

POLYURETHANE COATING



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- Company Profile
- 2K PU system: Resins, Isocyanic hardener and Formulations
- 1K PU moisture curing
- Other sectors

SAPICI - THE HISTORY

1936



SAPICI S.p.A.
is established

1962

Entry in the field of
polyurethane resins
for varnish

1987

Opening new plant
in Cernusco S/N
(Milan)

1995

Production of
solvent-based and
solvent-free
polyurethane
adhesives for food
flexible packaging

1997

Production of
polyurethane
adhesives for
industrial use;
ISO 9001

2003

SAPICI joins in the
program
“Responsible Care”

2004



Opening new plant in San
Cipriano Po (Pavia) for
lower free monomer
production

2006



Opening new plant
SAPICI CHINA in
Zhuhai;
OHSAS 18001



SAPICI - HEAD OFFICE AND PLANTS



CERNUSCO S/N



SAN CIPRIANO



CARONNO PERTUSELLA



ZHUHAI

SAPICI - ITALY

CARONNO PERTUSELLA

Head office
Executive office
Sales office
Administration dept

CERNUSCO SUL NAVIGLIO

Main plant
Surface area 17.000 m²
R&D Laboratory
QC Laboratory
Purchase office

MILANO

ROMA

SAN CIPRIANO PO

New plant
Surface area 70.000 m²
R&D Laboratory
QC Laboratory

SAPICI - CINA



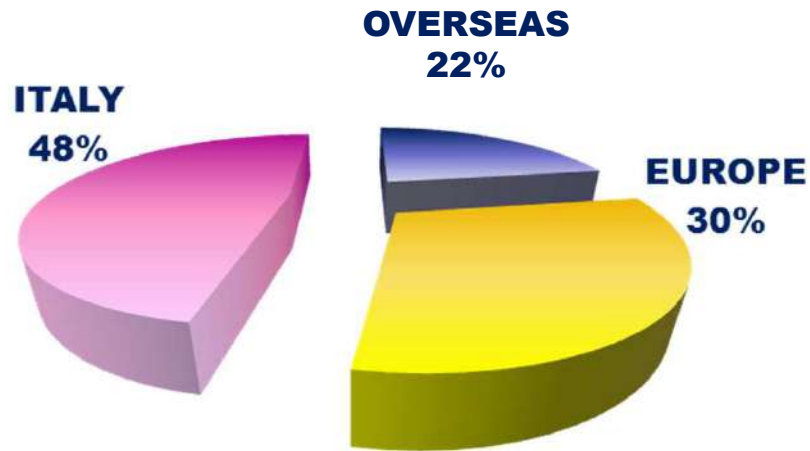
ZHUHAI (Guangdong) Plant

Surface area 80.000 m²

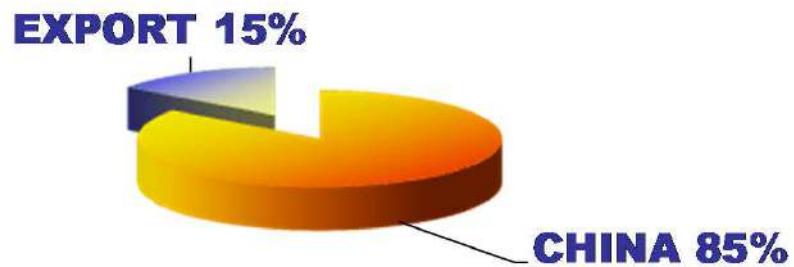
QC Laboratory

SAPICI - SALES IN THE WORLD

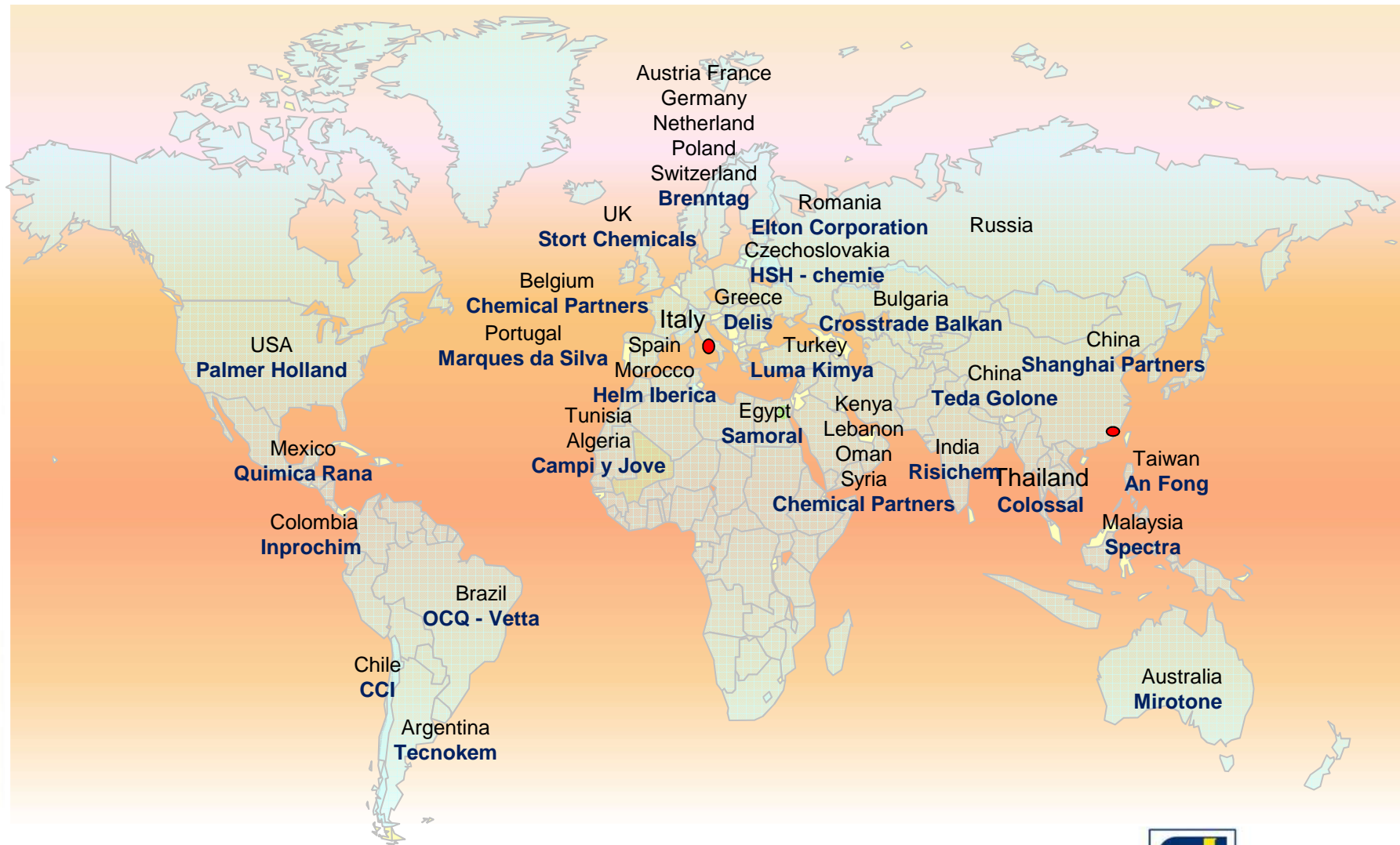
SAPICI ITALY 2011



SAPICI CHINA 2011



GLOBAL SALES NETWORK



SAPICI - VISION

How we imagine our company

We set these main goals:

- **Safety** for workers, producers of paint and final users
- **Respect** for environment
- Customer **satisfaction**
- To be considered as **leader** company in our sector

