

## NOROX<sup>®</sup>CHP FRED

Cumenehydroperoxide  
CAS#80-15-9  
Liquid mixture

### Description

NOROX<sup>®</sup>CHP FRED is a red coloured liquid solution of cumene hydroperoxide. It is an economical free-radical initiator for unsaturated polyester resins, vinyl monomers and styrenation of oils and alkyds. NOROX<sup>®</sup>CHP FRED may be used singly or in combination with other peroxides in both ambient and elevated temperature processes. Special advantages: Due to the red coloured peroxide an optimal homogenization in the mixture is ensured. After the curing reaction the red coloration of the compound is no longer noticeable.

### Technical Data

Appearance	Red liquid
Active oxygen	8.7 %
Cumene hydroperoxide	80-85 %
Flash point (Seta C.C.):	> 72°C
Density at 20°C	1.05 g/cm <sup>3</sup>
Soluble in :	Alcohols, ketones, esters, hydrocarbons
Slightly soluble in:	Water
Critical temperature (SADT)	> 60°C
Recommended storage temperature	Below 30°C.
Maintenance of activity at 30°C as from date of delivery	6 months

### Application

NOROX<sup>®</sup>CHP FRED is especially suitable for the cure initiation of unsaturated polyester resin systems at both ambient and elevated temperatures. The typical exotherm curve exhibited is usually mild and flat leading to a gradual, but thorough, cure. This characteristic can minimise crazing and cracking especially in thick cross-sections. NOROX<sup>®</sup>CHP FRED is normally used in pre-promoted resin systems employing cobalt and/or manganese compounds as the primary accelerators.

**CAUTION: NOROX<sup>®</sup>CHP FRED SHOULD NEVER BE MIXED WITH ACIDS OR DIRECTLY WITH PROMOTERS OR ACCELERATORS. A VIOLENT DECOMPOSITION CAN OCCUR WHICH MAY RESULT IN A FIRE AND/OR EXPLOSION.**

Primarily, NOROX®CHP FRED is used in combination with higher exotherm producing peroxides when the normal operating temperature is under 82°C. These combinations will result in lower peak exotherms with the exact magnitude determined by the blend ratio. The use of NOROX®CHP FRED in the blend will lengthen the cure time but should not diminish the ultimate cure. When operating at temperatures over 82°C, NOROX®CHP FRED can behave similar to high exotherm peroxide. Over 121°C, use of NOROX®CHP FRED can give exotherms exceeding those normally expected for dibenzoyl peroxide or methyl ethyl ketone peroxide.

## Measurements

Resin: Epoxy Vinylester resin\* Temperature: 25°C  
Initiator %: 1.5 Accelerator %: 0.10 % (12 % Cobalt) + 0.05 % DMA

Initiator	Gel time Min	Time to peak min	Peak Exotherm Temp °C	935 Hardness			934 Hardness 24 hr
				2 hr	3 hr	4 hr	
<b>NOROX® CHP FRED</b>	<b>56</b>	<b>&gt;236</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>
NOROX® CHM-50	16	61	92	41	50	55	14
NOROX® MEKP- 925H	18	41	128	10	30	32	5

\* Results determined by United Initiators laboratory test methods and are used for comparison, only. Resin suppliers should be contacted for specific recommendations for individual resins.

## Packaging

The standard package size of NOROX®CHP FRED is 25 kg polyethylene bottles.

## 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](http://www.united-initiators.com)