Technical Data Sheet

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NOROX®PD-40 FRED

Acetyl Acetone peroxide
CAS#13784-51-5
Liquid mixture

Description

NOROX®PD-40 FRED is a clear solution of acetyl acetone peroxide (AAP), or 2,4-Pentanedione peroxide in a phlegmatizer. NOROX®PD-40 FRED is a very effective polymerization initiator for the room temperature cure of unsaturated polyester resins and gives exceptionally fast cures without significantly affecting gel times in most resin systems. NOROX®PD-40 FRED has the added advantage of being a low fire or explosion hazard.

Technical Data

Appearance	Clear red liquid
Active oxygen	4.1 ± 0.1%
Specific Gravity at 20°C	1.07 – 1.10 g/cm^3
Flash point (Seta closed cup)	> 65°C (> 149°F)
Critical temperature (SADT)	60°C (140°F)
Soluble in	Water, ethers, ketones, alcohols, glycols
Slightly soluble in	Aromatic, chlorinated and aliphatic hydrocarbons
Recommended storage temperature	10-25°C
Maintenance of activity at 25°C as from date of delivery	12 months

Application

NOROX®PD-40 FRED is a very effective polymerization initiator for the room temperature cure of unsaturated polyester resins and gives exceptionally fast cures without significantly affecting gel times in most resin systems. Due to the very fast cure of NOROX®PD-40 FRED, the exotherm development is most often higher than common MEKP-cobalt curing system, and therefore, not recommended to cure thick laminates in one step. This performance characteristic is especially beneficial in resin transfer moulding (RTM), cast polymers, and other applications requiring fast mould turnaround for production efficiencies.
It is not advisable to use NOROX®PD-40 FRED or any other AAP with gelcoats because of risk of yellowing on white gelcoats and due to the polar property of AAP which can cause osmosis effects.
NOROX®PD-40 FRED is best suited for singly promoted resins using cobalt promotion alone. Levels of cobalt (naphthenate or octoate in 6% solutions) should be in the range of 0.1 to 0.5%. In some cases, the addition of 0.1% to 0.3% diethyl- or dimethylaniline speeds the curing further and gives extremely high exothermic temperature. The resin inhibitor type and level also has an important effect on the performance of NOROX®PD-40 FRED. In general,

high inhibitor levels are usually not desirable, and use of some quaternary ammonium salts can cause significant yellowing of the resin. Also, quaternary ammonium compounds can have an inhibiting effect on the resin system gel- and cure properties.

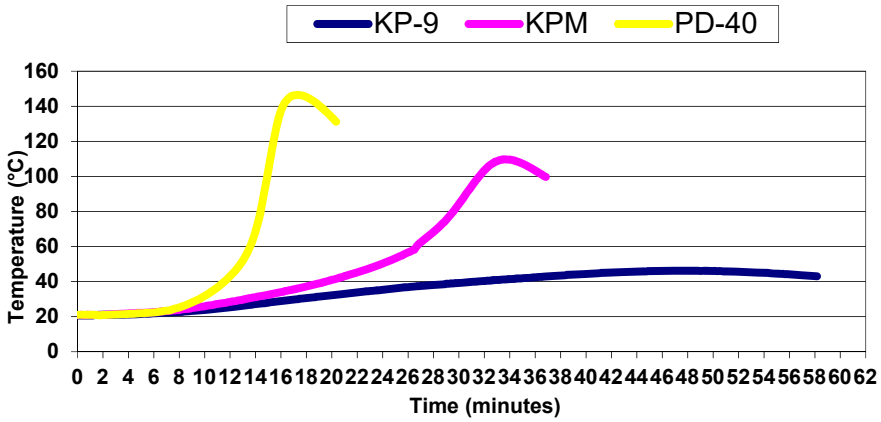
Measurements

A reactivity test with an unsaturated polyester resin gave the following results:

Resin: Orthophthalic polyester Temperature: 21°C
Initiator %:1.0 Accelerator % 1% (1% cobalt)

Initiator	Gel time min	Time to peak min	Peak exotherm temp °C
NOROX®PD-40 FRED	***8***	***17***	***147***
NOROX®KPM	9	34	110
NOROX®KP-9	11	48	47

Reactivity of Norox® Initiators:



Standard Packaging

The standard package sizes of NOROX®PD-40 FRED are 5 kg (8 lb) and 25 kg (40 lb) polyethylene bottles.

Disclaimer

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