Application	Characteristics	Dosage and Administration
L101	Floating Agent	Obtain special texture such as wrinkle, pattern by dry blend Electrophoretic mobility and proportion should proximity to the powder Economic, texture is much remarkable	1.0-1.5%
L103A	Sandtexture Agent	Be applicable to any powder coating systems, adjusting formula can obtain different sand textured	0.1-0.8%
L104	Specific Floating Agent	Substitute for Troy powder mate 508 TEX Obtain big wrinkles with strong three-dimensional effect It is suitable for thick workpieces and castings coating	0.1-0.5%
L107	Wrinkle Finish Agent	Obtain texture like wrinkle, reticulated, vein and grained Applicable to any powder coatings such as can be used in epoxy or hybrid system Can obtain different texture by dry blending or premixing	2-3% As description
L117	Wrinkle Finish Agent for PUR Resin	Obtain big wrinkles with strong three-dimensional effect like crocodile texture Substitute for Actiron 32-18A	0.6-1% As description
L1174	Curing agent for PUR Resin	Curing agent for PUR resin, co-use with L117 to obtain crocodile texture	92: 8

Curing Agent

A100	A100 Curing Agent (β-HAA Hardener)	Curing agent for polyester Substitute of TGIC ,Non-toxic Low temperature curing property	5-6% of pure polyester, Resin to HAA for polyester(AV ca.20-24mg KOH/g)dosage 5% Resin to TGIC for polyester (AV ca.30-35mg KOH/g)dosage 6%
L2016	Curing Accelerator	Accelerate curing for hybrid & polyester Anti-yellowing,excellent flow Reduce curing temperature Improve mechanical properties	0.1-0.3%.Mixed with other materials andextruded Recommend dosage 0.15% in flat powder Recommend dosage 0.3% in texture powder

Powder Coating Additives Selection Guide



L2032 Matting Agent for Hybrid

Small dosage, Good matting effect, non-yellowing

The greatest advantages of L2032 are: firstly, it is widely used in 50/50, 60/40 polyester; secondly, small dosage, usually 3% is ok. The lowest gloss can be 7%, with excellent flow, delicate surface, and good mechanical properties.

Product Features

L2032 is suitable for 50/50, 60/40 polyester systems. It can be added into high gloss

formulation directly and extrude which is an addition-type physical matting agent without affecting the ratio of epoxy polyester in original formulation.

- Dosage is 1-3% ,should not exceed 4%.
- Surface is delicate, no-yellowing.
- Baking temperature is 190 C ×15mins.
- Widely selectivity to in 50/50, 60/40 system.

Dosage & Use method

1- 3% by weight of total formula, should not exceed 4%, mix with other materials and extrude.

Through extruder extrusion, please control the extrusion temperature uniformity, gloss decreases with the increase of the dosage.

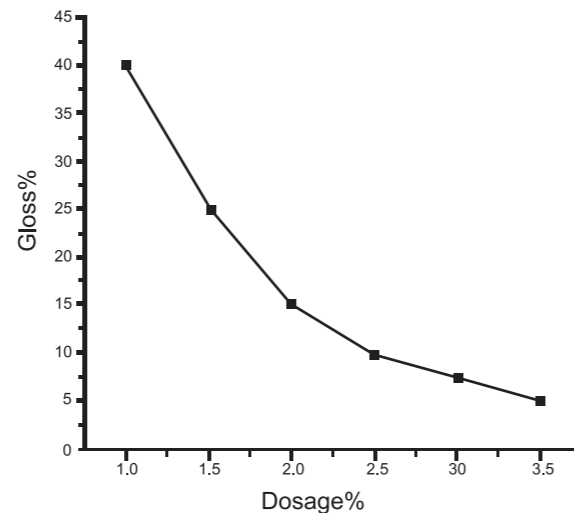
Reference formulation:

Raw material	1	2
Epoxy	27.5	22
50/50 Polyester	27.5	--
60/40 Polyester	--	33
L88 Leveling Agent	1	1
L701 Gloss Enhancer	1	1
L307 Benzoin	0.5	0.5
Titanium Dioxide+Barium Sulfate pigment	39	39
L2032 Matting Agent	3	3
Total	100	100
Extrude Temperature	100-110 C	100-110 C
Baking Condition	190*15mins	190*15mins
Gloss	8	10

Notice:

- Add accelerator may lead to gloss increase and flow worse, small test is recommended at first.
- Some matting wax powders may bring adverse effect on the system. We suggest to make sure the compatibility between matting wax powder and matting agent by experiments.
- Baking temperature has a certain effect on gloss stability. Lower baking temperature may lead to higher gloss. We suggest that stable baking conditions be ensured.

