

ORGASOL® Ultra-Fine Powders Applications

Coil Coating



Polyamide Powders in Coil Coating



**Texture
Appearance**



**Abrasion
Resistance**



**Exterior
Durability**

IN



Roller
Shutters



Garage
Doors



Roofing

Arkema Polyamide Powders



Similar Abrasion & Scratch Resistance



Uniform Spherical
particle shape by a
unique patented
polymerization
process

PA12

Regular
Texture

Easy clean
ability

PA 11

More
Textured
effect

Improvement
of opacity

Brighter white
finish

Multi-colored
stable effect

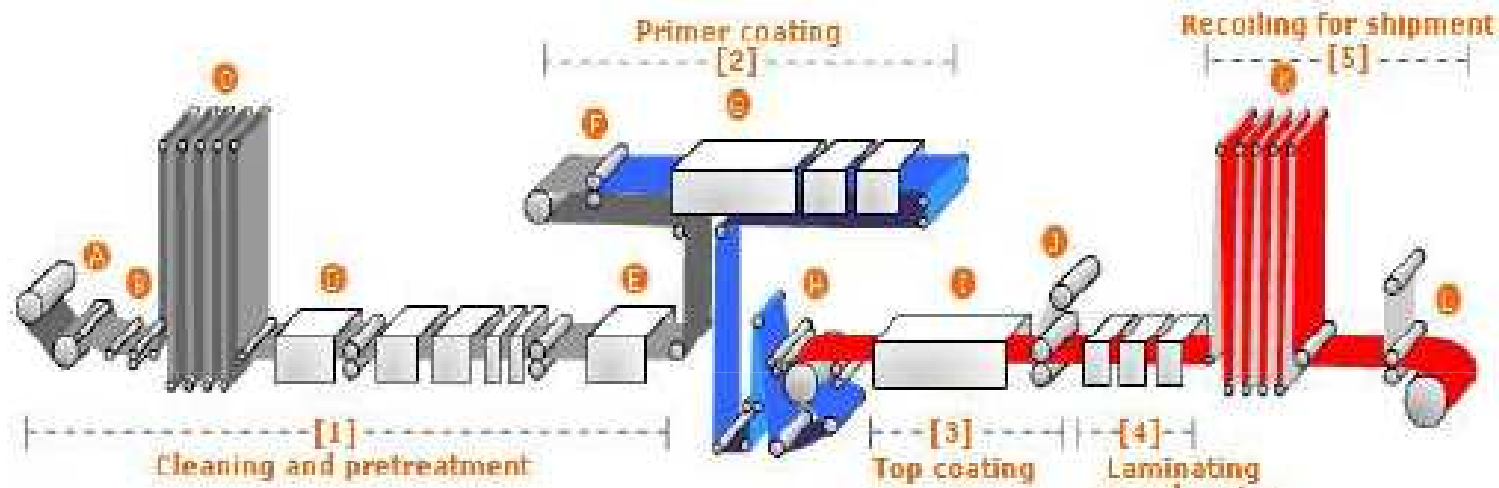


A higher Melting Point
Grinded Particles

White Rilsan Grades

MAC Colour Rilsan
Grades

Focus on Orgasol® in Coil Coating



Orgasol® powders are dispersed as an additive in 2 types of formulations:

« Polyurethane systems » :

- Binder : Polyester resins
- Curing agent : Blocked Polyisocyanate
- Catalyst : Dibutyl Tin Laurate

« Polyester systems » :

- Binder : Polyester resins
- Curing Agent : Melamine
- Catalyst : Acid

Curing conditions : 40-42 s @ 317°C (Peak Metal Temperature = 232-241°C)

Orgasol® in Polyurethane Systems



- Polyurethane Resin cured with Blocked Polyisocyanate

Weight

- Uralac SN831 : Polyester Resin

185

TiO2 (TIPURE R960)

322

Disparlon L1984 (Dispersing agent)

3

Thinner *

92

Grinding

Uralac SN831

279

Uradur YB147 : Blocked Polyisocyanate

60

Tinstab BL 277 (Dibutyl Tin Laurate : catalyst)

7

DC 57 Additive (Wetting Agent)

