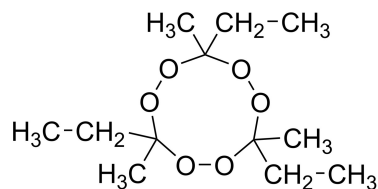


Trigonox 301

3,6,9-Triethyl-3,6,9-trimethyl-1,4,7-triperoxonane



Trigonox 301 is an initiator for the production of controlled rheology polypropylene (CR-PP) and high-temperature polymerization of ethylene.

CAS number
24748-23-0

EINECS/ELINCS No.
429-320-2

TSCA status
listed on inventory

Molecular weight
264.3

Active oxygen content
peroxide
18.16%

Specifications

Active oxygen	7.3-7.6 %
Color	50 Pt-Co/APHA max.

Characteristics

Appearance, 20-25 °C	Clear to slightly hazy liquid
Density, 20 °C	0.875 g/cm ³
Viscosity, 20 °C	5 mPa.s

Applications

Trigonox 301 is an efficient peroxide formulation for the production of controlled rheology polypropylene (CR-PP) in an extrusion process. An important advantage of Trigonox 301 is that the final CR-PP contains a low content of volatiles originating from peroxide decomposition products. Trigonox 301 forms no acetone and no tert-butanol.

Half-life data

The reactivity of an organic peroxide is usually given by its half-life ($t_{1/2}$) at various temperatures. For Trigonox 301 in chlorobenzene half-life at other temperatures can be calculated by using the equations and constants mentioned below:

0.1 hr	170°C (338°F)
1 hr	146°C (295°F)
10 hr	125°C (257°F)
Formula 1	$k_d = A \cdot e^{-E_a/RT}$
Formula 2	$t_{1/2} = (\ln 2)/k_d$
Ea	150.23 kJ/mole
A	1.02E+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	110°C (230°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.

Ts Max.	40°C (104°F)
Ts Min.	10°C (50°F)
Note	When stored under these recommended storage conditions, Trigonox 301 will remain within the Nouryon specifications for a period of at least six months after delivery.

Packaging and transport

The standard packaging is a 30-liter Nourytainer for 25 kg peroxide formulation. Both packaging and transport meet the international regulations. For the availability of other packed quantities consult your Nouryon representative. Trigonox 301 is classified as Organic peroxide type D; liquid, Division 5.2; UN 3105.

Safety and handling

Keep away from open fire, sparks and other sources of heat or ignition. Avoid contact with reducing agents (e.g. amines), acids, alkalis and heavy metal compounds (e.g. accelerators, driers and metal soaps). PLEASE Store Trigonox 301 ABOVE 10°C! Please refer to the Safety Data Sheet (SDS) for further information on the safe storage, use and handling of Trigonox 301. 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, Ethane, Methane, Ethyl acetate, Methyl ethyl ketone, Methyl acetate

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.