

## Technical data sheet

### Polimix<sup>®</sup> 80

Version: July 2009

#### Chemical composition

Polymeric plasticizer of low molecular weight based Phthalic Anhydride and polyhydric alcohols.

#### Specifications

Characteristics	Unit	Value	Test method	
Density at 25°C	g/ml	1.040 - 1.070	GM 012	ASTM D 4052-96
Refractive index $n_D^{20}$		1.500 - 1.503	GM 020	ASTM D 1045-95
Colour	Pt – Co	150 max.	PL02F	ASTM D 1045-95 ASTM D 1209-00
Acidity	mgKOH/g	1.0 max.	PL02C	ASTM D 1045-95
Viscosity at 25°C	mPa·s	750 - 850	GM 022	ASTM D 445-96

**Polimix<sup>®</sup> 80** is a pale yellow liquid, anhydrous with a low odour and free from matter in suspension. It is soluble with common organic solvents and miscible and compatible with most of the monomeric plasticizers usually utilized to soften PVC.

The product **Polimix<sup>®</sup> 80** 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	1.060	1400
25	1.050	800
40	1.035	350
60	1.015	100

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

For further information on the characteristics and properties of **Polimix® 80** in the liquid state, see the relevant EC-standard Materials Safety Data Sheet.

## Characteristics and applications

**Polimix® 80** is particularly recommended for applications requiring higher performances than can be obtained with monomeric plasticizers like **DOP** or when the high viscosity, the difficult processability and the low plasticizing efficiency typical of higher molecular weight polymeric plasticizers are considered disadvantages.

The low viscosity of **Polimix® 80** means that it can be easily handled and processed, therefore it can be used as the sole plasticizer or as a blend with monomeric plasticizers for the manufacturing of plastisols for leathercloth, industrial gloves and conveyor belts.

Other important applications are:

- shoe soles;
- decorative adhesive sheets;
- electrical adhesive tapes;
- refrigerator gaskets;
- oil resistant tarpaulins;
- pigment dispersion.

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## General properties in PVC compounds

The properties of **Polimix® 80** were evaluated in comparison with those of **DIPLAST® O (DOP)** using the following formulations:

Formulation	1 (parts by weight)	2 (parts by weight)
PVC K70	100	100
Plasticizer	50	67
Ba/Zn	2	2
Stearic acid	0.3	0.3

Formulation	3 (parts by weight)
PVC K70	100
Plasticizer	50
Tribasic lead sulphate	3
Calcium stearate	0.8

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

## Results

	Test method	Polimix® 80 (1)	DOP (1)	Polimix® 80 (2)	DOP (2)
<b>Shore "A" hardness</b>	ISO 868	90.5	80	75	67
<b>Cold flex °C (Clash &amp; Berg)</b>	ISO/R 458	-6	-26	-12.5	-35
<b>Solution Temperature °C (*)</b>	DIN 53408	125	115		
<b>Extraction resistance</b> -% weight loss-(48h at 70°C)	ISO 175				
• Water		-0.81	-0.16	-1.32	-0.1
• Aqueous soap 1%		-1.14	-1.82	-3.20	-3.1
• Olive oil		-2.80	-7.2	-6.20	-13.6
• Mineral oil		-2.30	-5.8	-4.50	-11.6
• n-Hexane (24hours at 23°C)		-2.10	-27	-10	-35
• Volatility (7days at 100°C)	ISO 176	-5.52	-16.1	-7	-26
<b>Rheological properties (**)</b>					
• Dryblending time (Mixer P-600 : 100 RPM)	Brabender Plasticorder	4' 14"	3' 22"	5' 30"	4'18"
• Gel time (at max torque) (Mixer W-50 : 50 RPM)	Brabender Plasticorder	6' 48"	6' 04"	6'08"	3'20"

(\*)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.

(\*\*)Temperature Stock

- Dryblending time : 90°C
- Gel Time : 110 °C

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## Results

	Test method	Polimix® 80 (3)	DOP (3)
<b>Migration resistance</b> % weight loss- (15days at 70°C) <ul style="list-style-type: none"><li>• ABS</li><li>• SAN</li><li>• PS</li></ul>	ISO 177	-0.85 -1.35 -1.96	-1 -6 -0.47
<b>Volume resistivity</b> at 23°C (Ohm-cm)	ASTM D 257	$6.3 \cdot 10^{13}$	$2.2 \cdot 10^{13}$

*The information contained here is correct and accurate and is based on our technical and scientific knowledge at the date of going to press.*

*Such information is, in all cases, relevant only with respect to the product as used in its pure state and only for the uses referred to in this publication.*

*Nothing stated here may be taken or construed as implying a breach of existing patents.*

*No warranty, either expressed or implicit, is given with regard to the results to be obtained from using this information.*

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