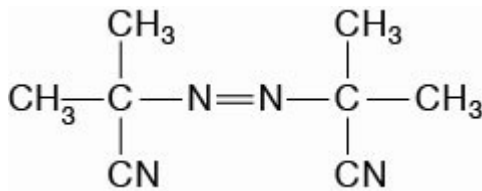


Perkadox AIBN

2,2'-Azodi(isobutyronitrile)



2,2'-Azodi(isobutyronitrile) (Perkadox AIBN) is the (azo)initiator most commonly employed in radical reactions, especially those using tri-n-butyltin hydride. At temperatures above about 60°C, Perkadox AIBN decomposes with evolution of nitrogen to generate isobutyronitrile radicals. Major examples of reactions are cyclizations and halogenation.

CAS number
78-67-1

EINECS/ELINCS No.
201-132-3

TSCA status
listed on inventory

Molecular weight
164.2

Specifications

Appearance	White crystalline solid
Assay	≥ 98.0 %
Color, 13% solution in acetone	≤ 20 Pt-Co
Water	≤ 0.5 %

Characteristics

Bulk density	500-600 (31.2-37.4 lb/ft ³) kg/m ³
Density, 20 °C	1.110 g/cm ³
Melting point, under decomposition	104 °C

Applications

Perkadox AIBN can be successfully used for bulk, solution, suspension, polymerization of a wide variety of monomers, such as styrene, vinyl chloride, vinylidene, acrylonitrile, acrylates and methacrylates. Perkadox AIBN does not form oxygenated residues and does not cause oxidative degradation of pigmented or dyed polymer systems. For this reason, the color stability of transparent, dyed polymers, such as polymethylmethacrylate, is improved. 2,2'-Azodi(isobutyronitrile) (Perkadox AIBN) is also the (azo)initiator most commonly employed in radical reactions, especially those using tri-n-butyltin hydride.

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	$t_{1/2} = (\ln 2)/k_d$
Ea	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.

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).
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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 ($T_s \text{ max.}$) for each azo initiator.

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

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 succionitrile (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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The Nouryon logo consists of a stylized orange 'N' followed by the word 'ouryon' in a lowercase, sans-serif font, all in orange.