5

+ 5%
Orgasol®
under
stirring

Thinner *

47

1000

Thinner = Solvesso 150 / Dowanol PnB 75/25

Orgasol® in Polyester Systems



- Polyester resin cured with Melamine

Weight

- Uralac SN831 : Polyester resin

181

TiO2 (Tipure R960)

325

Disparlon L1984 (Dispersing agent)

3

Thinner *

91

Grinding

Uralac SN831

273

Maprenal MF904 : Melamine

49

Catalyst 450 (BYC CHEMIE : catalyst)

6

DC 57 Additive (Wetting Agent)

5

+ 5%
Orgasol®
under
stirring

Thinner *

68

1000

Thinner = Solvesso 150 / Dowanol PnB 75/25

Orgasol® : An easy dispersion process



• Formulation Example: Polyurethane Paints

Mixing by grinding

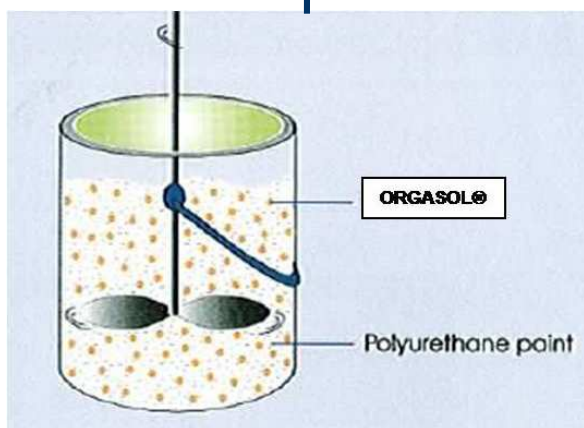
- Polyurethane resin
- TiO₂
- Solvents

Turbine Dispersion

- Introduction of additives, catalysts, anti-craters & **Orgasol**

Solvent Addition

