



Italian Polyurethane Manufacturer

SINTOPOL®

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THE COMPANY

SINTOCHEM is an Italian Company that, since 1985, devoted itself to the production and commercialisation of special resins apt for formulation of inks designed for the flexible packaging industry.

Currently **SINTOCHEM** sells its own resins all over the world, it is leader in the Italian market in the field of polyurethanes for inks and it offers a complete choice of products with a wide range of properties. These results have been obtained thanks to the elevate quality standards and to the constant attention dedicated to research and development of new products.



SINTOPOL®

Resins for printing inks

1. Polyurethane Resins, Not Reactive for combination with Nitrocelluloses and Ketone Resins :

PRODUCT NAME	SOLIDS	SOLVENT	FILM-HARDNESS	USE and TYPICAL CHARACTERISTICS
SINTOPOL® DP 50/100%	100%	-----	Very soft	For production of predispersed and as substitute of monomeric plastifier in Nitro-Urethane systems.
SINTOPOL® SP 75/100%	100%	-----	Very soft	For production of flexo- and rotogravure inks for foodstuff-packaging. Improvement of gloss, blocking-resistance, heatsealresistance, adhesion on PE and on PP.
SINTOPOL® SP 75/80%EA	80%	Ethylacetate	Very soft	As above.
SINTOPOL® SP 75LV/100%	100%	-----	Very soft	As above.
SINTOPOL® SP 75LV/80%EA	80%	Ethylacetate	Very soft	As above.
SINTOPOL® DP 90/100%	100%	-----	Soft	For production of flexo and rotogravure inks. In combination with Nitrocellulose confer good adhesion on PE and on PP.
SINTOPOL® DP 90/75%EA	75%	Ethylacetate	Soft	As above.
SINTOPOL® MD 95/100%	100%	-----	Soft	For use as above, but with higher filmhardness. Excellent adhesion on treated polyolefines. Low odour.
SINTOPOL® MD 95/75%EA	75%	Ethylacetate	Soft	As above.
SINTOPOL® MD 100/100%	100%	-----	Soft	As above.
SINTOPOL® MD 100/80%EA	80%	Ethylacetate	Soft	As above.
SINTOPOL® MD 110/75%EA	75%	Ethylacetate	Hard	Special type for rotogravure and flexographic inks. Improved heatresistance. Other characteristics as above.
SINTOPOL® MD 110/65%EA	65%	Ethylacetate	Hard	As above.
SINTOPOL® MD 120/60%EA	60%	Ethylacetate	Very hard	Intended for formulation of gravure inks with good adhesion on a wide range of packaging substrates. Other characteristics as above.
SINTOPOL® DP 160-C/45%EA	45%	Ethylacetate	Hard	Special semi-aliphatic PU for flexo and rotogravure inks. Intended for formulation of inks for pasteurization with good adhesion on PET and PA.
SINTOPOL® DP 166/42%EA	42%	Ethylacetate	Hard	As above with good solubility in Alcohol and good pigment wetting property.
SINTOPOL® DP 266/42%EA	42%	Ethylacetate	Very hard	Special aliphatic PU for flexo and rotogravure inks. Intended for formulation of inks for pasteurization and sterilization with very good adhesion on PE, PET, PP, OPA, Saranized or metalized films, paper and Aluminium. Due to its aliphatic nature, it has a very good resistance to UV. Good solvent release and excellent cohesion in laminations. Non-yellowing under effect of UV rays and the good resistance to saponification.
SINTOPOL® DP 180/30%EA	30%	Ethylacetate	Hard	As above with very High Molecular Weight and better lamination bond strength. Apt for mono-solvent systems. Modifier apts to viscosity increasing in system inks.

2. OH-reactive Resins :

SINTOPOL® E222/100%	100%	-----	-----	Partially tri-functional saturated polyester resin for formulation of two-components rotogravure inks. Good gloss and good hiding power.
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THE PRODUCTS

The **SINTOPOL**[®] are non-reactive, flexible resins, apt to the formulation of inks for the modern printing technologies, flexography and rotogravure and functional over various printing supports.

