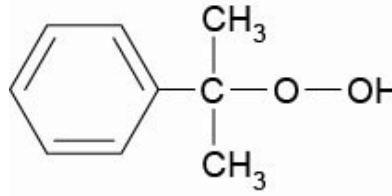


Trigonox K-90

Cumyl hydroperoxide



Initiator (90% active ingredient in aromatic solvent mixture) for (co)polymerization of styrene, butadiene, acrylonitrile, acrylates and methacrylates.

CAS number
80-15-9

EINECS/ELINCS No.
201-254-7

TSCA status
listed on inventory

Molecular weight
152.2

Active oxygen content
peroxide
10.51%

Specifications

Active oxygen	9.14-9.46 %
Appearance	Clear liquid
Assay	87.0-90.0 %
Color	≤ 100 Pt-Co / APHA

Characteristics

Density, 20 °C	1.05 g/cm ³
Viscosity, 20 °C	10.9 mPa.s

Applications

For Polymer production and Poly(meth)acrylics: Trigonox K-90 may be used for various polymerization reactions. It can be used in emulsion, solution and bulk polymerizations. In emulsion processes, Trigonox K-90 may be activated by organic-soluble or water-soluble reducing agents, or by metal compounds to achieve polymerization at room temperature or lower. When no accelerators are used, effective polymerization can be obtained in the temperature range of 50-200°C. For example, styrene and methyl methacrylate can be polymerized in bulk in the temperature range of 60-100°C using Trigonox K-90. Trigonox K-90 may also be used for emulsion polymerization of various vinyl monomers. In this case Trigonox K-90 may be used in combination with reducing agents to achieve reproducible results at low temperatures. For Thermoset: Trigonox K-90 may be used as an initiator for the room temperature cure of promoted unsaturated polyester and vinyl ester resins, and elevated temperature cure of non-promoted resins.

Half-life data

The reactivity of an organic peroxide is usually given by its half-life ($t_{1/2}$) at various temperatures. For Trigonox K-90 in chlorobenzene half-life at other temperatures can be calculated by using the equations and constants mentioned below:

0.1 hr	at 195°C
1 hr	at 166°C
10 hr	at 140°C
Formula 1	$k_d = A \cdot e^{-E_a/RT}$
Formula 2	$t_{1/2} = (\ln 2)/k_d$
Ea	132.56 kJ/mole
A	1.15E+12 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
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.

Ts Max.	40°C and
Ts Min.	-30°C to prevent crystallization
Note	When stored under these recommended storage conditions, Trigonox K-90 will remain within the Nouryon specifications for a period of at least 3 months after delivery.

Packaging and transport

Trigonox K-90 is packed in 30 liter HDPE cans for 25 kg peroxide and 200 kg steel drums of 180 kg net weight. In North America Trigonox K-90 is packed in non-returnable, five gallon polyethylene containers of 35 lb net weight and in coated steel drums of 450 lb net weight. Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your Nouryon representative. Trigonox K-90 is classified as Organic peroxide type F; liquid, Division 5. 2; UN 3109.

Safety and handling

Keep containers tightly closed. Store and handle Trigonox K-90 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 K-90. This information should be thoroughly reviewed prior to acceptance of this product. The SDS is available at nouryon.com/sds-search.

Major decomposition products

Acetophenone, 2-Phenylisopropanol, Methane

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 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.