PRODUCT RANGE OVERVIEW

POLYURETHANE

PREPOLYMER	POLYETHER	PPG	POLURCAST	450 - 620 - 750		
		PTMEG	POLURCAST PE	70D - 80A - 95A		
	POLYESTER	POLYETHER	POLURCAST PET	85A - 95A		
		SOLVENT BASED	MOISTURE CURING	UCOPOL M	4054 - 0909 - 33/60 - w708	
	1K	HIGH SOLID	OLEOURETHANIC	UCOPOL OL	17/60 - 89/55 - W41/55	
		WATERBORNE	MOISTURE CURING	POLURGREEN M	570	
	COATING	WATERBORNE	PUD Coalescent FREE	Bluepur	2937	
			PUD	HYDROREXIN PU	5855 - 1083 - 1150 - 6319	
		2K	WATERBORNE	HYDROPHYLIC ISOCYANATE	HYDRORENE	10 - 33
			SOLVENT BASED	TRADITIONAL	REXIN	HS129 - 143 - 1561 - 590 - HG70 - 2268
TRADITIONAL		REXIN DP		127 - 408 - 412 - 05100 - 6258		
ADHESIVES		INDUSTRIAL	SOLVENT BASED	POLURENE	AD - HRB - AC510 - KC - OK.D - M75 - MT100	
	POLURGREEN			ES - XPAB - ES.M - ES.P		
	FOOTWEAR	SOLVENT BASED	LOW MONOMER	POLURGREEN 0.1	AD01 - HR01 - OK01	
			BLOCKED	POLURENE LP	100LV - 90 - 90LV - BK50AE	
	FLEXIBLE PACKAGING	SOLVENT FREE	NCO TERMINATED	POLURENE LPI	IAX3719 - 1272 - 34NT - 506 - 604	
			SOLVENT BASED	UNI - DUR E	1001 RN - 2002 ARFE	
		SOLVENT BASED	HYDRODISPERSING	UNI - DUR WB	7000	
			GENERAL PURPOSE	POLURENE FP	114 A / C	
		WATERBORNE	SOLVENT FREE	HIGH PERFORMANCE	POLURFLEX	300 A / C
				R40 FREE	POLURFLEX	401 A / C
WATERBORNE	SOLVENT FREE	GENERAL PURPOSE	POLURENE	133B / 412		
		HIGH PERFORMANCE	POLURFLEX	900 A / C		
WATERBORNE	SOLVENT FREE	R40 FREE	POLURFLEX	451 A / C		
		PUD	POLURFLEX	WBX		

