

# Technical Data Sheet (TDS)

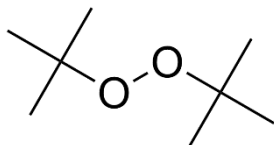
DTBP  
Polymerisation (PO)



## DTBP

Di-*tert*-butyl peroxide  
CAS#110-05-4  
Technically pure, liquid

### Structural Formula



### Description

Colourless, mobile liquid, consisting of technically pure di-*tert*-butyl peroxide. This highly volatile dialkyl peroxide is used as an initiator (radical source) in the polymerisation of monomers and crosslinking of polyethylene.

### Technical Data

Appearance	colourless liquid
Assay (GC)	> 99 % w/w
Active oxygen (AO)	> 10.8 % w/w
Density at 20 °C	approx. 0.79 g/cm <sup>3</sup>
Viscosity at 20 °C	approx. 0.8 mPa·s
Refractive index at 20 °C	approx. 1.389
Miscibility	not miscible with water, miscible with nonpolar organic solvents
Vapour pressure at 20 / 40 / 110 °C	25 / 75 / 1000 mbar
Critical temperature (SADT)	80 °C
Cold storage stability	liquid to below -25 °C
Recommended storage temperature	< 40 °C ●
Storage stability as from date of delivery	12 months

### Standard Packaging

20 kg HDPE canister  
160 kg metal drums

### Half-life Data

10 h / 1 h / 1 min (benzene, 0.1 mol/L)    125 °C / 146 °C / 190 °C

## Application

### ETHYLENE:

Initiator for high-pressure polymerisation in combination with other peroxides of varying degrees of activity

Temperature range: 220 - 280 °C

Particular advantage: liquid even at low temperatures and under high pressure, high conversion rates

### (METH-)ACRYLATES:

Initiator for the polymerisation of (meth-)acrylates

It can also be used in combination with more active peroxides (e.g. *tert*-butylperoxy-2-ethyl hexanoate, TBPEH).

Temperature range: 120 - 180 °C.

Usage level: 0.05 - 0.1 % as supplied

### STYRENE:

Initiator for the polymerisation of styrene in mass and solvent

It can also be used in combination with more active peroxides or oxygen.

Temperature range: 140 – 180 °C

Usage level: 0.02 - 0.1 % as supplied

Particular advantage: reduction of residual monomer content in the polymer

### GRAFT POLYMERISATION:

Standard initiator for the styrenisation of alkyd resins

Styrene is grafted onto the unsaturated chain of alkyd resin in order to approve the properties of the paint raw materials.

Temperature range: 140 -160 °C

Usage level: 0.5 - 2 % as supplied

## Decomposition Products

Possible detectable decomposition products: *tert*-butyl alcohol, acetone, methane, ethane, methyl *tert*-butyl ether (MTBE)

## Storage

Avoid any source of heat and light and protect the product from impurities. Keep within safe temperature limits.

## Disclaimer:

The information contained herein and all further technical advice that may be provided by United Initiators reflects our current knowledge and experience based on our internal research and development as to our products and applications. United Initiators does not make any warranties about the information provided as to specific properties of products described, their suitability for a particular application and representing complete instructions for use. Additionally, United Initiators does not make any warranties in respect of product and shelf life properties. We are not legally responsible and liable for the use of any information provided, including with regard to existing third party intellectual property rights, especially patent rights. We reserve the right to make any changes according to technological progress or further developments.

Application and usage of our products based on our technical advice is out of our control, strictly at your own risk and is the sole responsibility of the user. The user is not released from the obligation to conduct careful inspection and testing of incoming products in order to verify their suitability for the intended application.

United Initiators  
**Europe**  
T: +49 89 74422 237  
F: +49 89 74422 6237  
[cs-initiators.eu@united-in.com](mailto:cs-initiators.eu@united-in.com)

United Initiators  
**Nafta**  
T: +1 800 231 2702  
F: +1 440 323 0898  
[cs-initiators.nafta@united-in.com](mailto:cs-initiators.nafta@united-in.com)

United Initiators  
**China**  
T: +86 21 6117 2760  
F: +86 139 2503 8952  
[cs-initiators.cn@united-in.com](mailto:cs-initiators.cn@united-in.com)