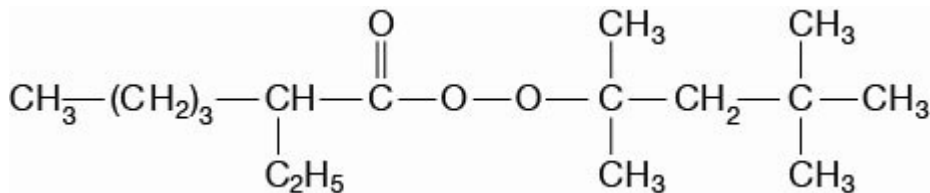


# Trigonox 421

1,1,3,3-Tetramethylbutyl peroxy-2-ethylhexanoate



Trigonox 421 is an initiator for (co)polymerization of acrylates and methacrylates.

CAS number  
22288-43-3

EINECS/ELINCS No.  
244-894-2

TSCA status  
listed on inventory

Molecular weight  
272.4

Active oxygen content  
peroxide  
5.87%

## Specifications

Active oxygen	≥ 5.29% %
Appearance	Clear liquid
Assay	≥ 90.0 %
Color	50 Pt-Co / APHA max.
Hydroperoxides as TMBH	≤ 0.25 %
Inorganic + organic hydrolysable chloride	≤ 250 mg/kg

## Characteristics

Density, 0 °C	0.914 g/cm <sup>3</sup>
Viscosity, 0 °C	9.3 mPa.s

## Applications

Trigonox 421 can be used to initiate the (co)polymerization of acrylates and methacrylates in the temperature range between 70°C and 120°C. Trigonox 421 can be applied in suspension as well as in solvent and bulk polymerization. Trigonox 421 can also be used for the copolymerization of styrene and acrylonitrile and for vinylacetate based copolymers.

## Half-life data

109°C (228°F)

1 hr	88°C (190°F)
10 hr	69°C (156°F)
Formula 1	$k_d = A \cdot e^{-E_a/RT}$
Formula 2	$t_{1/2} = (\ln 2)/k_d$
Ea	123.80 kJ/mole
A	1.62E+14 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	30°C (86°F)
Emergency temperature (T <sub>e</sub> )	20°C (68°F)
Control temperature (T <sub>c</sub> )	15°C (59°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 (T<sub>s</sub> max.) for each organic peroxide product.

T <sub>s</sub> Max.	5°C (41°F)
T <sub>s</sub> Min.	-20°C (-4°F) to prevent crystallization
Note	When stored according to these recommended storage conditions, Trigonox 421 will remain within the Nouryon specifications for a period of at least three months after delivery.

## Packaging and transport

In North America Trigonox 421 is packed in non-returnable cartons containing 55.1 lb net weight. In other regions the standard packaging is a 30-liter HDPE can (Nourytainer) for 25 kg peroxide. Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your Nouryon representative. Trigonox 421 is classified as Organic peroxide type D; liquid, temperature controlled; Division 5.2; UN 3115.

## Safety and handling

Keep containers tightly closed. Store and handle Trigonox 421 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 421. This information should be thoroughly reviewed prior to acceptance of this product. The MSDS is available at <https://polymerchemistry.nouryon.com>.

## Major decomposition products

Carbon dioxide, 2,2-Dimethylpropane, Acetone, Heptane, Heptenes, 2,4,4-Trimethyl-2-pentanol, 2-(1-Ethylpentoxy)-2,4,4-trimethylpentane

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.