SAPICI - APPLICATION



Leather



Parquet

Exterior



Packaging



Textile



Sponge and padding



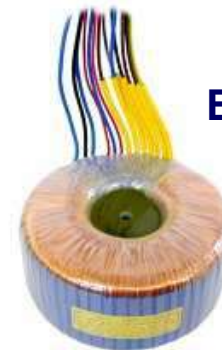
Sandwich panels



Construction



Cast PU

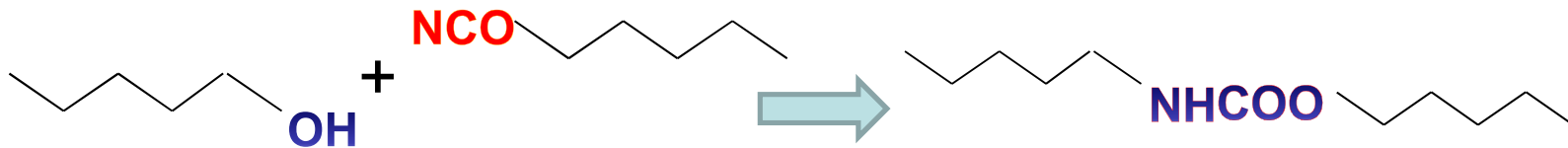


Electrical insulation

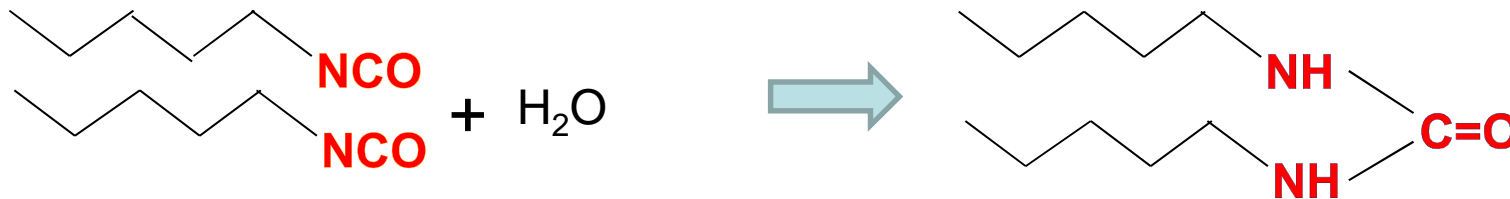


POLYURETHAN COATING

2K PU: Oxydrilic Resin + Isocyanic Hardener



1K PU: Isocyanic Prepolymer + Moisture



1K PUD: Waterborne polyurethanic dispersion



2K PU - OXYDRILIC RESIN

- **Polyester resin.** Large excess of OH. High performance resins
- **Short oil:** Smaller OH number. Soluble in aromatic solvent. The most versatile range of resins
- **Acrylic resin:** OH number similar to short oil, rigid resin, non yellowing, low body filling, not compatible with all hardener

Oil length: percent of oil quantity (triglyceride like) calculated on solid content.

2K PU - ALKYD RESIN - OILS

Olive oil: fast film formation with excellent solvent release. High chemical resistance.

Castor oil: plasticising effect with excellent filler and pigment wettability. In dehydrated version is a drying oil.

Coconut oil: short chain saturated fatty acids to give high gloss and polishability.

Soybean oil: excellent color retention and flexibility. Halfdrying oil.

Linseed oil: high insaturations number that gives drying behaviour


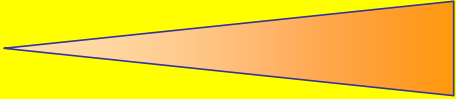
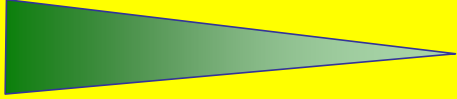
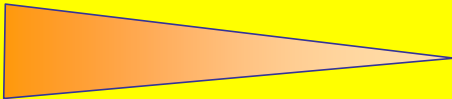
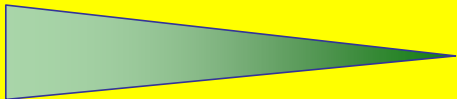
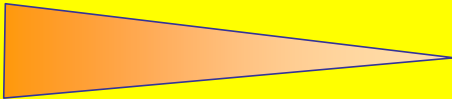
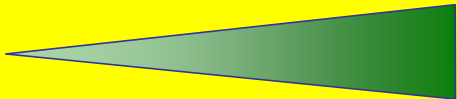
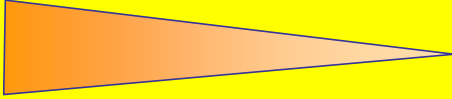
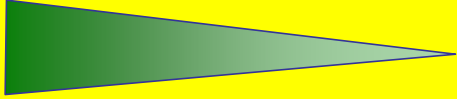
ALKYD RESIN - OILS

Oil	Reaction rate	Color	Gloss Retention
Linseed			
Talloil			
Castor			
Soybean			
Coconut			

CROSSLINKING - HARDENER

		Aliphatic	Adduct	Mixed aromatic aliphatic	Aromatic Isocyanurate	
Reactivity	-	→				+
Pot Life	+	←				-
Abrasion	-	→				+
Elasticity	+	←				-
Viscosity	+	←				-
		Aliphatic	Mixed aromatic aliphatic	Aromatic Isocyanurate	Adduct	
Yellowing	+	←				-

CROSSLINKING

	Polurene AD	Polurene HRB	Rexin HS129	Rexin 143
Reactivity				
Pot Life				
Elasticity				
Viscosity				

