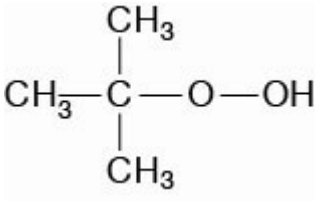
Trigonox A-W70

tert-Butyl hydroperoxide, 70% solution in water



Initiator (70% active ingredient in water) for (co)polymerization of styrene, butadiene, acrylonitrile acrylates and methacrylates.

CAS number 75-91-2	EINECS/ELINCS No. 200-915-7
TSCA status listed on inventory	Molecular weight 90.1
Active oxygen content peroxide 17.76%	

Specifications

Active oxygen	12.25-12.61 %
Appearance	Clear colorless liquid
Assay	69.0-71.0 %
Color	20 Pt-Co / APHA max.

Characteristics

Density, 25 °C	0.935 g/cm^3
Viscosity, 20 °C	4.1 mPa.s

Applications

Polymer produciton: Trigonox A-W70 can be used as an initiator in bulk, aqueous solution and emulsion polymerization of styrene, acrylates and methacrylates. The polymerization can be initiated by radicals generated by the thermal decomposition of Trigonox A-W70 above 110°C or through a redox mechanism at low temperatures. Effective organic reducing agents are ascorbic acid and sodium formaldehyde sulfoxylate, possibly combined with heavy metal compounds such as cobalt or iron salts. Thermoset: Trigonox A-W70 may be used as an initiator for the room temperature cure of promoted unsaturated polyester and vinyl ester resins, and elevated cure of non-promoted resins.

Half-life data

The reactivity of an organic peroxide is usually given by its half-life (t½) at various temperatures. For Trigonox A-W70 in chlorobenzene half-life at other temperatures can be calculated by using the equations and constants mentioned below:

0.1 hr	at 207°C
1 hr	at 185°C
10 hr	at 164°C
Formula 1	kd = A·e-Ea/RT
Formula 2	t½ = (ln2)/kd
Ea	186.01 kJ/mole
A	3.18E+17 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.

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 (Ts max.) for each organic peroxide product.

Ts Max.	35°C and
Ts Min.	0°C to prevent freezing
Note	When stored according to these recommended storage conditions, Trigonox A-W70 will remain within the Nouryon specifications for a period of at least 3 months after delivery.

Packaging and transport

The standard packaging is a 30-liter HDPE can (Nourytainer) for 25 kg peroxide solution or a 220-liter HDPE drum for 190 kg peroxide solution. Delivery in a 1250 l stainless steel Intermediate Bulk Container or in a 20 m3 Nouryon tank container is also possible in a number of countries. Both packaging and transport meet the international regulations. For the availability of other packed quantities consult your Nouryon representative. Trigonox A-W70 is classified as Organic peroxide type F, liquid; Division 5. 2; UN 3109.

Safety and handling

Keep containers tightly closed. Store and handle Trigonox A-W70 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 Trigonox A-W70. This information should be thoroughly reviewed prior to acceptance of this product. The SDS is available at nouryon.com/sds-search.

Major decomposition products

Methane, Acetone, tert-Butanol

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