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Technical data sheet

Polimix® 150N

Version: January 2016

Chemical composition

Polymeric plasticizer based on adipic acid and polyhydric alcohols.

Specifications de forniture

Characteristics	Unit	Value	Test method	
Density at 25°C	g/ml	1.037 - 1.047	GM 012	ASTM D 4052-96
Refractive index n^{20}_{D}		1.462 - 1.466	GM 020	ASTM D 1045-95
Colour	Pt – Co	150 max.	PL02F	ASTM D 1045-95 ASTM D 1209-00
Acidity	mgKOH/g	1.5 max.	PL02C	ASTM D 1045-95
Viscosity at 25°C	mPa·s	1300 - 1700	GM 022	ASTM D 445-96

Polimix® 150N is a pale yellow liquid, anhydrous with a low odour and free from matter in suspension. It is soluble with common organic solvents, practically insoluble in water and miscible and compatible with most of the monomeric plasticizers usually utilized to soften PVC (it is good laboratory practice to make a preliminary compatibility test in the specific PVC compound being considered).

The product **Polimix® 150N** due to its nature does not have a shelf life. However it can be stored in appropriate containers at a temperature of approximately 25°C and the exclusion of humidity for at least 1 year, without losing its chemical properties.

Liquid properties

Temperature (°C)	Density (g/ml)	Viscosity (mPa·s)
15	1.050	3000
25	1.041	1500
40	1.027	560
60	1.007	220

The above figures are typical values and should not be considered as specifications limits.

For further information on the characteristics and properties of **Polimix® 150N** in the liquid state, see the relevant EC-standard Materials Safety Data Sheet.

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Characteristics and applications

Polimix® 150N can be used alone or as a blend with monomeric plasticizers for applications requiring low viscosity and good processability.

Its main characteristic is the high compatibility with PVC compared to those of polymeric plasticizers having similar or higher viscosity.

Articles based on **Polimix® 150N** show high resistance to extraction and low migration in contact with other plastic materials; furthermore it has a good resistance to high temperatures as well as in contact with oils, fats and hydrocarbons.

Although the extraction and migration characteristics of **Polimix® 150N** are not as excellent as those provided by other **Polimix®** plasticizers of higher viscosity, it can be considered a polymeric plasticizers with a wide range of application fields:

- labels and adhesive sheets for advertisement graphics, furnishings, tapes for electrical uses;
- imitation leather clothing and car interiors;
- tarpaulins;
- gaskets, trimming and profiles for various applications.

General properties in PVC compounds

The properties of **Polimix® 150N** were evaluated in comparison with those of **DIPLAST® NS (DINP)** using the following formulations:

Formulation 1	PVC K70	Plasticizer	Ca/Zn	$CaCO_3$	Ca Stearate
(**parts by weight**) phr	100	47	8	15	0.5

Formulation 2	PVC K70	Plasticizer	Ca/Zn	Stearic acid
(**parts by weight**) phr	100	50	1.2	0.3

The specimens were prepared by calendering and moulding to obtain the thickness required for the different test methods.

Results formulation 1

Migration resistance % weight loss- (15days at 70°C)	Test method	Polimix® 150N	DINP
• SAN	ISO 177	-0.00	-0.10
• ABS	ISO 177	-0.00	-0.01
• PS	ISO 177	-0.00	-3.81

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Results formulation 2

	Test method	Polimix® 150N	DINP
Shore "A" hardness	ISO 868	86	82
Cold flex °C (Clash & Berg)	ISO/R 458	-11	-26
Solution Temperature °C (*)	DIN 53408	139	129
Extraction resistance -% weight loss-(48h at 70°C)	ISO 175		
• Water		-0.2	-0.1
• Aqueous soap 1%		-1.0	-0.7
• Olive oil		-2.7	-6.8
• Mineral oil		-2.3	-5.5
• n-Hexane (24hours at 23°C)		-0.9	-27.6
Volatility (7days at 100°C)	ISO 176	-2.3	-6.1
Rheological properties			
• Dryblending time 83°C (Mixer P-600 : 100 RPM)	Brabender Plasticorder	3'52"	3'45"
• Gel time 88°C	Brabender Plasticorder	5'08"	9'20"
• ((Mixer W-50; 40 rpm 48g))			
• Fusion Temperature °C (Mixer W50, 5°C/min, 40rpm)	Brabender Plasticorder	119	117

(*) Solution temperature determined with dispersion of resin: two grams of PVC are placed in 48 grams of plasticizer and the solution is heated at 1°C/min.