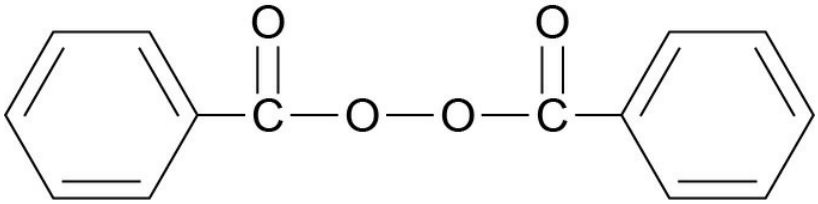
Perkadox L-W75 SF

Dibenzoyl peroxide



Initiator (75% water in powder) for (co)polymerization of styrene, acrylonitrile, vinylacetate, methacrylates and acrylates. Developed for use in Expanded Polystyrene (EPS) polymerization.

CAS number
94-36-0

EINECS/ELINCS No.
202-327-6

TSCA status
listed on inventory

Specifications

Active oxygen	4.88-5.02 %
Appearance	White granular powder
Assay	74.0-76.0 %
Inorganic + organic hydrolysable chloride	≤ 2500 mg/kg

Characteristics

Bulk density	630 kg/m^3

Applications

Perkadox L-W75 SF was developed for use in Expanded Polystyrene (EPS) polymerization. Perkadox L-W75 SF contains no surfactant which is typically used in dibenzoyl peroxide production. The surfactant in dibenzoyl peroxide lowers the average particle size of the EPS leading to inconsistent bead size and loss of yield due to too large or too small particle size. Since Perkadox L-W75 SF contains no surfactant, it has no effect of EPS particle size. In practice, combinations of two or more peroxides with different activities are used to reduce the residual monomer content in the final polymer and to increase reactor efficiency. During polymerization the temperature is increased in steps, thus providing the optimum temperature for the activity of each peroxide product. In the suspension polymerization of styrene Perkadox L-W75 SF is used at approximately 90°C. Typically, Perkadox L-W75 SF is used in combination with such initiators as tert-Butyl peroxybenzoate (Trigonox C) and tert-Butyl peroxy 2-ethylhexyl carbonate (Trigonox 117).

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 L-W75 SF in chlorobenzene is:

0.1 hr	at 113°C (235°F)
1 hr	at 91°C (196°F)
10 hr	at 71°C (160°F)
Formula 1	kd=A·e-Ea/RT
Formula 2	t½=(ln2)/kd
Ea	122.35 kJ/mole
A	6.94E+13 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	80°C (176°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.	40°C (104°F)
Note	When stored under the recommended storage conditions, Perkadox L-W75 SF will remain within the Nouryon specifications for a period of at least three months after delivery.

Packaging and transport

Perkadox L-W75 SF is packed in a non-returnable carton with a polyethylene bag containing 40 lb or with 3 polyethylene bags each containing 13.3 lb peroxide. In other regions the standard packaging is a cardboard box with a polyethylene bag containing 4 x 6.7 kg peroxide. Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your Nouryon representative. Perkadox L-W75 SF is classified as Organic peroxide type C; solid, Division 5.2; UN 3104.

Safety and handling

Keep containers tightly closed. Store and handle Perkadox L-W75 SF 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 L-W75 SF. 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, Benzene, Benzoic acid

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