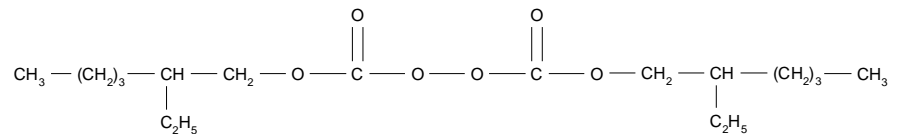


Product Data Sheet

Trigonox[®] EHPS

Product description Di(2-ethylhexyl) peroxydicarbonate



Molecular weight	: 346.5
Active oxygen content peroxide	: 4.62%
actual product	: 4.48% min.
CAS No.	: 16111-62-9
EINECS/ELINCS No.	: 240-282-4
TSCA status	: listed on inventory

Initiator for the (co)polymerization of vinyl chloride, vinylidene chloride, acrylates and methacrylates.

Specifications

Appearance	: Clear liquid
Assay	: 97.0% min.
Inorganic + organic hydrolysable chloride	: 100 mg/kg max.

Half-life data

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

0.1 hr	at 83°C
1 hr	at 64°C
10 hr	at 47°C

The half-life at other temperatures can be calculated by using the following equations and constants:

$$k_d = A \cdot e^{-E_a/RT} \quad \begin{array}{l} E_a = 122.45 \text{ kJ/mole} \\ A = 1.83E+15 \text{ s}^{-1} \end{array}$$

$$t_{1/2} = (\ln 2)/k_d \quad \begin{array}{l} R = 8.3142 \text{ J/mole}\cdot\text{K} \\ T = (273.15 + ^\circ\text{C}) \text{ K} \end{array}$$

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, AkzoNobel recommends a maximum storage temperature (T_s max.) for each organic peroxide product.

For *Trigonox* EHPS T_s max. = -20°C

When stored according to these recommended storage conditions, *Trigonox* EHPS will remain within the AkzoNobel specifications for a period of at least three months after delivery.

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.

For <i>Trigonox</i> EHPS	SADT	: 0°C
	Emergency temperature (T_{em})	: -10°C
	Control temperature (T_c)	: -20°C

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).

Major decomposition products

Carbon dioxide, 2-Ethylhexanol

Packaging and transport

The standard packaging is a 30 l HDPE can (Nourytainer[®]) for 25 kg peroxide solution.

Both packaging and transport meet the international regulations. For the availability of other packed quantities consult your AkzoNobel representative.

Trigonox EHPS is classified as Organic peroxide type C; liquid, temperature controlled; Division 5.2; UN 3113.

Safety and handling

Keep containers tightly closed. Store and handle *Trigonox* EHPS 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 *Trigonox* EHPS. This information should be thoroughly reviewed prior to acceptance of this product. The SDS is available at www.akzonobel.com/polymer.

Applications

Polymerization of vinyl chloride

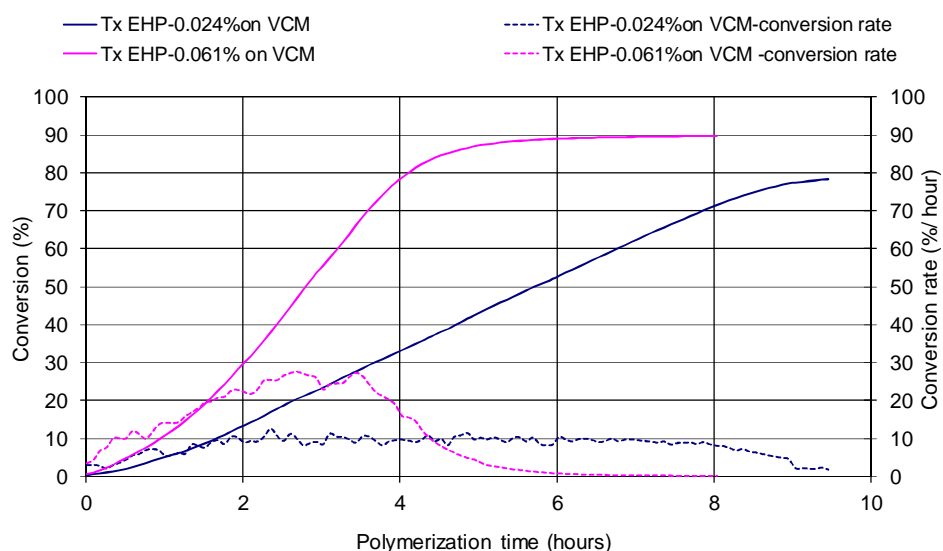
Trigonox EHPS is applied as an initiator for the suspension polymerization of vinyl chloride in the temperature range between 40°C and 65°C.

Trigonox EHPS can be used in combination with other peroxides such as 1,1,3,3-Tetramethylbutyl peroxyneodecanoate (*Trigonox* 423), Cumyl peroxyneodecanoate (*Trigonox* 99) or Dilauroyl peroxide (*Laurox*[®]) to increase reactor efficiency.

Conversion/time and conversion rate/time curves are given in Figure 1.

These experiments were carried out in a 5-liter reactor, using 0.1% (on VCM) polyvinyl alcohol (*Alcotex*[®] B72), as a protective colloid. Conversion and conversion rate are determined by means of gaschromatography applying tracer quantities of n-butane (method available on request).

Figure 1. VCM polymerization at 57°C with *Trigonox* EHP



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Alcotex is a registered trademark of Harlow Chemical Company Limited

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