

# SYNATIVE ES TMP 05-A

## Composition

Trimethylolpropantrioleate

## Technical Data

Item	Value	Method / Remarks
<b>Appearance:</b>	Clear, yellowish fluid	
<b>Water Content:</b>	max. 0,1 %	DGF C-III 13 a (75)
<b>Flash Point:</b>	min. 300 °C	DIN ISO 2592
<b>Cloud Point:</b>	max. -20 °C	DIN EN 23015
<b>Pour Point:</b>	max. -40 °C	DIN ISO 3016
<b>Acid Value:</b>	max. 2	DIN 53402
		DGF C-V 2 (81)
<b>Iodine Value:</b>	83 - 90	DGF C-V 11 b
<b>Hydroxyl Value:</b>	max. 20	DIN 53240
		DGF C-V 17 a (53)
<b>Saponification Value:</b>	178 - 187	DIN 53401
		DGF C-V 3
<b>Density:</b> 20 °C	0,914 - 0,920 g/cm <sup>3</sup>	DIN 51757 V4
<b>Density:</b> 15 °C	0,920 g/cm <sup>3</sup>	DIN 51757
<b>Viscosity:</b> 40 °C	42 - 50,0 mm <sup>2</sup> /s	DIN 51562
<b>Viscosity:</b> 100 °C	9 - 10 mm <sup>2</sup> /s	DIN 51562
<b>Viscosity Index:</b>	180	DIN ISO 2909
<b>Color:</b> Lovibond 1" gelb/yellow rot/red	max. 7 max. 1,5	DGF C-IV 4 b (84)
<b>Refractive Index:</b>	1,4722	DIN 53491
<b>Cloud Point Index:</b>		

## Quality Control Data

(These data are used for quality release and are certified for each batch.)

<b>Item</b>		<b>Value</b>	<b>Method / Remarks</b>
<b>Acid Value:</b>		max. 2	DIN 53402 DGF C-V 2 (81)
<b>Hydroxyl Value:</b>		max. 20	DIN 53240 DGF C-V 17 a (53)
<b>Color:</b>	Lovibond 1" gelb/yellow rot/red	max. 7 max. 1,5	DGF C-IV 4 b (84)

## Additional Specifications

(Guaranteed specification values which are not determined on a regular basis.)

<b>Item</b>		<b>Value</b>	<b>Method / Remark</b>
<b>Water Content:</b>		max. 0,1 %	DGF C-III 13 a (75)
<b>Flash Point:</b>		min. 300 °C	DIN ISO 2592
<b>Cloud Point:</b>		max. -20 °C	DIN EN 23015
<b>Pour Point:</b>		max. -40 °C	DIN ISO 3016
<b>Iodine Value:</b>		83 - 90	DGF C-V 11 b
<b>Saponification Value:</b>		178 - 187	DIN 53401 DGF C-V 3
<b>Density:</b>	20 °C	0,914 - 0,920 g/cm <sup>3</sup>	DIN 51757 V4
<b>Density:</b>	15 °C	0,920 g/cm <sup>3</sup>	DIN 51757
<b>Viscosity:</b>	40 °C	42 - 50,0 mm <sup>2</sup> /s	DIN 51562
<b>Viscosity:</b>	100 °C	9 - 10 mm <sup>2</sup> /s	DIN 51562

## Properties & Use

Due to its excellent ecological/toxicological properties **SYNATIVE ES TMP 05/A** is used as basestock for biodegradable hydraulic oils either solely or blended with vegetable oils. An addition of **SYNATIVE ES TMP 05/A** to. e. g. rape seed oil improves the low temperature properties.

## Additional Technical Data

<b>Kinematic viscosity</b> (DIN 51562 part 1)		
at -20°C	1000	mm <sup>2</sup> /s
at 20°C	110	mm <sup>2</sup> /s
<b>Viscosity index</b> (DIN ISO 2909)	180	
<b>Thermogravimetric Analysis</b> (Cognis-Method TA-TGA-SOP 6) (Loss in mass-% when continuously increasing the temperature at a rate of 20 °C/min)		
200°C	0	%
250°C	0	%
300°C	1	%
<b>EP and AW properties</b> Shell "Four-ball-Tester"		
Diameter of scull-caps (DIN 51350 part 3) at 450 N, 1 hour	0,9	mm
Welding load (DIN 51350, part 2)	1400	N

<b>Refractive index</b> (DIN 53491)	1,4722	
<b>Density (15 °C)</b> (DIN 51757)	0,920	g/cm <sup>3</sup>
<b>ASTM-Colour</b> (ASTM D 1500)	2	

The product can be stored for at least 2 years at ambient storage conditions and temperature without any deterioration.

Information provided in this technical literature is believed to be accurate. However, Cognis assumes no liability and makes no warranty or representation that the information is correct or complete. Final determination of suitability of any material and issues of patent infringement are the sole responsibility of the user who alone knows the conditions of intended use.

**COGNIS DEUTSCHLAND GmbH & CO KG**

**/ SYNATIVE ES TMP 05-A**