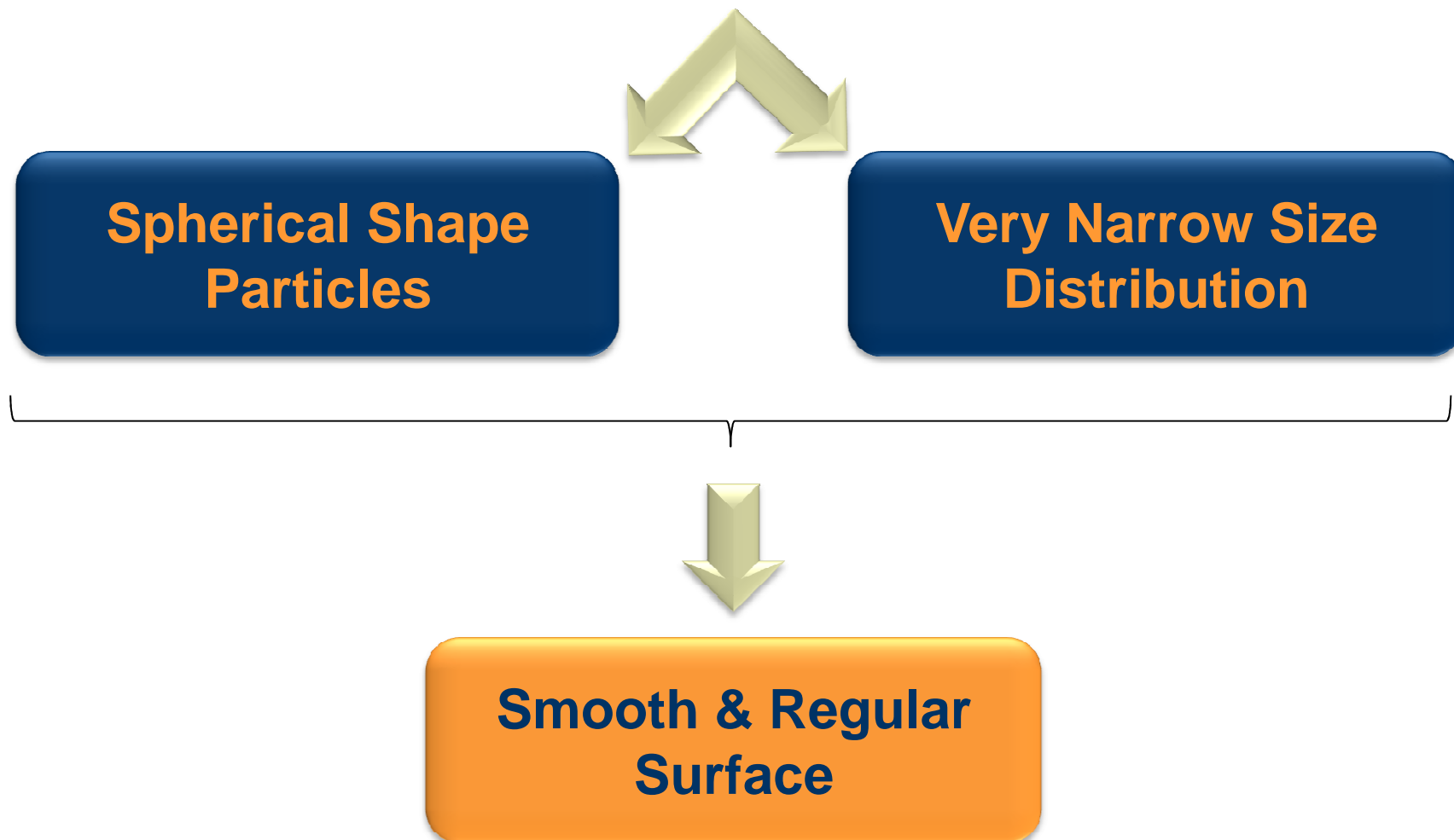
- Adjustment of viscosity



Orgasol®: A specific Texture



- Orgasol is obtained by a **unique patented polymerization process**



Orgasol®: A specific Texture



- Texture also depends on:

Powder Average Particle Size

- 2002D ES3, ES4, ES5 & ES6
- ↗ Particle Size ↗ Roughness

Ratio particle size/ paint thickness

- Paint thickness is about 15-25 μm



% of Orgasol® Incorporation

- 1 to 10%
- 3-5% in most of the case

Reactivity of the paint

- Depends on Industrial Application Conditions
- Adjustments of reactivity parameters

Reactivity of the paint in Coil Coating



- **Industrial Application conditions**

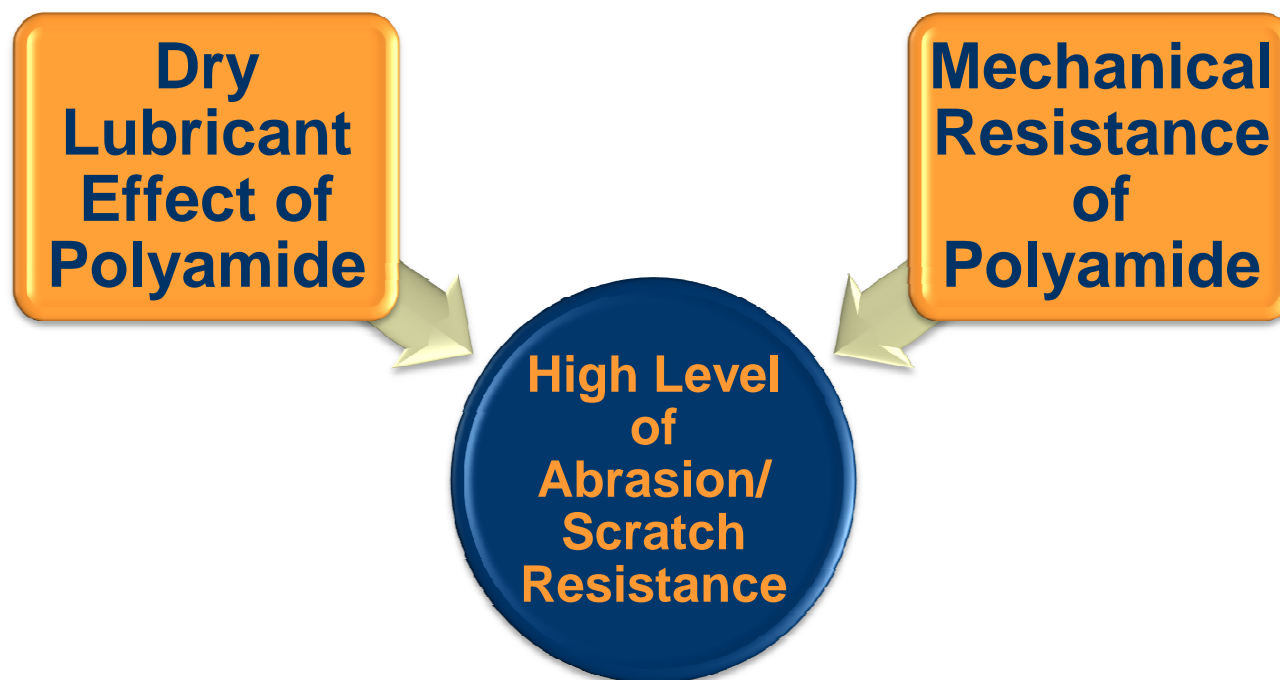
- On line application / curing
- Line Speed : 200 m/min
- Tendency to increase speed of the lines

