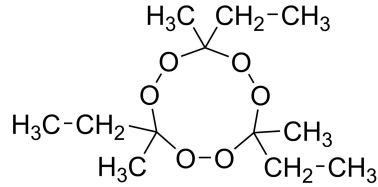


# Trigonox 301-20PP

3,6,9-Triethyl-3,6,9-trimethyl-1,4,7-triperoxonane, 8% on polypropylene



Initiator (20% masterbatch formulation on polypropylene beads) for the production of controlled rheology polypropylene (CR-PP).

**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

Appearance	White beads
Total active oxygen	1.34-1.63 %

## Characteristics

Bulk density	421 kg/m <sup>3</sup>
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## Applications

Trigonox 301-20PP is an efficient peroxide formulation for the production of controlled rheology polypropylene (CR-PP) in an extrusion process in the temperature range of 200-250°C. This beads form masterbatch of the liquid Trigonox 301-20PP allows a more accurate dosage of the peroxide to the polymer. Also a more homogeneous distribution of the peroxide throughout the polymer is of advantage. Using the beads form formulation rather than the liquid form results in a better control of the visbreaking process. Trigonox 301-20PP allows polypropylene producers great flexibility in controlling a polymer's Melt Flow Index (MFI). Small changes in either peroxide concentration or process temperature can produce significantly different MFI's.

## Half-life data

The reactivity of an organic peroxide is usually given by its half-life ( $t_{1/2}$ ) at various temperatures. The half-life of Trigonox 301-20PP in chlorobenzene is:

0.1 hr	170°C
1 hr	146°C
10 hr	125°C
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 <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 may occur with a substance in the packaging as used for transport is the Self-Accelerating Decomposition Temperature (SADT). The SADT is determined on the basis of the Heat Accumulation Storage Test.

SADT	90°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
Note	When stored according to these recommended storage conditions, Trigonox 301-20PP will remain within the Nouryon specifications for a period of at least three months after delivery.

## Packaging and transport

The standard packaging is a 10 kg cardboard box. Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your Nouryon representative. Trigonox 301-20PP is classified as Organic peroxide type F; solid, Division 5.2; UN 3110. In the US as Organic peroxide type C, solid, sample; Division 5.2; UN 3104.

## 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 refer to the Safety Data Sheet (SDS) for further information on the safe storage, use and handling of Trigonox 301-20PP. This information should be thoroughly reviewed prior to acceptance of this product.

## 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, orange, sans-serif font.