Dosage and gloss (curve)



Technical parameters

Item	Parameters
Appearance	Light yellow to white powder [eye-measurement]
Bulk density [g/l]	330-450
Solid content [%]	≥98.5 %

Package & Storage

Kraft paper bag (polyethylene liner). Net weight: 25kg/bag. Store in cool and dry place. Keep away from fire and heat sources. Seal the package after operation.

L2035C Matting Hardener for hybrid system

Low gloss, good matting result

The greatest advantage of L2035C is the gloss can be lowest 2%, with excellent matting result which is suitable for dead gloss powder coating; secondly, widely selectivity of polyester, L2035C can get good matting result in most 50/50 polyester system.

Product Features

L2035C is suitable for 50/50, 60/40 polyester system, 1 part matting agent L2035C will react with 2.0 parts of extra epoxy, please make sure the curing ratio is matching when design formulation.

- Dosage is 1-5% ,should not exceed 5%.
- Surface is delicate, non-yellowing.
- Baking temperature is 190 C ×15mins.
- It can get good matting result in 50/50 polyester system, and some 60/40 system is also ok.

Dosage & Use method

3-5% by weight of total formula, should not exceed 5%, mix with other materials and extrude. Through extruder extrusion, please control the extrusion temperature uniformity, gloss decreases with the increase of the dosage.

Reference formulation:

Raw material	1	2
Epoxy	33.5	29.2
50/50 Polyester	21.5	--
60/40 Polyester	--	25.8
L88 Leveling Agent	1	1
L701 Gloss Enhancer	1	1
L307 Benzoin	0.5	0.5
Titanium Dioxide+Barium Sulfate pigment	37	37
L2035C Matting Agent	5	5
Total	100	100
Extrude Temperature	100-110 C	100-110 C
Baking Condition	190 C *15mins	190 C *15mins
Gloss	2.5	4.5

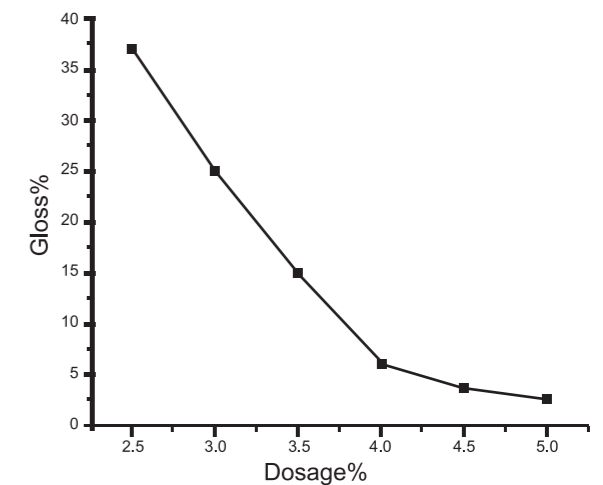
Notice:

- We don't suggest add accelerator to improve the mechanical properties in formulation, because it may lead to gloss increase and flow worse, trial test is recommended at first.

• Some matting wax may bring adverse effect on the system. We suggest to make sure the compatibility between matting wax powder and matting agent by experiments.

• Baking temperature has a certain effect on gloss stability. Lower baking temperature may lead to higher gloss. We suggest that stable baking conditions be ensured.

Dosage and gloss (curve)



Technical parameters

Item	Parameters
Appearance	Light yellow to white powder [eye-measurement]
Bulk density [g/l]	400-500
Solid content [%]	≥98.5 %

Package & Storage

Kraft paper bag (polyethylene liner). Net weight: 25kg/bag. Store in cool and dry place. Keep away from fire and heat sources. Seal the package after operation.

