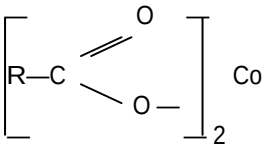
PERGAQUICK C12 X

Thermoset Curing
Cobalt accelerator

Description:

Cobaltoctoate
1,0% , (Co) Solution in TXIB

PERGAQUICK C12 X is used as an accelerator for curing of unsaturated polyester resins at ambient temperature in combination with Ketone peroxides



CAS No. (active substance): 98409-81-4

Technical data:

Appearance:	dark liquid
Assay:	ca. 1%(Co)
Density at 20°C:	0,96 g/cm³

Solubility:

Insoluble in water, soluble in various organic solvents

Storage:

Maximum storage temperature ($T_{s\,max}$):	30°C
Minimum storage temperature ($T_{s\,min}$):	5°C
Storage stability as from date of delivery:	6 months

Keep packaging tightly closed in a well ventilated place at indicated storage temperature.

Safety characteristics:

Flash point: 107° C

Packaging:

25 kg Container; 200 kg Steeldrum

Major decomposition products:

In case of fire, Cobalt oxides and carbonmonoxide may be formed.

Hazardous reactions:

Might react violently with organic peroxides. It is therefore not allowed to store or transport the product together with peroxides. NEVER BRING AN ACCELERATOR INTO DIRECT CONTACT WITH PEROXIDES!

Safety and handling:

Please refer to the material safety data sheet (MSDS) for information concerning safe storage, use and handling of PERGAQUICK C12 X. This information should be thoroughly reviewed prior to acceptance of this product. The MSDS is available for downloading at www.pergan.com or through contacting Pergan directly.

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Application:

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 polymerisation reaction - is too slow at ambient temperatures with most generally applied organic peroxides.

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 Methylethylketone peroxides, cyclohexanone peroxides and acetylacetone peroxide - a cobalt accelerator must be used.

For this purpose the following formulations of cobalt octoate are available:

PERGAQUICK C100	10% cobalt
PERGAQUICK C60 X	6% cobalt in TXIB
PERGAQUICK C12 X	1% cobalt in TXIB
PERGAQUICK C11	1% cobalt in styrene

The reactivity of the various cobalt accelerator formulations 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. PERGAQUICK C12 X must be higher than appox. 3% to achieve the required cure performance, it is advised to use a higher concentrated cobalt accelerator like e.g. 0,5% PERGAQUICK C60 X.

Apart from the choice of the ketone peroxide, the cure characteristics of an unsaturated polyester resin/ ketone peroxide mixture can be influenced very effectively by the dosage level of the cobalt accelerator. For this purpose, the dosage level of the cobalt accelerator expressed as PERGAQUICK C100 (10% Co) can be varied from e.g. 0,025 phr up to approx. 0,6 phr.

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 promotor like PERGAQUICK A200 (DMA).

This adaptation of the accelerator system may be necessary when:
- a very short gel time and/or fast cure is required, e.g. for RTM or manufacture or polymer concrete
- highly inhibited and/or low reactive resins must be cured e.g. bisphenol A/fumarate or vinylesters

The cure system ketone peroxide/cobalt accelerator can be characterized by:
- the relatively low colour, related to cobalt dosage, of the cured moulding
- a very good UV light stability of the moulded parts
- the long pot life of the cobalt accelerator in the polyester resin

Disadvantages can be that the cure system is more sensitive to moisture, pigments and fillers than the cure system Dibenzoyl peroxide / Amine accelerator.

Depending on application area and working conditions, the following accelerator dosage levels are recommended:

PERGAQUICK C12 X:	0,02 to 2,0 phr