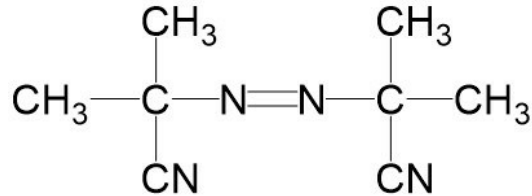


Perkadox AIBN

2,2'-Azodi(isobutyronitrile)



We offer azo initiators, such as Perkadox® AIBN (azobisisobutyronitrile) and Perkadox® AMBN (2-methylbutyronitrile), for bulk, solution suspension and emulsion polymerization of a wide variety of monomers, such as styrene, vinylchloride, vinylidenechloride, acrylonitrile, acrylates and methacrylates. Our most commonly used initiator is AIBN, but our AMBN provides even better solubility than AIBN. Advantages of AIBN initiators: Azo initiators have many advantages over standard organic peroxides, such as the fact that they form no oxygenated byproducts and provide low yellow discoloration. Azo initiators generate only C-centered radicals, which are low energy and very selective and cause a low amount of branching. This provides low Poly Dispersity Index (PDI) values and molecular weights. AIBN and other azo initiators provide excellent color stability in transparent colored polymers, such as PMMA. They do not form oxygenated residues and do not cause oxidative degradation of pigmented or dyed systems. Compared with organic peroxides, azo initiators avoid excessive grafting, making them particularly suitable for use in manufacturing acrylic cast and moulded sheets, as well as adhesives, acrylic fibers, super absorbers, detergents and flocculants. Our Trigonox 421 provides similar technical performance and is a sustainable alternative for AIBN. An additional advantage of Trigonox 421 is that all decomposition products that are generated are non-toxic, which is in contrast to AIBN which forms toxic TMSN.

CAS number
78-67-1

EINECS/ELINCS No.
201-132-3

TSCA status
listed on inventory

Molecular weight
164.2

Specifications

Acetone insolubles	≤ 0.1 %
Appearance	White crystalline solid
Assay	≥ 99 %
Color, 2% solution in acetone	≤ 15 Pt-Co/APHA
Iron	≤ 7 mg/kg
Water	≤ 0.5 %

Characteristics

Bulk density	500-600 kg/m ³
Density, 20 °C	1.110 g/cm ³
Melting point, under decomposition	104 °C

Applications

Perkadox® AIBN can be used for the market segments: polymer production, acrylics production and pharma with their different applications/functions. For more information please check our website and/or contact us.

Half-life data

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

0.1 hr	at 101°C (214°F)
1 hr	at 82°C (180°F)
10 hr	at 64°C (147°F)
Formula 1	$k_d = A \cdot e^{-E_a/RT}$
Formula 2	$t^{1/2} = (\ln 2)/k_d$
E _a	130.23 kJ/mole
A	2.89E+15 s ⁻¹
R	8.3142 J/mole·K
T	(273.15+°C) K

Thermal stability

Azo initiators 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	50°C
Emergency temperature (T _e)	45°C
Control temperature (T _c)	40°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 azo initiators 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 azo initiator.

Ts Max.	25°C (77°F)
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Note	When stored under the recommended storage conditions, Perkadox® AIBN will remain within the Nouryon specifications for a period of at least 3 months after delivery.
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Packaging and transport

The standard packaging is a cardboard box for 3 x 10 kg initiator. Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your Nouryon representative. Perkadox® AIBN is classified as self-reactive solid type C; temperature controlled; Division 4. 1; UN 3234.

Safety and handling

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

Major decomposition products

Nitrogen, Tetramethyl succinonitrile (TMSN), 2-Methylpropanenitrile, Methacrylonitrile

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.