Ex : curing time 15 sec on thin aluminium plate (0.2 mm)

- **Reactivity parameters adjusted by**

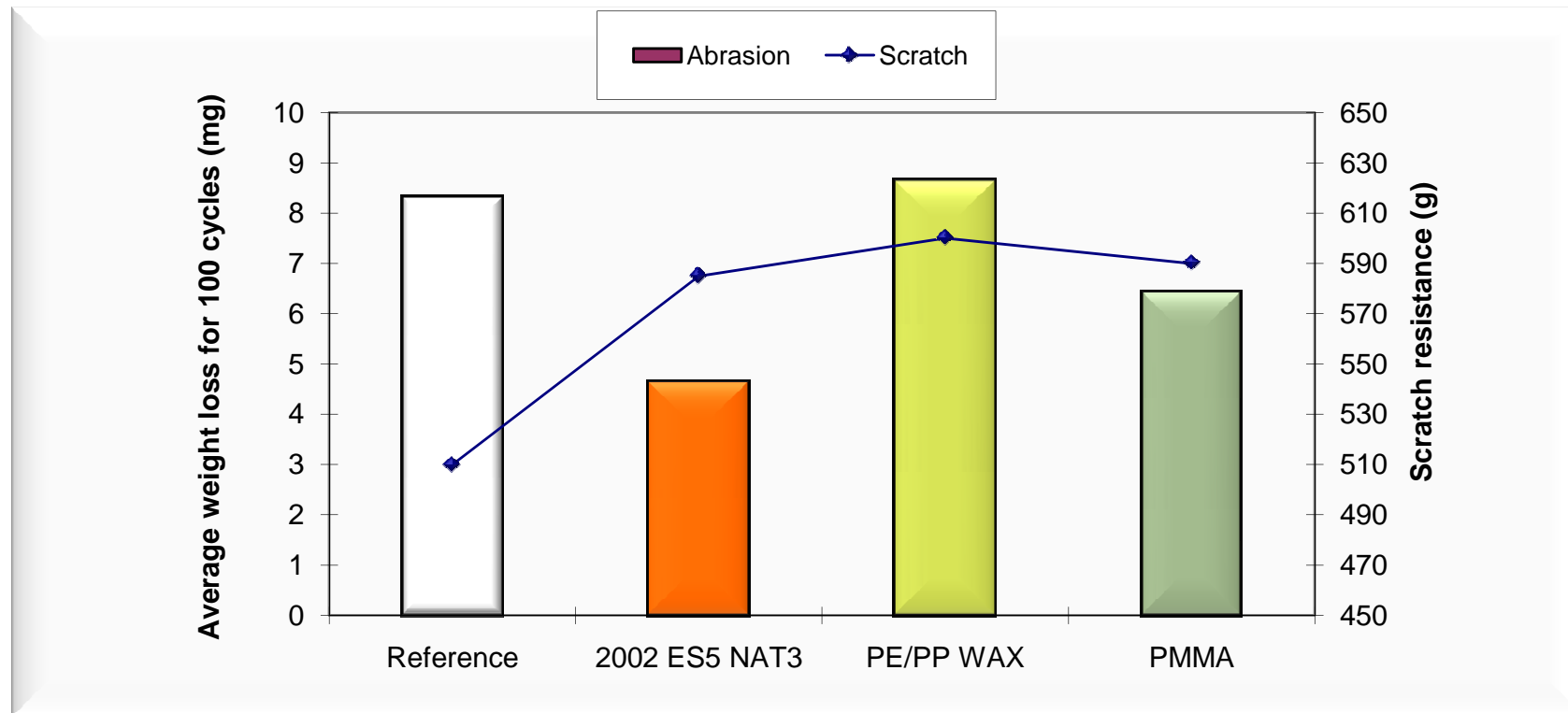
- Selecting the curing resins (molecular weight, functionality, ...)
- Catalyst amount
- Polyester Systems are more reactive than Polyurethane Systems