Moreover, the **SINTOPOL**[®] are characterized by:

- good solubility,
- fast solvent release,
- excellent cohesion,
- special compatibility to nitrocellulose,
- low odour
- efficient adhesion over various plastic films.

SINTOPOL® are non-reactive polyurethane resins characterized by a special compatibility to nitrocellulose, excellent cohesion, effective adhesion, good solubility, low odour and fast solvent release. They are appropriate for internal and external printing and in the most cases are available in 100% solid content versions, without any volatile solvent.

The **SINTOPOL**® range consists of resins able to form films with different hardness and viscosity to deal with various printing requirements.



SINTOPOL® are easily soluble in all the solvents with a moderate polarity, such as: ketones, esters, ethers, alcohols.

The inks obtained from **SINTOPOL**® resins have very fast dry-times, high hot-sealing resistance and good adhesion on a multiplicity of plastic films.

The new range of semi-aliphatic and pure aliphatic products allows to realize nitro free inks and inks for applications suitable for pasteurization and sterilization processes.



SINTOPOL® are appropriate for internal and external printing and in the most cases are available in 100% solid content versions, without any volatile solvent.

The **SINTOPOL®** range consists of resins able to form films with different hardness and viscosity to deal with various printing requirements.

The hardness sequence, from the softest to the hardest, is the following:

PLASTIC FILM

SINTOPOL® SP 75 LV

SINTOPOL® SP 75

SINTOPOL® MD 95

SINTOPOL® MD 100

SINTOPOL® MD 110

SINTOPOL® MD 120

HARD FILM

Generally the softest have the better performance as plastifiers, while the hardest are less flexible and have superior adhesion properties.

SINTOPOL® are easily **soluble** in all the solvents with a moderate polarity, such as: ketons, esters, ethers, alcohols.

Solubility in ethyl alcohol change as the following series:

Solubility in ethyl alcohol:

SP 75LV > SP75 > MD95 > MD 100 > MD 110 > MD 120

The inks obtained by **SINTOPOL®** resins have very fast dry-times (they are suitable also to printing rate higher than 300 m/min), high hot-sealing resistance and good adhesion on a multiplicity of plastic films.

The thermo-sealing resistance of nitrocellulose-based inks modified with **SINTOPOL®** and Titanium Dioxide can reach 120-130°C for almost 1-2 seconds. Using an appropriate cross-linking catalyst, the thermo resistance could go over 180°C after 24-48 hours.

The thermo-resistance increase could be obtained also introducing in the ink formulation, when it is possible, a greater nitrocellulose percentage.

OH- REACTIVE RESINS

SINTOCHEM produces also hydroxylate polymers for external printing inks and varnishes with a high gloss degree and scratch resistance.

SINTOPOL[®] E222/100% (Saturated Polyester Resin) is currently used in formulation of two components inks (2K), usually cross linked with isocyanate adducts.

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® SP 75	100%	—	VERY SOFT	<ul style="list-style-type: none">•For production of flexo- and rotogravure inks for foodstuff-packaging.•Improvement of gloss, blocking-resistance, heat-seal resistance, adhesion on PE and on PP.
	90%	ETHYL ACETATE	VERY SOFT	
	80%	ETHYL ACETATE	VERY SOFT	

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® SP 75 LV (LV= LOW VISCOSITY)	100%	—	VERY SOFT	<ul style="list-style-type: none"> •For production of flexo- and rotogravure inks for foodstuff-packaging. •Improvement of gloss, blocking-resistance, heat-seal resistance, adhesion on PE and on PP.
	90%	ETHYL ACETATE	VERY SOFT	
	80%	ETHYL ACETATE	VERY SOFT	

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® MD 95	100%	—	SOFT	<ul style="list-style-type: none">•For production of flexo and rotogravure inks for foodstuff-packaging but with higher film hardness.•Excellent adhesion on treated polyolefines.•Low odour.
	75%	ETHYL ACETATE	SOFT	

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® MD 100	100%	—	SOFT	<ul style="list-style-type: none">•For production of flexo and rotogravure inks for foodstuff-packaging but with higher film hardness.•Excellent adhesion on treated polyolefines.•Low odour.
	80%	ETHYL ACETATE	SOFT	

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® MD 110	75%	ETHYL ACETATE	HARD	<ul style="list-style-type: none"> •Special type for rotogravure and flexographic inks. •Improved heat-resistance. •Apt for lamination. •Other characteristics as MD100.
	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® MD 120	60%	ETHYL ACETATE	VERY HARD	<ul style="list-style-type: none"> •Intended for formulation of gravure inks with good adhesion on a wide range of packaging substrates •Other characteristics as MD110.

