

Technical Data Sheet

Polyester Curing

Ketone peroxides (Ambient temperature)

CUROX[®] M-103

Methyl ethyl ketone peroxide
CAS#1338-23-4
Liquid mixture

Description:

Colourless, mobile liquid, consisting of peroxides based on methylethylketone, essentially desensitised with phthalate plasticiser. This ketone peroxide is used as an initiator (radical source) in the curing of unsaturated polyester resins. Main application: curing of moulded, casted or winded glasfibre reinforced products at ambient temperature in combination with cobalt accelerators.

Technical Data:

| | |
|--------------------------------------|------------------------------------|
| Appearance | colourless liquid |
| Active oxygen | approx. 9.0 % w/w |
| Free hydrogenperoxide content..... | below 0.5 % w/w |
| Water content..... | below 1.3 % w/w |
| De-sensitising agent..... | dimethylphthalate |
| Density at 20°C..... | approx. 1.12 g/cm ³ |
| Viscosity at 20°C | approx. 22 mPa·s |
| Miscibility | miscible with alcohols, phthalates |
| Critical temperature (SADT) | above 60°C |
| Cold storage stability..... | below -20°C |
| Recommended storage temperature..... | 0 to 30°C |
| Maintenance of activity at 25° | > 6 months |

Application:

POLYESTER CURING: Curing agent preferably for Vinylester resins at ambient temperature in combination with cobalt accelerators but also suitable in all unsaturated polyesters if long geltime is required. Standard dosage level: 1-3% as supplied, with 0.5-2% of a 1% cobalt solution. Cobaltoctoate/Dimethylaniline-combinations can have a stronger acceleration effect in Vinylesterresins.

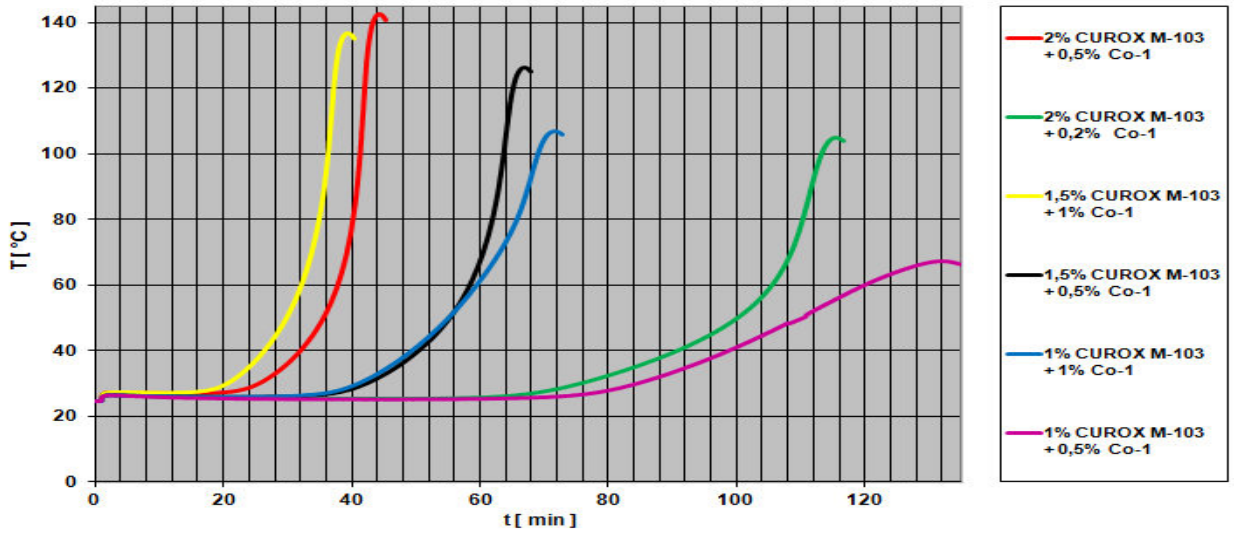
"Pot life" (gel time of resin + peroxide + accelerator) in vinylester resins relatively short, but may be prolonged by adding Inhibitor TC-510.

