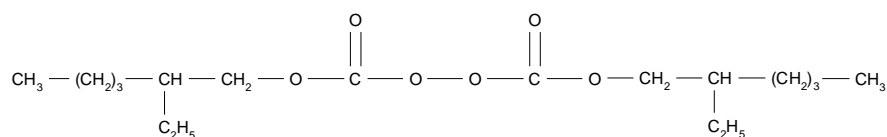


Product Data Sheet

Trigonox[®] EHPS

Product description Di(2-ethylhexyl) peroxydicarbonate



Molecular weight	: 346.5
Active oxygen content peroxide	: 4.62%
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
Color	: 20 Pt-Co / APHA max.
Assay	: 98.0% min.
Active Oxygen	: 4.53% 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:

$$k_d = A \cdot e^{-E_a/RT} \quad \begin{array}{l} E_a = 122.45 \text{ kJ/mole} \\ A = 1.83E+15 \text{ s}^{-1} \\ R = 8.3142 \text{ J/mole}\cdot\text{K} \\ T = (273.15 + ^\circ\text{C}) \text{ K} \end{array}$$

$$t_{1/2} = (\ln 2)/k_d$$

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

Trigonox EHPS is packed in non-returnable, one gallon polyethylene containers of 8 lb net weight (4 per case).

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 Material Safety Data Sheet (MSDS) 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 MSDS is available at www.akzonobel.com/polymer.

Applications

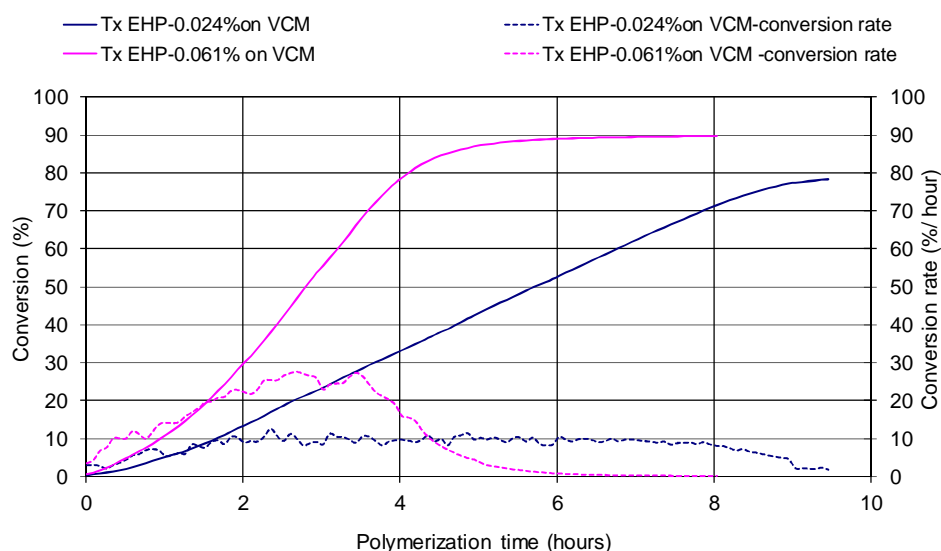
Polymerization of vinyl chloride

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*^Å) 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^Ø 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



Trigonox and *Laurox* are registered trademarks of Akzo Nobel Chemicals B.V. or affiliates in one or more territories.

Alcotex is a registered trademark of Harlow Chemical Company Limited

All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable. AkzoNobel, however, makes no warranty as to accuracy and/or sufficiency of such information and/or suggestions, as to the product's merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. Nothing contained herein shall be construed as granting or extending any license under any patent. Buyer must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes. The information contained herein supersedes all previously issued bulletins on the subject matter covered. The user may forward, distribute, and/or photocopy this document only if unaltered and complete, including all of its headers and footers, and should refrain from any unauthorized use. You may not copy this document to a website.

AkzoNobel Polymer Chemistry
Arnhem, The Netherlands
T +31 88 969 2727
E polymerchemistry.nl@akzonobel.com

AkzoNobel Polymer Chemistry
Chicago, U.S.A.
T +1 312 544 7000
T +1 800 828 7929 (Toll free US only)
F +1 312 544 7188
E polymerchemistry.na@akzonobel.com

Akzo Nobel (Asia) Co., Ltd.
Shanghai, PR China
T +86 21 2220 5000
F +86 21 2220 5558
E polymerchemistry.ap@akzonobel.com

polymerchemistry.akzonobel.com