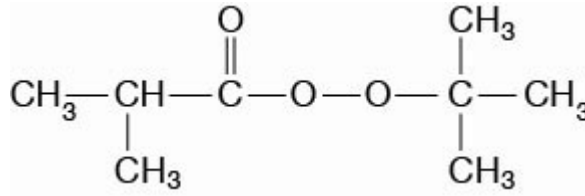


Trigonox 41-C50

tert-Butyl peroxyisobutyrate



Initiator (50% active ingredient in odorless mineral spirits) for (co)polymerization of ethylene and styrene.

CAS number
109-13-7

EINECS/ELINCS No.
203-650-5

TSCA status
listed on inventory

Specifications

Active oxygen	4.89-5.09 %
Appearance	Clear liquid
Assay	49.0-51.0 %
Color	≤20 Pt-Co
Hydroperoxides as TBHP	≤0.10 %
Inorganic + organic hydrolysable chloride	≤100 mg/kg

Characteristics

Density, 10 °C	0.840 g/cm ³
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Applications

Trigonox 41-C50 is an efficient initiator for the ethylene polymerization under high pressure in both autoclave and tubular processes. To obtain a wide spectrum of polymerization temperatures, combinations with other peroxides are applied in practice. Depending on reaction conditions, Trigonox 41-C50 is active in the temperature range between 165°C and 250°C. Trigonox 41-C50 can be used for the polymerization of styrene in the temperature range between 85°C and 105°C. Main application is the copolymerization of styrene with acrylonitrile, acrylates and methacrylates. Trigonox 41-C50 can be used as initiator for the solution (co)polymerization of acrylates and methacrylates in the temperature range of 80-160°C, amongst others for the manufacture of coatings. Trigonox 41-C50 can also be applied as an initiator for the bulk and suspension (co)polymerization of acrylates and methacrylates.

Half-life data

The reactivity of an organic peroxide is usually given by its half-life ($t_{1/2}$) at various temperatures. For Trigonox 41-C50 in chlorobenzene:

0.1 hr	at 118°C (244°F)
1 hr	at 98°C (208°F)
10 hr	at 79°C (174°F)
Formula 1	$k_d = A \cdot e^{-E_a/RT}$
Formula 2	$t_{1/2} = (\ln 2) / k_d$
Ea	135.16 kJ/mole
A	2.07E+15 s ⁻¹
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_e)	20°C (68°F)
Control temperature (T_c)	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_s max.) for each organic peroxide product.

T_s Max.	10°C (50°F)
Note	When stored under these recommended storage conditions, Trigonox 41-C50 will remain within the Nouryon specifications for a period of at least three months after delivery.

Packaging and transport

In North America Trigonox 41-C50 is packed in non-returnable polyethylene containers of 55 lb net weight. In other regions the standard packaging is a 30-liter HDPE can (Nourytainer) for 20 kg peroxide solution. Both packaging and transport meet the international regulations. For the availability of other packed quantities consult your Nouryon representative. Trigonox 41-C50 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 41-C50 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 41-C50. 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, Propane, Propene, tert Butanol, 2-Isopropoxy-2-methylpropane

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. The 'N' is significantly larger and more prominent than the rest of the text.