CURING PERFORMANCE: Depending on resintype moderate/strong evolution of heat. Quit long geltime and gel to peaktime in unsaturated polyester resins. Temperatures below 20°C prolong curing times considerably, alternatively cobalt / amine accelerators should then be used. Vinylester resins can be cured in moderate time with very less foaming effects but higher exothermal peak in thick layers

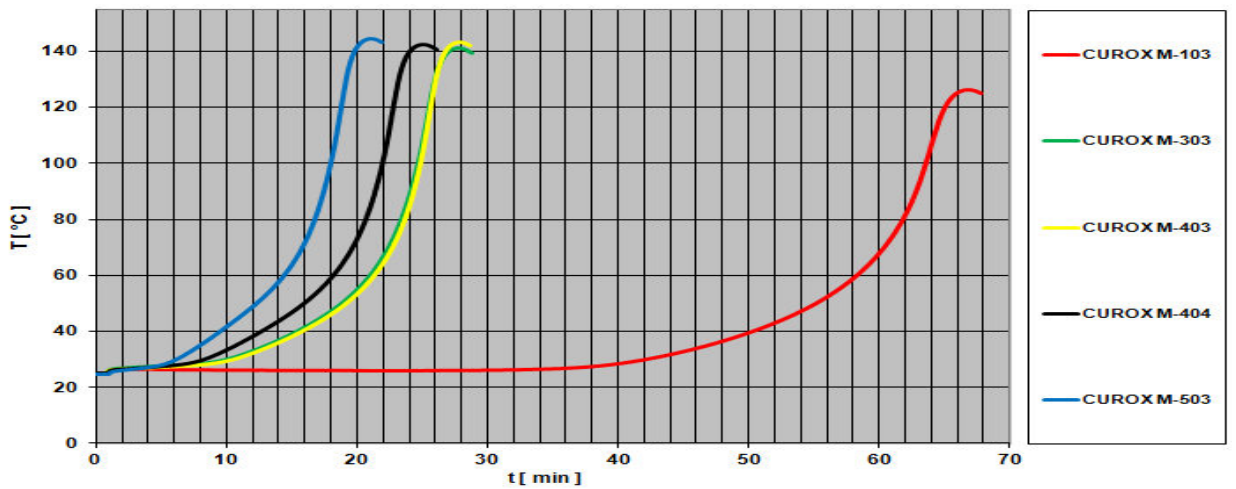
PROCESSING METHODS: Particularly hand lay-up, spray lay-up, centrifugal casting, filament winding, casting of resins, and surface coatings (putties, fillers, gelcoats and topcoats).

SPRAY EQUIPMENT: Use spray equipment in accordance with manufacturer's instructions. Ensure all safety devices are operational. Do not clear gun by spraying MEKP into the air.

Reactivity:

