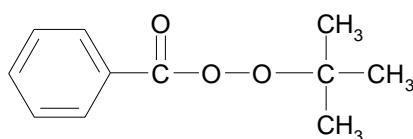


Product Data Sheet

Trigonox[®] C

Product description tert-Butyl peroxybenzoate



Molecular weight	: 194.2
Active oxygen content peroxide	: 8.24%
CAS No.	: 614-45-9
EINECS/ELINCS No.	: 210-382-2
TSCA status	: listed on inventory

Specifications

Appearance	: Clear liquid
Color	: 100 Pt-Co / APHA max.
Assay	: 98.0% min.
Active Oxygen	: 8.07% min.
Hydroperoxides as TBHP	: 0.10% max.
Inorganic + organic hydrolysable chloride	: 50 mg/kg max.

Characteristics

Density, 20°C	: 1.040 g/cm ³
Viscosity, 20°C	: 6.5 mPa.s
Crystallization point	: 8°C; tends to undercooling

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, AkzoNobel recommends a maximum storage temperature (T_s max.) for each organic peroxide product.

For <i>Trigonox C</i>	T_s max. = 25°C (77°F) and T_s min. = 10°C (50°F) to prevent crystallization
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When stored under the recommended storage conditions, *Trigonox C* will remain within the AkzoNobel specifications for a period of at least 3 months after delivery.

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.

For <i>Trigonox C</i>	SADT : 60°C (140°F)
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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).

Major decomposition products

Carbon dioxide, Acetone, Methane, tert-Butanol, Benzoic acid, Benzene

Packaging and transport

In North America *Trigonox C* is packed in non-returnable, one gallon polyethylene containers of 8 lb net weight (packed 4 per case) and 5 gallon polyethylene containers of 40 lb net weight.

In other regions the standard packaging is a 30-liter HDPE can (Nourytainer[®]) for 25 kg peroxide.

Both packaging and transport meet the international regulations. For the availability of other packed quantities contact your AkzoNobel representative.

Trigonox C is classified as Organic peroxide type C; liquid; Division 5.2; UN 3103.

Safety and handling

Keep containers tightly closed. Store and handle *Trigonox C* 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 C*. This information should be thoroughly reviewed prior to acceptance of this product. The SDS is available at www.akzonobel.com/polymer.

Applications

Trigonox C, tert-butyl peroxybenzoate, is an aromatic perester, which is used for the curing of unsaturated polyester resins at elevated temperatures.

Trigonox C is preferred for the curing of UP resin based Hot Press Moulding formulations (SMC, BMC etc.) in the temperature range of 120-170°C.

Trigonox C can also be used in combination with high reactive peroxides like Perkadox[®] 16 or *Trigonox HM* as kicker in formulations for pultrusion in the temperature range of 100-150°C.

In combination with a cobalt accelerator (e.g. Accelerator NL-53, 10% cobalt), *Trigonox C* is also applicable for the cure of UP resins in the temperature range of 70°C and higher. Application area can be: air drying lacquers, diplacquers, filament winding, etc.

Dosage

Depending on application and working conditions, the following peroxide and when applicable cobalt accelerator dosage levels are recommended:

<i>Trigonox C</i>	1 - 2 phr *
Accelerator NL-53	0.1 - 0.6 phr

* phr = parts per hundred resin

*Cure Characteristics
in pure UP resin*

In a high reactive standard orthophthalic UP resin the following application characteristics were determined:

Activation temperature

1 phr <i>Trigonox C</i>	80°C
1 phr <i>Trigonox C</i> + 0.1 phr Acc. NL-53	70°C

Pot life at 20°C

1 phr <i>Trigonox C</i>	56 days
1 phr <i>Trigonox C</i> + 0.1 phr Acc. NL-53	17 days

For the application at elevated temperatures the following data determined in 25 g pure UP resin can be used as an indication of the reactivity:

Time-Temperature curves at 90°C

	Gel time (min.)	Time to Peak (min.)	Peak exotherm (°C)
1 phr <i>Trigonox C</i>	9	25	236
1 phr <i>Trigonox C</i> + 0.1 phr Acc. NL-53P	2	6	258

*Cure Characteristics
in Hot Press Moulding*

In a standard Hot Press Moulding compound based on a high reactive orthophthalic polyester resin with calciumcarbonate as filler and magnesium oxide as thickening agent, the following application characteristics were determined:

Shelf life at 30°C

	not pigmented	+ 5 phr iron oxide black
1 phr <i>Trigonox C</i>	47 days	17 days

Platengel time

	Mould temperature	
	120°C	140°C
1 phr <i>Trigonox C</i>	85 sec.	22 sec.

For more information about the performance of the peroxide in the HPM application reference can be made to the technical bulletin 'Initiators for UP Resin moulding compounds'.

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