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® DP 90	100%	—	SOFT	<ul style="list-style-type: none">• For production of flexo- and rotogravure inks• In combination with Nitrocellulose confer good adhesion on PE and on PP.
	75%	ETHYL ACETATE	SOFT	
	73%	ETHYL ACETATE	SOFT	

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® DP 50	100%	—	VERY SOFT	<ul style="list-style-type: none">•For production of predisperded and as substitute of monomeric plastifier in Nitro-Urethane systems.

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
<p>SINTOPOL® DP 160C/45%</p>	<p>45%</p>	<p>ETHYL ACETATE</p>	<p>HARD</p>	<ul style="list-style-type: none"> •Special semi-aliphatic PU for flexo and rotogravure inks. •Intended for formulation of inks for pasteurization with good adhesion on PET and PA.
	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
<p>SINTOPOL® DP 166/42%</p>	<p>42%</p>	<p>ETHYL ACETATE</p>	<p>HARD</p>	<ul style="list-style-type: none"> •Special semi-aliphatic PU for flexo and rotogravure inks with good solubility in Alcohol and good pigment wetting property. • Intended for formulation of inks for pasteurization with good adhesion on PET and PA.

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® DP 266/42%	42%	ETHYL ACETATE	HARD	<ul style="list-style-type: none">• Special aliphatic PU for flexo and rotogravure inks. Intended for formulation of inks for pasteurization and sterilization with very good adhesion on PE, PET, PP, OPA, Saranized or metalized films, paper and Aluminum. Due to its aliphatic nature, it has a very good resistance to UV.• Good solvent release and excellent cohesion in laminations. Non-yellowing under effect of UV rays and the good resistance to saponification.

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® DP 180/30%	30%	ETHYL ACETATE	HARD	<ul style="list-style-type: none">• Special aliphatic PU with very High Molecular Weight and better lamination bond strength.• Apt for mono-solvent systems. Modifier apt to viscosity increasing in system inks. For flexo and rotogravure inks.• Intended for formulation of inks for pasteurization and sterilization with very good adhesion on PE, PET, PP, OPA, Saranized or metalized films, paper and Aluminum. Due to its aliphatic nature, it has a very good resistance to UV.• Good solvent release and excellent cohesion in laminations. Non-yellowing under effect of UV rays and the good resistance to saponification.

SINTOPOL® & APPLICATIONS

	SOLID CONTENT	SOLVENT	FILM HARDNESS	USE AND TYPICAL CHARACTERISTICS
SINTOPOL® E 222/100%	100%	—————	—————	<ul style="list-style-type: none">•Partially tri-functional saturated polyester resin for formulation of two-components rotogravure inks.•Good gloss and good hiding power.

Storage:

All the **SINTOPOL®** are stable for two years at least if stored in a dry and cool place and in their original packaging.

All the SINTOPOL®:

According to FDA regulations are made with permitted substances for use as components of articles in food packaging (#21 CFR 175.105 ; #21 CFR 175.300; #21 CFR 177.1680 about Polyurethane resins).

Are produced without Tin catalysts and do not contain any Tin organic compound.

Are produced in agreement with EU Regulation 10/2011, Commission Directive 2002/72/EC, Council Regulation 1907/2006 EC (REACH), Swiss Ordinance SR 817.023.21.

SINTOPOL® doesn't contain substances included in EuPia Exclusion List and , as mentioned in this EuPia Exclusion List Selection Criteria A., doesn't contains substances classified as carcinogenic, mutagenic, toxic for reproduction, toxic or very toxic.



SINTOCHEM s.r.l.

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