Similar products

○L2032 Indoor physical matting agent: widely selectivity to polyester, can be used in various system, good production stability.

○L2036C Indoor semi-chemical matting agent: wide gloss range, good storage stability, excellent surface properties, suitable for gloss above 5%.

L2018C Outdoor physical matting agent

Good matting effect,wide polyester selectivity

L2018C is low wax content compound matting agent,widely polyester selectivity,widely gloss range which used in polyester /TGIC system.The coating with very good flow and excellent anti-yellowing resistance.

Product Features

L2018C is an addition-type outdoor physical matting agent,10 portion of L2018C will react with 0.5-1 portion of TGIC; supplement TGIC according to this ration.

- Dosage is 3-6%of total formulation, It has good matting performance, excellent dosage and matting advantages.

- It is an addition-type low wax content resin matting agent,the coating can obtain very good flow and mechanical properties.

- Excellent baking stability,we suggest to use in occasions which need good anti-yellowing resistance.

- Baking temperature is 200 C ×15mins.

Use method and dosage

3-6% by weight of total formula.Mixed with other materials and extruded.Through extruder extrusion, please control the extrusion temperature uniformity, gloss decreases with the increase of the amount.

Item	Dosage
Polyester	55
TGIC	4.5
L88 Leveling Agent	1
L701 Charge Enhancer	1
L307 Benzoin	0.5
Titanium Dioxide+	31.5
Barium Sulfate	0.5
Pigment	0.5
L2018C matting agent	6
Total	100
Extrude Temperature	100-110 C
Baking Condition	200 C *15mins
Gloss	6

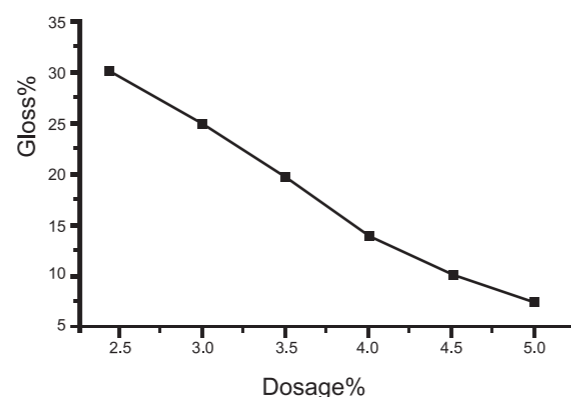
Notice:

- Add accelerator may lead to gloss increase and floor worse,Trail is recommended at first.

- Some matting wax powders may bring adverse effect on the system.We suggest to make sure the compatibility between matting wax and matting agent by experiments.

- Baking temperature has a certain effecton gloss stability. Lower baking temperature may lead to higher gloss.We suggest that stable baking conditions be ensured.

Dosage and gloss (curve)



Technical parameters

Item	Parameters
Appearance	Light yellow to white powder [eye-measurement]
Bulk density [g/l]	380-500
Solid content [%]	≥98.5 %

Storage &Package

Kraft paper bag (polyethylene liner). Net weight: 25kg/bag. Store in cool and dry place. Keep away from fire and heat sources. Seal the package after operation.

G570 Acrylic Matting Hardener

Best choice in pure polyester powder coating when low gloss <10%

G570 is a kind of acrylic resin containing epoxy group. It is used for the matting of outdoor weatherable polyester powder coatings, providing about 1-6 % low gloss and outstanding weather resistance .Especially in pure polyester matt powder which gloss is less than 10%,its performance is more outstanding because other matting ways are difficult to achieve such a low gloss.

The biggest advantage of G570 is extremely low gloss, glossy stability, no dark stripe, and the dosage can be reduced to 4/1.

Application

Mainly used for the matting of outdoor pure polyester powder coating,especially when gloss less than 10%.

Use method and dosage

Mixed with other materials then extruded. 3/1~4/1 of pure polyester resin (acid value is about 35), That is,3 polyester and 1 G570.