COATING - CROSSLINKING

- Sealer 60-70%
- Matt topcoat 70-80%
- High gloss topcoat 110-120%

COATING - SEALER

Resins for Clear & Pigmented Application

Rexin HS129: fast curing and solvent release

Rexin 143: flexibility and substrate wetting

Polurene AD: bodyfilling and elasticity

Polurene HRB: fast curing and sandability



CLEAR SEALER

Component A

- **REXIN HS 129 / REXIN 143** 70-75%
 - Filler: body filling 3-4%
 - Zn Stearate: sanding 2-3%
 - Bentone: prevent settling 0,2-0,5%
 - Mix solvent: viscosity control 15 - 24%
 - Additive: improve properties 1-2%
-
100%

Component B

- **POLURENE AD / POLURENE HRB** 50-60%
 - Mix solvent: viscosity control 40-50%
-
100%

Mixing ratio A:B - 2:1

Crosslinking 60-70%



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CLEAR SEALER

REXIN 590: High transparency, high body filling, perfect substrate wettability

REXIN 1561: Easy to formulate, perfect balance of properties

REXIN C 760: Excellent adhesion on substrates, excellent hardness, high body filling.

REXIN 2039: High transparency, high branching to give hard final film

PIGMENTED SEALERS

Component A

- **REXIN 143** 35-40%
 - Filler: body filling 35-40%
 - Pigment: 5-10%
 - Zn Stearate: sanding 2-3%
 - Bentone: prevent settling 0,1-0,2%
 - Mix solvent: viscosity control 10-15%
 - Additive: improve properties 1-2%
-
100%

Component B

- **POLURENE AD / POLURENE HRB** 40-50%
 - Mix solvent: viscosity control 50-60%
-
100%

Mixing ratio A:B - 2:1

Crosslinking 80-90%



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PIGMENTED SEALER

REXIN 160: High filler wettability, and elasticity can be filled at high percent.

REXIN LS124: High elasticity and adhesion on metal.

HARDENER FOR SEALER

POLURENE SB 50 AB: Flexible version of traditional isocyanurate HRB

POLURENE KC: High wettability, fast drying and adhesion on exotic wood

POLURENE 7581: High resistance in hard weathering condition

POLURENE 60T : easy to formulate give the perfect balance of final properties

COATING – MATT TOPCOAT

Resins for Clear Application

Rexin HS129: matting efficiency

Polurene AD: body filling elasticity

Polurene HRB: fast curing and surface hardness



Resins for Pigmented Application

Rexin HS129: matting efficiency

Rexin 143: pigment wetting

Polurene OK.D.S: reduced yellowing

TOPCOAT MATT

Component A

- **REXIN HS 129 / REXIN 143** 70-75%
- Silica: matting agent 3-4%
- PE Wax: matting agent & surface smoothness 1,5-2%
- Bentone: prevent settling 0,2-0,5%
- Mix solvent: viscosity control 15 - 24%
- Additive: improve properties 1-2%

.....
100%

Component B

- **POLURENE AD / POLURENE HRB** 50-60%
- Mix solvent: viscosity control 40-50%

.....
100%

Mixing ratio A:B - 2:1

Crosslinking 70-80%



PIGMENTED TOPCOAT MATT

Component A

- **REXIN HS 129 / REXIN 143** 50-60%
 - Silica: matting agent 2-3%
 - PE Wax: matting agent & surface smoothness 1-1,5%
 - Pigment 25-30%
 - Mix solvent: viscosity control 5-10%
 - Additive: improve properties 1-2%
-
100%

Component B

- **POLURENE OK.D.S** 50-60%
 - Mix solvent: viscosity control 40-50%
-
100%

Mixing ratio A:B - 2:1

Crosslinking 80-90%



MATT TOPCOAT

Rexin 590: High matting efficiency, High transparency, lens effect

REXIN 1561: Easy to formulate, perfect balance of properties

REXIN C 760: Excellent adhesion on substrates, excellent hardness, high body filling.