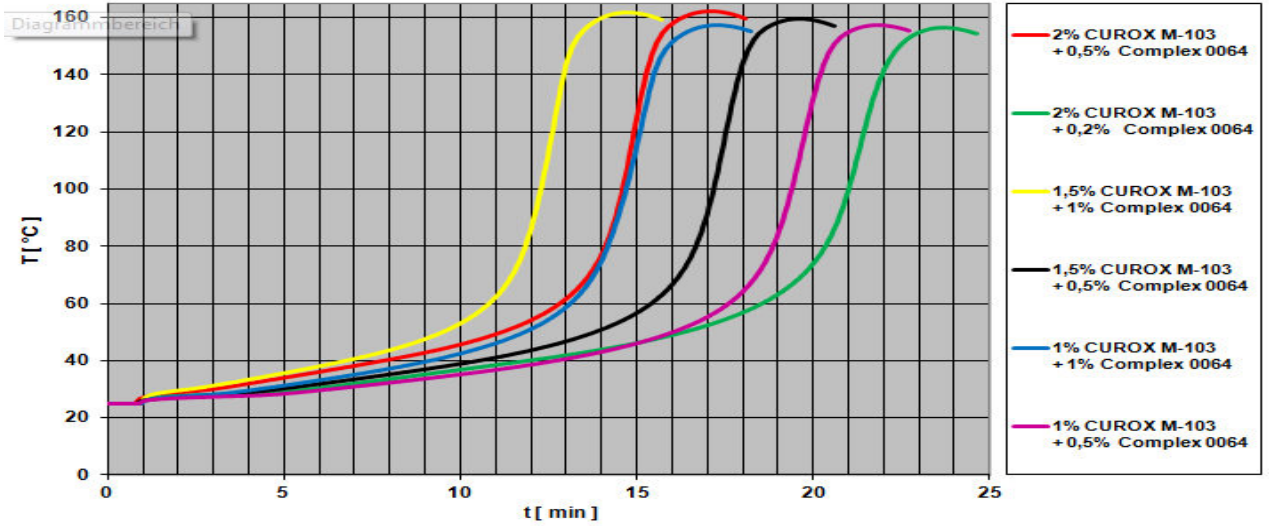


| Measurements in compliance with DIN 16945 at 25°C with OPA resin (20g in a test tube) | | | | | | |
|---------------------------------------------------------------------------------------|--|------|-------|------|------|------|
| Medium reactive resin type (OPA) | | 100 | 100 | 100 | 100 | 100 |
| CUROX® M-103 [Vol-%] | | 2.0 | 2.0 | 1.5 | 1.5 | 1.0 |
| BÜFA® Accelerator Co 1 [Vol-%] | | 0.5 | 0.2 | 1.0 | 0.5 | 1.0 |
| Curing data | | | | | | |
| Gel time 25 -30°C t_{gel} [min] | | 25.5 | 75.5 | 20.5 | 42.0 | 40.5 |
| Gel time 25 -35°C t_{gel} [min] | | 29.0 | 84.0 | 24.0 | 47.0 | 45.5 |
| Curing time t_{max} [min] | | 45.0 | 115.5 | 39.5 | 66.5 | 71.5 |
| Peaktemperature T_{max} [°C] | | 141 | 105 | 137 | 127 | 106 |

