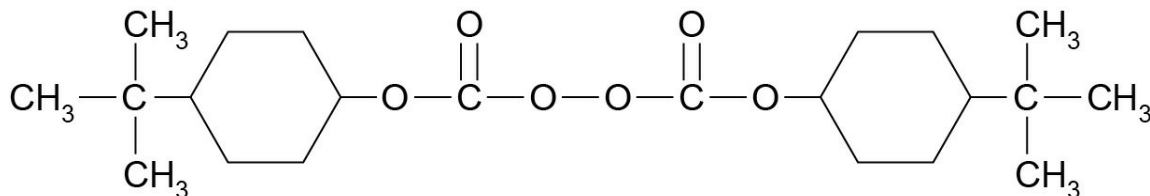


# Perkadox 16S

Di(4-tert-butylcyclohexyl) peroxydicarbonate



Perkadox 16S is a solid peroxydicarbonate used for curing unsaturated polyester resins and (meth)acrylic resins in the temperature range of 60°C and higher. Ideal combination of low activation temperature and relatively high storage temperature. Especially suitable in case a clear transparent end-product is required.

**CAS number**  
15520-11-3

**EINECS/ELINCS No.**  
239-557-1

**TSCA status**  
listed on inventory

**Molecular weight**  
398.5

**Active oxygen content peroxide**  
4.01%

**Concentration**  
3.77-3.89%

## Specifications

|   |  |
|---|--|
| Appearance                                | White powder without any contamination |
| Assay                                     | 94.0-98.0 %                            |
| Inorganic + organic hydrolysable chloride | ≤ 3500 mg/kg                           |

## Characteristics

|                |                           |
|----------------|---------------------------|
| Bulk density   | 450-480 kg/m <sup>3</sup> |
| Density, 20 °C | 0.113 g/cm <sup>3</sup>   |

## Applications

For polymerization of vinyl chloride: Perkadox 16S is applied as an initiator for the suspension and mass polymerization of vinyl chloride in the temperature range between 40°C and 65°C. Perkadox 16S can be used alone or in combination with other peroxides, such as 1,1,3,3-Tetramethylbutyl peroxyneodecanoate (Trigonox 423), Cumyl peroxyneodecanoate (Trigonox 99) or Dilauroyl peroxide (Laurox), to increase reactor efficiency. For Thermoset: Perkadox 16S, Di(4-tert-butyl cyclohexyl) peroxydicarbonate, is a solid peroxy dicarbonate which is used for the curing of unsaturated polyester resins and methacrylic resins mainly in the temperature range of 60°C and higher.

## Half-life data

The reactivity of an organic peroxide is usually given by its half-life ( $t_{1/2}$ ) at various temperatures. For Perkadox 16S in chlorobenzene half-life at other temperatures can be calculated by using the equations and constants mentioned below:

|                |                             |
|----------------|-----------------------------|
| 0.1 hr         | at 82°C (180°F)             |
| 1 hr           | at 64°C (147°F)             |
| 10 hr          | at 48°C (118°F)             |
| Formula 1      | $k_d = A \cdot e^{-E_a/RT}$ |
| Formula 2      | $t_{1/2} = (\ln 2)/k_d$     |
| E <sub>a</sub> | 126.39 kJ/mole              |
| A              | 7.44E+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 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                                    | 40°C (104°F)   |
| Emergency temperature (T <sub>e</sub> ) | 35°C (95°F)  |
| Control temperature (T <sub>c</sub> )   | 30°C (86°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<sub>s</sub> max.) for each organic peroxide product.

|                     |  |
|---------------------|--|
| T <sub>s</sub> Max. | 20°C (68°F)  |
| Note                | When stored under these recommended storage conditions, Perkadox 16S will remain within the Nouryon specifications for a period of at least 3 months after delivery. |

## Packaging and transport

In North America Perkadox 16S is packed in non-returnable cartons containing 25 polyethylene bags of 1 lb net weight. In other regions the standard packaging is a cardboard box for 15 kg peroxide. Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your Nouryon representative. Perkadox 16S is classified as Organic peroxide type C; solid, temperature controlled; Division 5.2; UN 3114.

## Safety and handling

Keep containers tightly closed. Store and handle Perkadox 16S 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 Perkadox 16S. This information should be thoroughly reviewed prior to acceptance of this product. The SDS is available at [nouryon.com/sds-search](http://nouryon.com/sds-search).

## Major decomposition products

Carbon dioxide, 4-tert-Butyl-cyclohexanol

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.