REXIN 2039: High transparency, high branching to give hard final film

COATING – TOPCOAT HIGH GLOSS

Resins for Clear Application

Rexin HG70: high gloss and polishability

Polurene AD: body filling and elasticity

Polurene AC510: fast curing and surface hardness



Resins for Pigmented Application

Rexin HG70 : high gloss and polishability

Polurene OK.D.S: reduced yellowing

POLURENE AC510

Technical data

- *Solid Content*.....50%
- *Solvent*.....Butyl Acetate
- *% NCO*.....7,2
- *Viscosity @ 23°C*.....150mPa.s
- *% free monomer*.....1 max
- *Color*.....1 max



POLURENE AC510

Properties & Application:

- ✓ Suitable for high gloss fast drying finish
- ✓ High compatibility with aromatic solvent
- ✓ High compatibility with acrylic resin
- ✓ High compatibility with Nitrocellulose & CAB
- ✓ Low viscosity
- ✓ Long Pot-Life
- ✓ Flexibility



TOPCOAT HIGH GLOSS

Component A

- **REXIN HG 70** 70-75%
 - Mix solvent: viscosity control 23 - 28%
 - Additive: improve properties 1-2%
-
100%

Component B

- **POLURENE AD / POLURENE AC510** 50-60%
 - Mix solvent: viscosity control 40-50%
-
100%

Mixing ratio A:B - 1:1

Crosslinking 110-120%

PIGMENTED TOPCOAT HIGH GLOSS

Component A

- **REXIN HG 70** 40-45%
 - Pigment: 25-30%
 - Mix solvent: viscosity control 20-25%
 - Additive: improve properties 1-2%
-
100%

Component B

- **POLURENE OK.D.S** 50-60%
 - Mix solvent: viscosity control 40-50%
-
100%

Mixing ratio A:B - 2:1

Crosslinking 80-90%

PIGMENTED TOPCOAT HIGH GLOSS

REXIN 2268: No yellowing resin. Excellent compatibility with OH acrylic resins.

REXIN AP 572: High hardness and stain resistance.

REXIN DS 256: High body filling

REXIN DP 127: High chemical-physical properties. Perfect polishability

REXIN 1523: High body filling and high hydrolysis resistance

KEY POINT

3 Resins and 3 Hardener give you the possibility to formulate a complete High Quality Wood Coating Range

REXIN HS 129
REXIN 143
REXIN HG 70

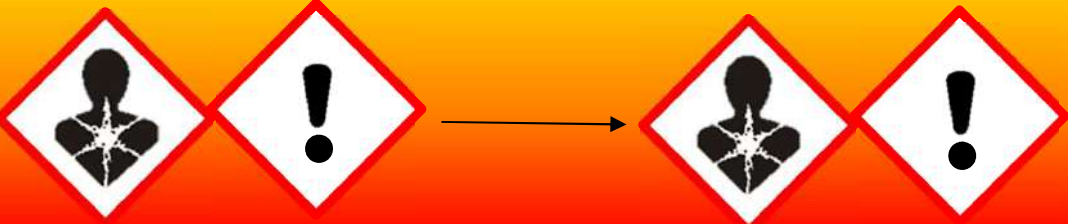
POLURENE AD
POLURENE HRB
POLURENE OKDS

For the Best Quality you must only choose in our product range to have the best aspect and best performance on the market

POLURGREEN 01 – LOW MONOMER

**Aromatic
Isocyanate**

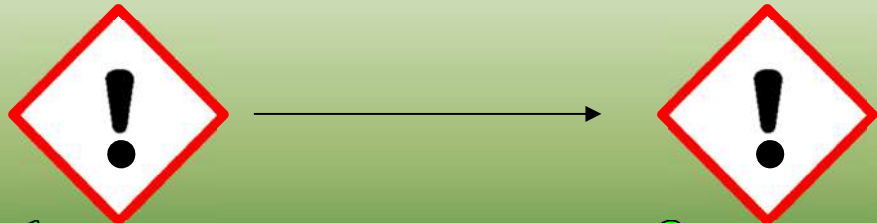
DANGER



Standard products
(free TDI < 0,5%)

COATING

WARNING



Polurgreen
(free TDI < 0,1%)

