

# Trigonox EHP-W50

Di(2-ethylhexyl) peroxydicarbonate, 50% emulsion in water

Trigonox EHP-W50 is a polymerization initiator (50% emulsion in water and methanol) for (co)polymerization of vinyl chloride and vinylidene chloride.

CAS number  
16111-62-9

EINECS/ELINCS No.  
240-282-4

TSCA status  
listed on inventory

Molecular weight  
346.5

Active oxygen content  
peroxide  
4.62%

Concentration  
2.26-2.35%

## Specifications

Appearance	White to off-white emulsion
Assay	49.0-51.0 %

## Characteristics

Density, 0 °C	0.95 g/cm <sup>3</sup>
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## Applications

Polymerization of vinyl chloride - Trigonox EHP-W50 is applied as an initiator for the suspension polymerization of vinylchloride in the temperature range between 40°C and 65°C. Trigonox EHP-W50 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. Reasons to use a water-based peroxide emulsion instead of a solvent-based peroxide are the following: enhanced safety, easy to use (pumpable) in 'closed reactor technology', easy to dilute with water.

## Half-life data

The reactivity of an organic peroxide is usually given by its half-life ( $t_{1/2}$ ) at various temperatures. The half-life of Trigonox EHP-W50 in chlorobenzene is:

0.1 hr	at 83°C
1 hr	at 64°C
10 hr	at 47°C
Formula 1	$k_d = A \cdot e^{-E_a/RT}$
Formula 2	$t_{1/2} = (\ln 2)/k_d$
Ea	122.45 kJ/mole
A	1.83E+15 s <sup>-1</sup>
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	5°C (0°C IBC)
Emergency temperature (T <sub>e</sub> )	-5°C (-10°C IBC)
Control temperature (T <sub>c</sub> )	-15°C (-20°C IBC)
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 (T<sub>s</sub> max.) for each organic peroxide product.

T <sub>s</sub> Max.	-15°C (-20°C IBC)
T <sub>s</sub> Min.	-25°C (-25°C IBC)
Note	When stored under these recommended storage conditions, Trigonox EHP-W50 will remain within the Nouryon specifications for a period of at least three months after delivery.

## Packaging and transport

Trigonox EHP-W50 is packed in non-returnable polyethylene containers of 55 lb net weight. Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your Nouryon representative. Trigonox EHP-W50 is classified as Organic peroxide type F; liquid, temperature controlled, Division 5.2; UN 3119.

## Safety and handling

Keep containers tightly closed. Store and handle Trigonox EHP-W50 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 EHP-W50. 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, 2-Ethylhexanol

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. Nouryon, 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. Nouryon does not accept any liability whatsoever arising out of the use of or reliance on this information, or out of the use or the performance of the product. Nothing contained herein shall be construed as granting or extending any license under any patent. Customer 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 information on the subject matter covered. The customer 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. Don't copy this document to a website.

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The Nouryon logo consists of a stylized orange 'N' followed by the word 'ouryon' in a lowercase, sans-serif font, all in orange.