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# Synative® ES DPHA

## Chemical composition

Di-(2-propylheptyl) adipate

## Properties

### Appearance

Clear, colorless to pale yellow liquid

The below listed properties represent average values at the time of going to press of this Technical Information. They are intended as a guide to facilitate handling and cannot be regarded as specified data. Specified product data are issued as a separate product specification.

### Technical data

Characteristics	Unit	Typical value
Color (ASTM D 1219)	Pt/Co	max. 200
Kinematic viscosity (ASTM D 445) at 40 °C at 100 °C	mm <sup>2</sup> /s	11 3
Viscosity index (ASTM D 2270)		118
Brookfield viscosity at -40 °C (ASTM D 2983)	mm <sup>2</sup> /s	1578
Density at 15 °C (DIN 51757)	g/cm <sup>3</sup>	0.916
Total Acid Number (TAN) (ASTM D 664/ASTM D 974)	mg KOH/g	0.05
Hydroxyl value (DIN 5340)	mg KOH/g	max. 3
Water content (ASTM E 203)	%w/w	max. 0.1
Pour point (ISO 3016)	°C	-75
Cloud point (ISO 3015)	°C	<-40
Flash point (DIN EN ISO 2719 Method A, ccc) (ASTM D 92, Cleveland open cup, coc)	°C	198 228
Fire point (ASTM D 92)	°C	259
Water separation (DIN ISO 6614) Oil/water/emulsion	ml	40/40/0, 5 min

**Technical data**

Foam properties (ASTM D 892)		
Sequence I	ml/ml	0/0
Sequence II	ml/ml	0/0
Sequence III	ml/ml	0/0
Noack volatility (ASTM D 5800 B)	wt %	26
Thermogravimetric analysis		
Loss in mass when continuously increasing the temperature at a rate of 20 °C/min		
200 °C	% Loss	0.2
250 °C		1.1
300 °C		6.9

**Solubility**

Synative ES DPHA is soluble with common mineral oils (Group I, II, III) polyalphaolefins (low and high viscosity) and esters.

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**Application**

Synative ES DPHA is a branched saturated diester which exhibits excellent thermal and oxidative stability, very good hydrolytic stability and best in class low temperature properties. It also has superior frictional performance which should provide energy efficiency over conventional esters of the same class.

Synative ES DPHA can be used as a synthetic basestock for both automotive and industrial applications.

In automotive applications it can be used in transmission and axle oils especially for heavy duty truck lubricants.

In industrial applications it finds a broad utility in formulations including gear oils, compressor fluids, chain oils, high temperature lubricants and greases.

**Storage stability**

Provided it is stored at ambient storage conditions and the drums are kept tightly sealed, Synative ES DPHA has a shelf life of at least two years in its original packaging.

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**Safety**

When using this product, the information and advice given in our **Safety Data Sheet** should be observed. Due attention should also be given to the **precautions** necessary for handling chemicals.

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**Note**

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

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BASF SE  
Fuel and Lubricant Solutions  
67056 Ludwigshafen, Germany  
[www.basf.com/automotive-oil](http://www.basf.com/automotive-oil)