Analysis of Orgasol® Main Properties



Especially interesting for high demanding applications like garage doors, rolling shutters and roofing

Abrasion/Scratch Resistance



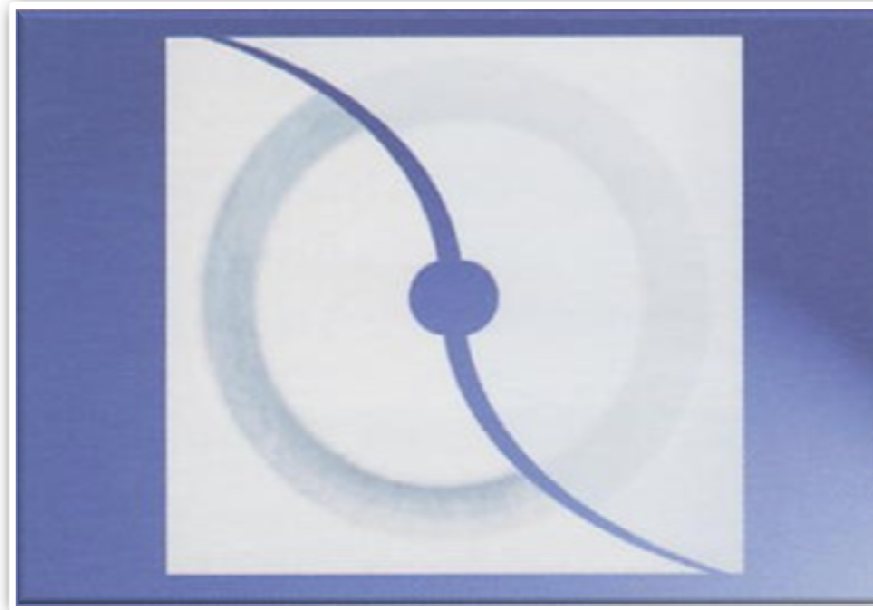
**Orgasol®: an additive to largely improve
Abrasion Resistance in Coil Coating**

Focus on Abrasion Resistance



- Paint thickness = 20 μm

With Orgasol®
Concentration : 5%



Without Additives

**Orgasol®: an additive to largely improve
Abrasion Resistance in Coil Coating**

Comparison of main types of coil coating



Note: 1 to 5 rating runs in descending order of performance

Polyamide Powder
Addition
























Performance → Type of paint ↓	Easy application	Hardness	Flexibility	Scratch-resistant	Stain-resistant	Solvent-resistant	Chemical-resistant	Corrosion-resistant	Dirt-resistant	Exterior durability
Standard polyester	1	2	2	3	2	2	2	2	2	3
High durability polyester	1	2	2	3	2	2	2	2	2	1
Silicon polyester	1	2	4	3	2	2	2	2	3	2
Polyurethane	1	2	1	2	2	2	2	2	2	2
Polyamide polyurethane	1	1	1	1	1	2	2	2	2	1
PVDF	1	2	1	1	1	1	1	2	2	1
Plastisol	1	4	1	1	4	4	1	1	4	3
Epoxy	2	1	4	2	1	1	1	1	2	5

(source ECCA)

Orgasol® assets vs indirect competitors



	Additives Powders				
		Polyethylene/ Polypropylene	PMMA	Silica	PTFE - PE
Abrasion Resistance					
Scratch Resistance					
Gloss Reduction					
Texturing Effect					
Other Properties	Good Slip Control/ Improve Cleanability		Poor Solvent resistance in some cases	Increase in viscosity	Poor stability/ Recoatability issue



ORGASOL® ANNEX



Orgasol®: Nomenclature



PA nature (**2** for PA12, **1** for PA6, **3** for PA6-12)

Particle size (**UD** for 5 µm, **EXD** for 10 µm, **D** for 20 µm,
ES3 - 6 for 30 - 60 µm)

2002 EXD NAT

Melt Viscosity indication
1 < 2

Color (**NAT** stands for natural)

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