Reference formulation:

Item	Dosage	Remarks
Polyester	45	
G570Matting Resin	15	Ratio can be4/1 as well
TGIC (or HAA)	0.5	Add 0.5-1% TGIC (HAA) can improve the impact
L88 Leveling Agent	1	
L306 Benzoin	0.5	
Titanium Dioxide +Barium Sulfate	35	
Pigment	3	
Total	100	
Extrude Temperature	110-120 C	
Baking Condition	200 C *15Mins	
Gloss	1-6%	

Notice:

- Add charge enhancer may cause dark strips or surface changes,no suggest to add charge enhancer.

- Some accelerator may cause orange peel and gloss increasing,please be cautions when use.

- Excessive extruding temperature may lead to surface turns bad.We suggest control extruding temperature to avoid the system reaction in screw when excessive extruding temperature.

Technical parameters

Item	Parameters
Appearance	white granule or powder
Softening point [C]	130-155 [Ring-and-ballmethod]
Epoxy equivalent	500 – 550
Volatile content [%]	≤1.5

Storage &Package

Kraft paper bag (polyethylene liner). Net weight: 25kg/bag. Store in cool and dry place. Keep away from fire and heat sources. Seal the package after operation.

Remarks

Acrylic Acid Matting Resin has certain selectivity to polyester, so must select proper polyester to match it. In order to get stable matting effect, please maintain consistency and stability in the production process.

Wrinkle Finish Agent for Indoor L107

Obtain texture like wrinkle, reticulated, vein, and sand texture

L107 is also called as watermark agent. It is a kind of metal organic complexes which has a strong effect of curing acceleration, making the gel time very short and the coating has no time for leveling, thus can produce the well-distributed wrinkle pattern like ground glass. After the formula is adjusted, it is can produce sand texture, wrinkles and turtle shell textures.

Technical parameters

Appearance: light yellow powder
Melting point: 192-197 °C
Solid content: ≥98.5%

Application

Used for producing wrinkle finish effect, or other art powder such as sand texture and turtle shell texture.

Use method& characteristics

1. Dosage: 2-3%. Mixed with other materials and extruded.

Reference formulation:

Material	Formula 1	Formula 2	Remarks
Epoxy	60	60	
Polyester	0	5	use 6:4 polyester to make texture big
L107 Wrinkle Finish Agent	3	3	Can reduce to 2
Dicyandiamide	3	3	Dosage: 4-5% of epoxy
Pigment and filler	35-50	35-50	Small dosage filler gets big texture, vice versa
L88 leveling agent	0.2	0.2	eliminate pitting and bright spots

●Extruding temperature: 90-100 °C, the rotate speed of vice mill can be adjusted small, through 140 mesh sieve. Due to the strong effect curing acceleration of L107, please extruding with low temperature.

●Take above formulation as base powder, than dry blending 0.1-0.2% L118 turtle shell texture agent can obtain turtle shell texture or snow pattern.

●Spray thick thickness for big texture, otherwise, the coating will be shining; or spray thin thickness for small texture.

Curing condition: 200°C/15min.

2. Used in hybrid or pure polyester system can get the effect of wrinkle and sand texture.

3. L107 can also use as dry blending. Dry blending L107 will consume smaller dosage compare with extruding, and the texture more coarse.

4. Try to not breathe the product dust for a long time, or else will arise symptoms feel like common cold. After disengagement of dust exposure, the symptoms will disappear in one week.

Packaging:

Kraft paper bag (polyethylene liner). Net weight: 25kg/bag.



L117 PUR Wrinkle Finish Agent

L117 is a kind of sulfonic acid catalyst which can obtain different size of turtle shell texture (vein or crocodile texture) by strong effect curing acceleration.

Compare with L107 Indoor Wrinkle Finish Agent, L117 can obtain big and stable size of crocodile texture.

Technical parameters

Appearance: white or light yellow powder
Volatile content: ≤ 0.5%

Application

Used in PUR Resin to obtain crocodile texture

Use method& characteristics

1、PUR Wrinkle Finish Agent L117 need to co-use with hydroxyl polyester resin (polyurethane resin) and 1174 curing agent.

2、L117 Dosage:

Pre-mix 0.6%-1% by weight of total formula.

