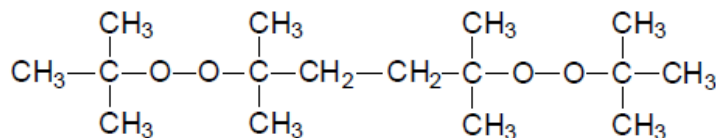


LUPEROX® 101 E

16.11.2020

LUPEROX® 101 E IS A TECHNICALLY PURE 2,5-DIMETHYL-2,5-DI(TERT-BUTYLPEROXY)-HEXANE.



2,5-DIMETHYL-2,5-DI(TERT-BUTYLPEROXY)-HEXANE

MOLECULAR WEIGHT: 290.44 G/MOL

CAS NUMBER: 78-63-7

EINECS: 201-128-1

STANDARD SALES SPECIFICATIONS

Standard characteristics	Unit	Specification limits
Physical form	-	Liquid
Peroxide content	%	92 – 96
Active oxygen	%	10.1 – 10.6

Analytical methods available upon request

APPLICATIONS

Luperox® 101 E is a suitable initiator for the controlled rheology of polypropylene at temperatures between 190°C and 250°C. Typical usage level are in the range of 0.02 wt % to 0.12 wt %. It can be metered by spraying or injection techniques. For injection it is feasibly diluted with hydrocarbon to increase both safety and dosing accuracy. Luperox® 101 E is more active, efficient and safer than di-tert-butyl peroxide Luperox® DI E. So it may serve as an appropriate replacement for this peroxide in liquid dosing equipment. For MFI control, it is essential to optimize both residence time and process temperature to make sure that the peroxide has decomposed completely. According to calculations the residence time should be about ten times the half-life of pure Luperox® 101 E at temperature applied.

TYPICAL PROPERTIES

Appearance	colorless liquid	Density at 20°C	0.87g/cm ³
SADT (self-accelerating decomposition temp.)	≥ 80°C	Viscosity at 20°C	6.25cP
Crystallization:	<+8°C	Boiling point	< 249°C
Flash point (closed cup)	58°C	Refractive index 25°C	1.421
Solubility	insoluble in water, Miscible with most organic solvents		

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HALF-LIFE TEMPERATURE

The half-life of a peroxide $t_{1/2}$ is a suitable means to determine its reactivity. It is dependent on temperature and can be calculated according to the Arrhenius equation. For pure Luperox® 101 E the following values were evaluated:

$t_{1/2}$ / min	1	60	600
T ¹ / °C	177	138	119
T ² / °C	181	140	120
T ³ / °C	192	152	132

¹ Measured in Benzene (0.2M)

² Measured in n-Dodecane (0.2M)

³ Measured in HDPE

The activation energy E_A was determined to 166.9 kJ/mol (Benzene), 155.6 kJ/mol (n-Dodecane) and 164.8 kJ/mol (HDPE).

SAFETY - HAZARD CLASSIFICATION

Please consult the Safety Data Sheet.

Luperox® 101 E has a SADT of >80°C. Above this temperature it starts to decompose with the formation of flammable gases. Luperox® 101 E is shock sensitive especially when heated under confinement.

STORAGE AND HANDLING

Please consult the Safety Data Sheet.

Luperox® 101 E is recommended to be stored between +8°C and +30°C. Below +8°C crystallization will occur. Above +30°C a loss of quality can be expected, which is associated with increasing levels of impurities. Since Luperox® 101 E is flammable all proximity to sparks, open fire and sources of heat must be strictly avoided. Any direct contact with accelerators, stabilizers, heavy metal compounds and rust must be avoided as to prevent an accelerated decomposition.

The shelf life of Luperox® 101 E comes to 12 months. Packing drums should be dated on receipt and used within this time or disposed of.

PACKAGE AND TRANSPORT

Luperox® 101 E may be delivered in polyethylene jerrycans (25kg). According to the corresponding transport regulations it can be shipped via road, rail and sea.

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