

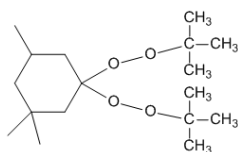
NOROX[®] 802-75-AL3

1,1-Bis(tert.butylperoxy)-3,3,5-trimethyl cyclohexane

CAS#6731-36-8

Liquid mixture, high activity

Structural Formula



Description

Colorless, mobile liquid, consisting of a peroxide mixture based on 1,1-bis(tert-butylperoxy)-3,3,5-trimethyl cyclohexane, de-sensitized with aliphatic hydrocarbons. This product is used as an initiator (radical source) in the curing of unsaturated polyester resins at above 80°C. Main application: hot press molding of SMC or BMC at 120°C.

Technical Data

Appearance	colorless liquid
Active oxygen (calculated)	approx. 5.75 % w/w
De-sensitising agent	aliphatics (b.p. >170°C)
Density at 20°C	approx. 0.84 g/cm ³
Viscosity at 20°C	approx. 3 mPa•s
Refractive index at 20°C	approx. 1.429
Miscibility	immiscible with water miscible with alcohols and aliphatics
Critical temperature (SADT)	approx. 50 °C
Cold storage stability	to below -25 °C
Kick-off temperature	approx. 75 °C
Recommended storage temperature	below 20 °C
Maintenance of activity	3 months

This product is in compliance with the ElektroG (EU-Directives: RoHS 2002/95/EG, WEEE 2002/96/EG)

Application

POLYESTER CURING:

Curing agent for UP resins. Temperature range: 80-150°C. Dosage: 1-3% as supplied. "Shelf life" (gel time of resin + peroxide) at ambient temperature several days or weeks, depending on resin type. Sensitive to certain fillers, pigments and promoters. Shelf life can be prolonged considerably by adding 0.1-0.3% Inhibitor BC 500.

CURING CHARACTERISTICS:

In the range of 70-80°C ("kick-off" temperature) the curing rate is not very high, unless there is a reaction exotherm (e.g. within a heat-retaining mold).

Really short cure times of 1-3 minutes can be achieved only above 120°C. The optimum temperature range for hot press molding is therefore 120-150°C.

PROCESSING METHODS:

Mainly hot press molding of sheet molding compounds (SMC) or bulk molding compounds (BMC), wet press molding at 120°C, continuous impregnating (profiles, paper laminates), dipping (wire windings).

Measurements

Activity

Influence of temperature and peroxide dosage¹⁾ on curing performance and degree of cure. Hot press molding of 16 mm thick SMC pellets and 3 mm thick SMC sheets

Temperature of mold	120°C	120°C	130°C	130°C	140°C	140°C	150°C	150°C
Formulation (parts of weight)								
Standard SMC (resin proportion)	100	100	100	100	100	100	100	100
Norox® 802-75-AL3	1.4	2.8	1.4	2.8	1.4	2.8	1.4	2.8
Curing performance (SMC pellets)								
Flow time (min)	1.55	1.35	1.10	0.90	0.70	0.65	0.60	0.50
Time to peak t _{max} (min)	2.05	1.70	1.50	1.30	1.40	1.20	1.15	1.00
Peak exotherm T _{max} (°C)	180	183	187	187	191	190	197	193
Degree of cure (SMC sheets ²⁾)								
Barcol (934) hardness	7	11	21	24	18	22	18	25
Residual styrene content (%)	2.6	2.1	1.2	0.9	0.7	0.7	0.3	0.1

¹⁾ The amounts added are equivalent to 1% or 2% w/w techn. pure t-butyl perbenzoate

²⁾ The press cycles for the SMC sheets are equal to the t_{max}. of the corresponding SMC pellets.

Further information on suitable curing agents for unsaturated polyester resins is given in our application brochures

Packaging

The standard package sizes of NOROX®802-75-AL3 are cases of 4x7 lb polyethylene bottles and 20 Liter Jerricans filled to 35 pounds net weight.

Disclaimer

This information and all further technical advice are reflecting our present knowledge and experience based on internal tests with local raw materials with the purpose to inform about our products and applications. The information should not be construed as guaranteeing specific properties of products described or their suitability for a particular application, nor as providing complete instructions for use. The information implies no guarantee for product and shelf life properties, nor any liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. We reserve the right to make any changes according to technological progress or further developments.

Application and usage of our products based on our technical advice is out of our control and sole responsibility of the user. The user is not released from the obligation to conduct careful inspection and testing of incoming goods in order to verify the suitability for the intended application.

United Initiators
EU
T: +49 89 74422 237
F: +49 89 74422 6237
cs-initiators.eu@united-in.com

United Initiators
Nafta
T: +1 800 231 2702
F: +1 440 323 0898
cs-initiators.nafta@united-in.com

United Initiators
China
T: +86 20 6131 1370
F: +86 139 2503 8952
cs-initiators.cn@united-in.com

United Initiators
Australia
T: +61 2 9316 0046
F: +61 2 9316 0034
cs-initiators.au@united-in.com

www.united-initiators.com