3、In order to get big texture, polyester content should be higher.

4、Dry blend L118 turtle shell agent made the texture more strong and easy for spraying.

5、Recommend pur polyester: Nanfang Resin 1000H, Kinte 7805

Starting formulation:

	Formula 1	Formula 2
EL1000H PUR Resin	70	80
TiO ₂ +BaSo ₄	21	10
pigment	0.4	0.4
117 PUR Wrinkle Finish Agent	0.6	0.6
1174 curing agent	6	7
L1173 forming agent	2	2
Extruding @120-130 °C, Curing @200 °C*15mins		
Dry blend L118 turtle shell agent 0.1-3% to adjust the texture size		

Extruding temperature should 10 °C higher than normal extruding temperature(120-130°C) and mix adequately, so that extruding results good. Grinding the powder with a little big particle size and curing @200°C*15mins.



A100 Curing Agent(β -HAA Hardener)

Non-toxic ,Substitute if TGIC

A100 is a hydroxyl kylamide cross linker. As a substitute of TGIC,It is suitable for curing with carboxyl-terminated polyester or acrylic resin to provide exterior durable powder coatings(Due to the toxicity of TGIC ,many countries already banned on using TGIC and Chinese Gov is drafting regulation for restrict to use TGIC either).

Technical parameters

Appearance:	White powder or granular solid
Melting point :	120-125 C
Hydroxyl equivalent:	80-84
Non volatile content:	<0.5%

Application

Provide TGIC-free based exterior durable powder coatings

Use method and Characteristics

- Mixed with other materials extruded.Recommend to design formula by special polyester resin with acid value 22mg KOH/g, dosage 5%; for special polyester resin with acid value 34mg KOH/g, dosage 6% .
- Non-toxic, compared with TGIC,A100 can be used in exterior durable powder coating with non-toxic,non-irritant to skin and safety to human body.
- Low temperature curing property ,typical cure temperature range from 160 to 180 C .
- A100 can enhance charging properties so that powder can obtain better transfer efficiency.
- Due to the activation energy of HAA,we suggest using special polyester for HAA to obtain excellent flow.
- Adding 1% of our specific degassing agent can eliminate pinholes.

Technical parameters

Item	Dosage
Polyester	55
A100 (HAA)	3
L88 Leveling Agent	1
L701 Charge Enhancer	1
L307 Benzoin	0.5
307B Defoaming agent	1
Titanium Dioxide +Barium Sulfate	38
Pigment	0.5
Total	100
Extrude Temperature	100-110 C
Baking Condition	180 C*15mins

Storage

Keep in cool place,keep away from fire. Seal the package after operation.

Packaging

Polyethylene lined multiply paper bag,Net weight:25kg/bag.

Note:Wuhan Yincai Technology co.,ltd. is one who mainly produces HAA

Specific Floating Agent L104

Obtain big wrinkles with strong three-dimensional effect

The Specific Floating Agent L104 contains the substance whose surface tension is extremely low,thus,can produce big wrinkles with strong three-dimensional effect.It works even if base powder contains leveling agent .It is suitable for thick work pieces and castings coating.

Technical parameters

Appearance	White powder
Volatile Content	0.5%

Application

All kinds of powder coatings, matt powder coatings,thick workpieces and castings coating.

Use method

- Dry blend,dosage0.2-1%.
- Texture will be change along with the dosage .Pay attention to bottom exposure.
 - L104 might cause contamination. When using it, must be careful and use it separately.

Starting formulation:

Material	Formulation 1	Formulation 2
Epoxy	22	22
60/40 polyester	33	33
Tio2	10	10
Baso4	33	34.5
Pigment	0.5	0.5
L88 leveling agent	1	--
L307 benzoin	0.5	--
Extrude temperature	100-110 C	100-110 C
Post blend L104	0.8%	0.8%

Characteristics

obtain big wrinkles with strong three-dimensional effect ,It is suitable for thick work pieces and castings coating.

Storage

Store in cool and dry place ,keep away from fire and heat sources.

Packaging

Kraft paper bag (polyethylene liner). Net weight: 25kg/bag.

