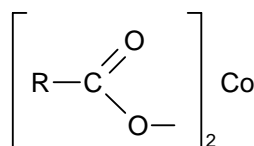


Accelerator NL-51P

Product description

Cobalt(II) 2-ethylhexanoate, 6% Co, in solvent mixture



CAS No. : 136-52-7
 EINECS/ELINCS No. : 205-250-6
 TSCA status : listed on inventory

Specifications

Appearance : clear blue violet liquid
 Cobalt content : 5.9-6.1%

Characteristics

Density, 20°C : 0.963 g/cm³
 Viscosity, 20°C : 16 mPa.s

Storage

Accelerator NL-51P is stable at ambient temperatures.

When stored under these recommended storage conditions, Accelerator NL-51P will remain within the Akzo Nobel specifications for a period of at least six months after delivery.

Major decomposition products

In a fire, cobalt oxides and carbon monoxide may be formed.

Packaging and transport

The standard packaging is a 25 kg and 200 kg drum.

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

Accelerator NL-51P is not classified as a dangerous good according to national and international transport regulations.

Safety and handling

Keep containers tightly closed. Store and handle Accelerator NL-51P in a dry well-ventilated area at ambient temperatures. Do not mix with organic peroxides.

Please refer to the Material Safety Data Sheet (MSDS) for further information on the safe storage, use and handling of Accelerator NL-51P. This information should be thoroughly reviewed prior to acceptance of this product.

The MSDS is available at www.akzonobel-polymerchemicals.com.

Applications

The curing of unsaturated polyester resins at ambient temperatures can in general not be performed by an organic peroxide alone. The radical formation, which is necessary to start the polymerization reaction, is at ambient temperatures with most generally applied organic peroxides too slow. To speed up the radical formation in a controllable way organic peroxides must therefore be used in combination with a so-called accelerator.

For ketone peroxides like methyl ethyl ketone peroxides, cyclohexanone peroxides and acetylacetone peroxide a cobalt accelerator must be used.

For this purpose the following formulations of cobalt 2-ethylhexanoate also called cobalt octoate are available:

Accelerator NL-49P	1% cobalt in aliphatic ester
Accelerator NL-51P	6% cobalt in aliphatic ester
Accelerator NL-53	10% cobalt in white spirit

The reactivity of the various cobalt accelerators is directly correlated with the cobalt content.

The use of a lower concentrated version increases the dosage accuracy. However, when the dosage level of e.g. Accelerator NL-49P must be higher than approx. 3% to achieve the required cure performance, it is advised to use a higher concentrated cobalt accelerator e.g. 0.5% Accelerator NL-51P.

The cure characteristics of an unsaturated polyester resin/ketone peroxide mixture can, apart from the choice of the ketone peroxide, very effectively be influenced by the dosage level of the cobalt accelerator. The dosage level of the cobalt accelerator expressed as Accelerator NL-53 (10% cobalt) can for this purpose be varied between e.g. 0.025% up to approximately 0.6% calculated on the UP resin.

When the right peroxide has been chosen and still the required gel time and cure characteristics can not be obtained with the cobalt accelerator alone, it is possible to increase the reactivity of the cobalt accelerator by the extra addition of a promoter like Accelerator NL-63-100 (N,N-Dimethylaniline) or Promotor D (N,N-Diethylacetoacetamide).

This adaptation of the accelerator system may be necessary when:

- a very short gel time and/or a very fast cure is required e.g. for resin transfer molding or the production of polymer concrete
- highly inhibited and/or low reactive resins must be cured e.g. bisphenol A/fumarate and vinylester resins.

The cure system ketone peroxide/cobalt accelerator can further be characterized by:

- the relatively low color, related to the cobalt dosage, of the cured molding
- a very good UV light resistance of the molded parts
- the long pot life of the cobalt accelerator in the polyester resin

Time-temperature curves at elevated temperatures (70°C and 90°C)

	Cure temp. °C	Gel time min.	Time to Peak min.	Peak exotherm °C
1 phr <i>Trigonox</i> 21	70	9	16	233
1 phr <i>Trigonox</i> 21 + 0.17 phr Acc. NL-51P	70	3	5	214
1 phr <i>Trigonox</i> 21	90	1	6	258
1 phr <i>Trigonox</i> 21 + 0.17 phr Acc. NL-51P	90	0.3	1.5	240
1 phr <i>Trigonox</i> C	90	9	25	236
1 phr <i>Trigonox</i> C + 0.17 phr Acc. NL-51P	90	2	6	258

Pot life at 20°C

The pot life has been determined of Accelerator NL-51P in a standard orthophthalic polyester resin at 20°C.

0.2 phr Accelerator NL-51P >6 months

Trigonox, *Butanox* and *Cyclonox* are registered trademarks of Akzo Nobel Chemicals BV or affiliates in one or more territories.

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. Akzo Nobel Polymer Chemicals, 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. Nothing contained herein shall be construed as granting or extending any license under any patent. Buyer 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 bulletins on the subject matter covered. The user 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. You may not copy this document to a website.



Akzo Nobel Polymer Chemicals BV
Amersfoort, The Netherlands
Tel. +31 33 467 6767
Fax +31 33 467 6151

polymerchemicals.nl@akzonobel-pc.com

Akzo Nobel Polymer Chemicals LLC
Chicago, U.S.A.
Tel. +1 312 544 7000
1 800 828 7929 (Toll free US only)
Fax +1 312 544 7188

polymerchemicals.na@akzonobel-pc.com

Akzo Nobel Polymer Chemicals Ltd.
Shanghai, PR China
Tel. +86 21 6279 3399
Fax +86 21 6247 1129

polymerchemicals.ap@akzonobel-pc.com

www.akzonobel-polymerchemicals.com