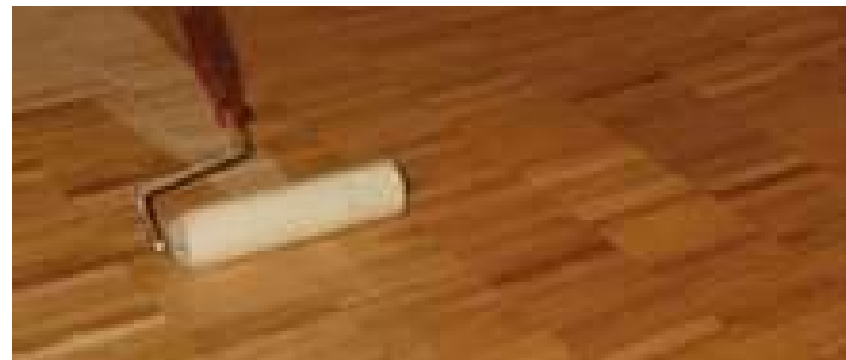
Coating

MOISTURE CURING

Prepolymer Functionality

High Performance

Formulation Skill



1K - SEALER & MATT TOPCOAT

Starting Formulation

✓ POLURGREEN M570	73%
✓ Matting paste	26%
✓ Additive BF5	2%

.....
100

Matting Paste

✓ Levelling agent	3%
✓ Zn stearate	1,8%
✓ PP wax	1,8%
✓ Silica	3%
✓ Butyl acetate	87,4%
✓ Polurene PTSI	3%

.....
100%

Characteristics:

• Application Solid content	54%
• Density (g/cm ³)	1,05
• COV (g/l)	485
• Viscosity (Ford cup # 4 at 20 °C)	22"
• Dust free	30' ab.
• Touch free	2h ab.
• Gloss 60°	60
• Taber CS17 mg lost (1000 cycles)	36

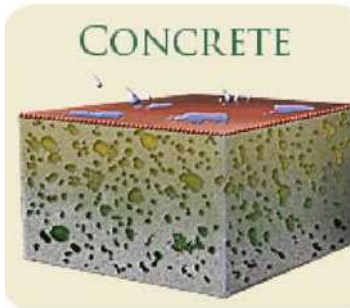


BUILDING & CONSTRUCTION

Concrete Primer

Ready to use

Ucopol M 602



Self levelling flooring

Rexin HSP05100

Polurene MD 1500

Polurene LP 100 LV



Top coat

Rexin DP127

Polurene M75



Waterproofing Membrane

Ucopol M 551

Ucopol M 541

Ucopol M 350/80 AB



Polyurea

Polurene LPI 609

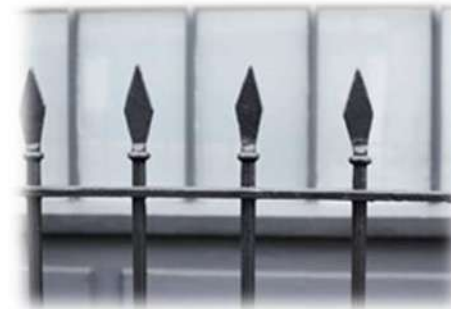


METAL COATING

**Wash primer
UCOPOL M 2851**

**DIY formulation
UCOPOL OL W 41 55 OD
UCOPOL OL 89 55 OD**

**Industrial coating
POLURGREEN XP AB
REXIN LS124**



INKS & PIGMENTED PASTE

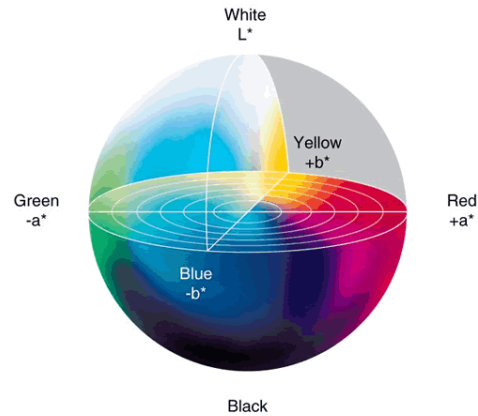
Rexin 2281/70X

Rexin DP 127

Rexin DP 6256

Polurene OK.D AE

Polurene FP 75





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Thanks for your attention