

Technical data sheet

DIPLAST[®] D

Version: July 2015

Chemical composition

Bis (2-ethylhexyl) adipate;
Adipic acid, bis (2-ethylhexyl) ester;
Di-2-ethylhexyladipate (DOA or DEHA)

CAS number

103-23-1

EINECS number

203-090-1

Specifications

Characteristics	Unit	Value	Test method	
Density at 20°C	g/ml	0.925 - 0.927	GM 012	ASTM D 4052-96
Refractive index n ²⁰ _D		1.446 - 1.448	GM 020	ASTM D 1045-95
Colour	Pt-Co	30 max.	PL02F	ASTM D 1045-95; ASTM D 1209-00
Acidity	mgKOH/g	0.07 max.	PL02C	ASTM D 1045-95
Water content	%	0.1 max.	GM 010	ASTM E 203-96
Ester content	%	99.0 min.	PL10C	G.C.

DIPLAST[®] D is an oily, limpid, anhydrous liquid with a characteristic odour. It is miscible with common organic solvents, immiscible with water and miscible with most of the plasticizers used in the processing of PVC.

The product **DIPLAST[®] D** 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

Temperatura (°C)	Brookfield Viscosity LV DVII+ (mPa·s)
-10	58
0	33
10	21
20	14
30	9
40	4
50	2
60	1

Volatility (6 hours at 100°C), (7 grams in 75 mm Petri dish 75 mm)	0.1% max.
Flash point	192°C

The figures above are typical values and are not intended as specification limits.

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

Characteristics and applications

DIPLAST® D is a plasticizer for PVC, its co-polymers and synthetic rubber, the main characteristic of which is to confer excellent performance at low temperatures.

When used for the preparation of plastisol it confers initial low viscosity and good stability of the latter over time.

It is most commonly used in combination with high-molecular-weight phthalic esters.

DIPLAST® D is typically used in:

- gaskets;
- electrical cables for low temperatures;
- compounds for footwear.

DIPLAST® D is a technical grade product. Should you have more specific needs, you are invited to contact our sales offices or representative agencies.

General properties in PVC compounds

The properties of **DIPLAST® D** were evaluated in comparison with those of **DIPLAST® N (DINP)** using the following formulation:

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

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

Results

	Test method	DIPLAST® D	DIPLAST® NS
Shore “A” hardness	ISO 868	76	82
Cold flex °C (Clash & Berg)	ISO/R 458	-52	-26
Solution Temperature °C (*)	DIN 53408	141	129
Extraction resistance (48h at 70°C)	ISO 175		
-% weight loss-			
• Water		+0,3	-0.1
• Aqueous soap 1%		-6,4	-0.7
• Olive oil		-15.6	-6.8
• Mineral oil		-14.9	-5.5
• n-Hexane (24h at 23°C)		-29	-27.6
Volatility (7days at 100°C)	ISO 176	-24.6	-6.1
Rheological properties			
• Dryblending time 83°C (Mixer P-600 : 100 RPM)	Brabender Plasticorder	1'56"	3' 45"
• Gel time 88°C (at max torque) (Mixer W-50 : 40 rpm; 48g)	Brabender Plasticorder	50'	9'20"
• Fusion Temperature (°C) (Mixer W-50, 5°C/min, 40Rpm)	Brabender Plasticorder	141	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.

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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