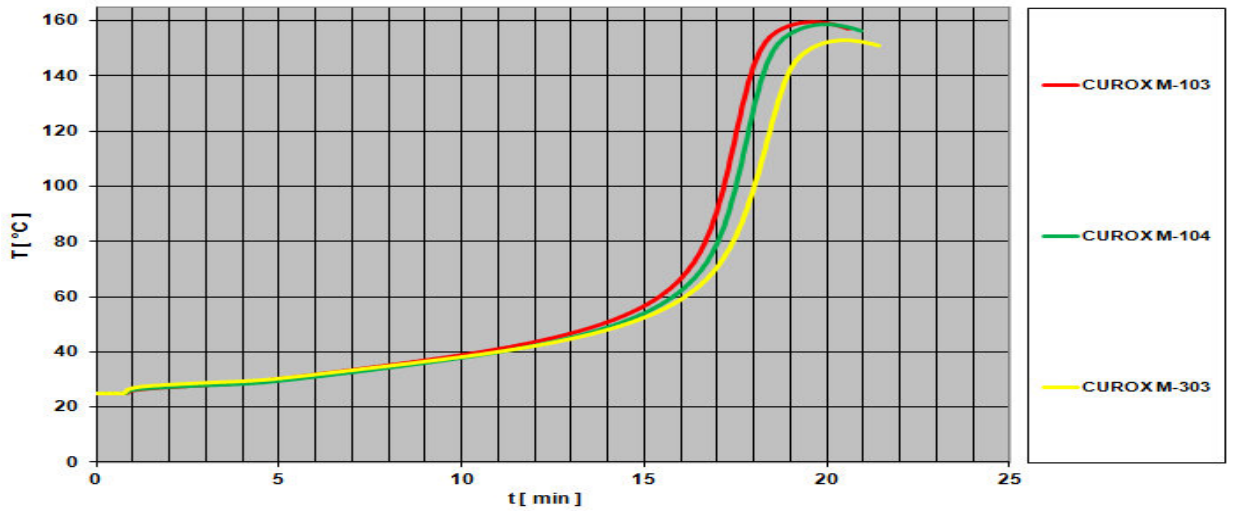


| Measurements in compliance with DIN 16945 at 25°C with OPA resin (20g in a test tube) | | | | | |
|---------------------------------------------------------------------------------------|--|------|------|------|------|
| Medium reactive resin type (OPA) | | 100 | 100 | 100 | 100 |
| CUROX® M-103 [Vol-%] | | 1.5 | | | |
| CUROX® M-303 [Vol-%] | | | 1.5 | | |
| CUROX® M-403 [Vol-%] | | | | 1.5 | |
| CUROX® M-404 [Vol-%] | | | | | 1.5 |
| CUROX® M-503 [Vol-%] | | | | | 1.5 |
| BÜFA® Accelerator Co 1 [Vol-%] | | 0.5 | 0.5 | 0.5 | 0.5 |
| Curing data | | | | | |
| Gel time 25 - 30°C t_{gel} [min] | | 42.0 | 10.0 | 10.5 | 8.5 |
| Gel time 25 - 35°C t_{gel} [min] | | 47.0 | 13.0 | 13.5 | 11.0 |
| Curing time t_{max} [min] | | 66.5 | 28.0 | 28.0 | 25.0 |
| Peaktemperature T_{max} [°C] | | 127 | 141 | 143 | 143 |

Reactivity:



| Measurements in compliance with DIN 16945 at 25°C with VE resin (20g in a test tube) | | | | | | |
|--------------------------------------------------------------------------------------|--|------|------|------|------|------|
| Medium reactive resin type (VE) | | 100 | 100 | 100 | 100 | 100 |
| CUROX® M-103 [Vol-%] | | 2.0 | 2.0 | 1.5 | 1.5 | 1.0 |
| BÜFA® Accelerator Complex 0064 [Vol-%] | | 0.5 | 0.2 | 1.0 | 0.5 | 1.0 |
| Curing data | | | | | | |
| Gel time 25 -30°C t _{gel} [min] | | 3.0 | 5.5 | 2.5 | 5.0 | 4.5 |
| Gel time 25 -35°C t _{gel} [min] | | 5.5 | 9.0 | 5.0 | 8.0 | 7.0 |
| Curing time t _{max} [min] | | 17.0 | 23.5 | 15.0 | 19.5 | 17.5 |
| Peakttemperature T _{max} [°C] | | 163 | 157 | 161 | 160 | 157 |



| Measurements in compliance with DIN 16945 at 25°C with VE resin (20g in a test tube) | | | |
|--------------------------------------------------------------------------------------|--|------|------|
| Medium reactive resin type (VE) | | 100 | 100 |
| CUROX® M-103 [Vol-%] | | 1.5 | |
| CUROX® M-104 [Vol-%] | | | 1.5 |
| CUROX® M-303 [Vol-%] | | | 1.5 |
| BÜFA® Accelerator Complex 0064 [Vol-%] | | 0.5 | 0.5 |
| Curing data | | | |
| Gel time 25 - 30°C t _{gel} [min] | | 5.0 | 5.5 |
| Gel time 25 - 35°C t _{gel} [min] | | 8.0 | 8.5 |
| Curing time t _{max} [min] | | 19.5 | 20.0 |
| Peakttemperature T _{max} [°C] | | 160 | 158 |

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

Contact: <http://www.united-initiators.com>

Disclaimer

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