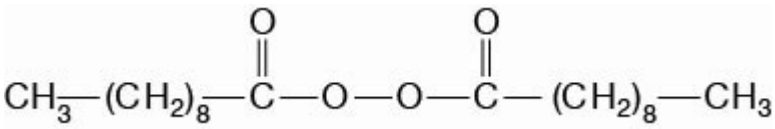
Perkadox SE-10

Didecanoyl peroxide



Initiator for (co)polymerization of ethylene, vinyl chloride, vinylidene chloride, styrene, acrylonitrile, vinylacetate acrylates and methacrylates.

CAS number
762-12-9

EINECS/ELINCS No.
212-092-1

TSCA status
listed on inventory

Specifications

Appearance	White flakes
Assay	≥ 98.5 %

Characteristics

Bulk density	500 (31.2 lb/ft3) kg/m^3
Density, 20 °C	1.050 g/cm^3
Melting point	42 °C

Applications

Perkadox SE-10 can be used for the high pressure polymerization of ethylene in autoclaves or tubular reactors. Because of the good solubility in mineral oils and aliphatic hydrocarbons the peroxide is easy to handle in the pressure injection system. Perkadox SE-10 can also be used as initiator for the suspension polymerization of vinyl chloride in the temperature range between 60°C and 75°C.

Half-life data

The reactivity of an organic peroxide is usually given by its half-life (t1/2) at various temperatures. The half-life of Perkadox SE-10 in chlorobenzene is:

0.1 hr	at 100°C (212°F)
1 hr	at 80°C (176°F)
10 hr	at 63°C (145°F)
Formula 1	kd = A·e-Ea/RT
Formula 2	$t_{½}$ = (ln2)/kd
Ea	130.48 kJ/mole
A	3.64E+15 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	40°C (104°F)
Emergency temperature (T_e)	35°C (95°F)
Control temperature (Tc)	30°C (86°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, Nouryon recommends a maximum storage temperature (Ts max.) for each organic peroxide product

Ts Max.	10°C (50°F)
Note	When stored under the recommended storage conditions, Perkadox SE-10 will remain within the Nouryon specifications for a period of at least three months after delivery.

Packaging and transport

In North America Perkadox SE-10 is packed in non-returnable cartons of 50 lb net weight. In other regions the standard packaging is a cardboard box for 25 kg peroxide. Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your Nouryon representative. Perkadox SE-10 is classified as Organic peroxide type C; solid, temperature controlled, Division 5.2; UN 3114.

Safety and handling

Keep containers tightly closed. Store and handle Perkadox SE-10 in a dry well-ventilated place away from sources of heat or ignition and direct sunlight. Never weigh out in the storage room. Avoid contact with reducing agents (e.g. amines), acids, alkalis and heavy metal compounds (e.g. accelerators, driers and metal soaps). Please refer to the Safety Data Sheet (SDS) for further information on the safe storage, use and handling of Perkadox SE-10. This information should be thoroughly reviewed prior to acceptance of this product. The SDS is available at https://polymerchemistry.nouryon.com.

Major decomposition products

Carbon dioxide, Nonane, Octadecane, Nonyl decanoate

Contact Us

Europe, Middle East, India and Africa
polymerchemistry.nl@nouryon.com

Asia Pacific
polymerchemistry.ap@nouryon.com

Americas
polymerchemistry.na@nouryon.com

Nouryon