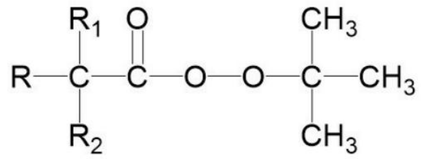
Perodox 23

CAS No.
26748-41-4
TSCA Status
listed on inventory
EINECS/ELINCS No.
247-955-1
Molecular weight
244.4
Active oxygen content peroxide
6.55%



tert-Butyl peroxyneodecanoate, 75%

Applications

Perodox 23 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. Perodox 23 is used as an initiator for the suspension polymerization of vinyl chloride in the temperature range between 40°C and 65°C. Perodox 23 can be used alone or in combination with other peroxides, such as 1,1,3,3-Tetramethylbutyl peroxyneodecanoate (Perodox 423), Cumyl peroxyneodecanoate (Perodox 99) or Dilauroyl peroxide (LUNA), to increase reactor efficiency.

Half-life data

The reactivity of an organic peroxide is usually given by its half-life ($t_{1/2}$) at various temperatures. For Perodox 23 in chlorobenzene:

0.1 hr	at 84°C (183°F)
1 hr	at 64°C (147°F)
10 hr	at 46°C (115°F)
Formula 1	kd = A·e-Ea/RT
Formula 2	$t_{1/2}$ = (ln2)/kd
Ea	115.47 kJ/mole
A	1.52E+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	20°C (68°F)
Emergency temperature (T_e)	10°C (50°F)
Control temperature (Tc)	0°C (32°F)
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 (14°F)
Ts min.	-20°C (-4°F) to prevent crystallization
Note	When stored according to these recommended storage conditions, Perodox 23 will remain within the Do Sender Chem specifications for a period of at least 3 months after delivery.

Packaging and transport

20 kg.
Perodox 23 is classified as Organic peroxide type D; liquid, temperature controlled, Division 5. 2; UN 3115.

Major decomposition products

Carbon dioxide, tert-Butanol, Isomers of neononane