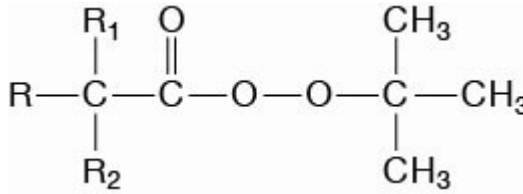


# Trigonox 23

tert-Butyl peroxyneodecanoate



Initiator for (co)polymerization of ethylene, vinylacetate, vinyl chloride, vinylidene chloride, acrylates, methacrylates and diethylene glycol bis(allyl carbonate)-based optical monomers.

**CAS number**  
26748-41-4

**EINECS/ELINCS No.**  
247-955-1

**TSCA status**  
listed on inventory

**Molecular weight**  
244.4

**Active oxygen content peroxide**  
6.55%

**Concentration**  
6.22% min.

## Specifications

|   |              |
|---|--------------|
| Appearance                                | Clear liquid |
| Assay                                     | ≥ 95.0 %     |
| Color                                     | ≤ 30 Pt-Co   |
| Hydroperoxides as TBHP                    | ≤ 0.10 %     |
| Inorganic + organic hydrolysable chloride | ≤ 150 mg/kg  |

## Characteristics

|                 |                         |
|-----------------|-------------------------|
| Density, 0 °C   | 0.916 g/cm <sup>3</sup> |
| Viscosity, 0 °C | 19 mPa.s                |

## Applications

Polymerization of ethylene Trigonox 23 is an efficient initiator for the production of Low Density Polyethylene (LDPE). It is used both for tubular and autoclave processes. In most cases a combination with other peroxides is used to ensure a broad reactivity range.

## Half-life data

The reactivity of an organic peroxide is usually given by its half-life ( $t_{1/2}$ ) at various temperatures. For Trigonox 23 in chlorobenzene half-life at other temperatures can be calculated by using the equations and constants mentioned below:

|           |                             |
|-----------|-----------------------------|
| 0.1 hr    | at 84°C                     |
| 1 hr      | at 64°C                     |
| 10 hr     | at 46°C                     |
| Formula 1 | $k_d = A \cdot e^{-E_a/RT}$ |
| Formula 2 | $t_{1/2} = (\ln 2)/k_d$     |
| Ea        | 115.47 kJ/mole              |
| A         | 1.52E+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                            | 15°C   |
| Emergency temperature ( $T_e$ ) | 5°C  |
| Control temperature ( $T_c$ )   | -5°C   |
| 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. | -10°C and   |
| Ts Min. | -30°C to prevent crystallization  |
| Note    | When stored under these recommended storage conditions, Trigonox 23 will remain within the Nouryon specifications for a period of at least three months after delivery. |

## 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 contact your Nouryon representative. Trigonox 23 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 23 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 23. 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, tert-Butanol, Isomers of neononane

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.