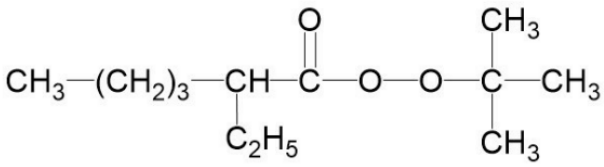
TBPEH

Tert-butyl peroxy-2-ethylhexanoate



CAS No.
3006-82-4
TSCA Status
listed on inventory
Active oxygen content peroxide
7.40%
EINECS/ELINCS No.
221-110-7
Molecular weight
216.3
Concentration
7.22-7.37%
Density, 20 °C
0.900 g/cm³
Viscosity, 20 °C
4.3 mPa.s

TBPEH is an efficient initiator for the production of Low Density Polyethylene (LDPE). It is used both for tubular and autoclave processes. In most cases a combination with other peroxides is used to ensure a broad reactivity range. In suspension polymerization processes, TBPEH can be used for the polymerization of styrene at approximately 90°C. TBPEH has an activity comparable with Dibenzoyl peroxide (BPO75). Typically, TBPEH is used in combination with initiators such as tert-Butyl peroxybenzoate (TBPB) and tert-Butylperoxy 2 ethylhexyl carbonate (TBEC).

Applications

TBPEH(tert-Butyl peroxy-2-ethylhexanoate) can be used for the market segments: polymer production, thermoset composites and acrylics with their different applications/functions. For more information please check our website and/or contact us.

Half-life data

The reactivity of an organic peroxide is usually given by its half-life (t1/2) at various temperatures. For TBPEH in chlorobenzene half-life at other temperatures can be calculated by using the equations and constants mentioned below:

0.1 hr	at 113°C
1 hr	at 91°C
10 hr	at 72°C
Formula 1	kd = A·e-Ea/RT
Formula 2	t½ = (ln2)/kd
Ea	124.90 kJ/mole
A	1.54E+14 s-1
R	8.3142 J/mole·K
T	(273.15+°C) K

Thermal stability

Organic peroxides are thermally unstable substances, which may undergo self-accelerating decomposition. The lowest temperature at which self-accelerating decomposition of a substance in the original packaging may occur is the Self-Accelerating Decomposition Temperature (SADT). The SADT is determined on the basis of the Heat Accumulation Storage Test.

SADT	35°C
Emergency temperature (T_e)	25°C
Control temperature (Tc)	20°C
Method	The Heat Accumulation Storage Test is a recognized test method for the determination of the SADT of organic peroxides (see Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria - United Nations, New York and Geneva).

Storage

Due to the relatively unstable nature of organic peroxides a loss of quality can be detected over a period of time. To minimize the loss of quality, Do Sender Chem recommends a maximum storage temperature (Ts max.) for each organic peroxide product.

Ts Max.	10°C and
Ts Min.	-30°C to prevent crystallization
Note	When stored according to these recommended storage conditions, TBPEH will remain within the Do Sender Chem specifications for a period of at least 3 months after delivery.

Packaging and transport

20 kg polyethylene drum.TBPEH is classified as Organic peroxide type C; liquid, temperature controlled, Division 5.2; UN 3113; PG II. Control Temperature = 20 ℃ Emergency Temperature = 25 ℃

Major decomposition products

Carbon dioxide, tert-Butanol, Heptane, 3-tert-Butoxyheptane