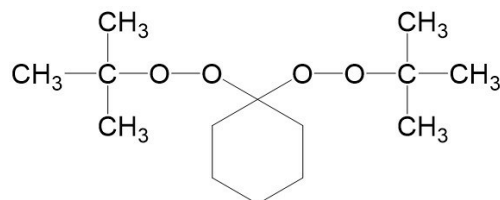


Trigonox 22-E40

1,1-Di(tert-butylperoxy) cyclohexane, 40% solution in mineral oil



Trigonox® 22-E40 is an initiator (40% active ingredient in mineral oil) for (co)polymerization of styrene, acrylonitrile acrylates and methacrylates.

CAS number
3006-86-8

EINECS/ELINCS No.
221-111-2

TSCA status
listed on inventory

Molecular weight
260.4

Active oxygen content peroxide
12.29%

Specifications

Appearance	Clear liquid
Assay	38.5-41.5 %
Color	20 Pt-Co / APHA max.
tert-Butyl hydroperoxide	≤ 0.099 %

Applications

Polymerization of styrene: Trigonox® 22-E40 can be used for the bulk polymerization of styrene in the temperature range between 90 and 120°C. Other applications: Trigonox® 22-E40 can also be used for the (co)polymerization of styrene, acrylonitrile, acrylates and methacrylates in the temperature range between 95°C and 125°C.

Half-life data

The reactivity of an organic peroxide is usually given by its half-life ($t_{1/2}$) at various temperatures. For Trigonox® 22-E40 in chlorobenzene:

0.1 hr	134°C (273°F)
1 hr	113°C (235°F)
10 hr	94°C (201°F)
Formula 1	$k_d = A \cdot e^{-E_a/RT}$
Formula 2	$t_{1/2} = (\ln 2)/k_d$
Ea	142.40 kJ/mole
A	3.47E+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	70°C (158°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 (Ts max.) for each organic peroxide product.

Ts Max.	25°C (77°F)
Note	When stored under these recommended storage conditions, Trigonox® 22-E40 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-liter 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® 22-E40 is classified as Organic peroxide type F; liquid, Division 5.2; UN 3109.

Safety and handling

Keep containers tightly closed. Store and handle Trigonox® 22-E40 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® 22-E40. This information should be thoroughly reviewed prior to acceptance of this product. The SDS is available at nouryon.com/sds-search

Major decomposition products

Carbon dioxide, Methane, tert-Butanol, Acetone, Hexanoic acid

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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Contact Us

Polymer Specialties Americas
polymer.amer@nouryon.com

Polymer Specialties Europe, Middle East, India and Africa
polymer.emeia@nouryon.com

Polymer Specialties Asia Pacific
polymer.apac@nouryon.com

The Nouryon logo consists of a stylized blue '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.