PRODUCT BULLETIN

May 2021

HYDREX® 100 HF 33375-00

Low Styrene Vinyl Ester Infusion Resin

DESCRIPTION

HYDREX® 100 HF 33375-00 is a low styrene, non-promoted, vinyl ester resin suitable for fabricating small to large FRP structures using vacuum infusion or other similar closed mold processes. HYDREX® 100 HF 33375-00 requires the addition of cobalt, and is formulated for ambient curing with cumene hydroperoxide (CHP) initiators only. Do not use CHP blend initiators—contact technical service with questions.

BENEFITS & FEATURES

- Batch-to-batch consistency and uniformity from production utilizing Statistical Process Control (S.P.C) & Statistical Quality Control (S.Q.C) techniques
- Complies with Rule 1162 and Regulation 8: Rule 50 for Polyester Resin Operations with less than 35% styrene (by weight)
- Rapid wetting of reinforcements, improved turnover and fabrication time, maintenance of desired resin to glass ratio, and reduced air entrapment due to low viscosity
- Reduced micro-air and porosity with improved mechanical properties due to non-foaming upon initiation
- Maintains mechanical properties and reduces glass print at high temperatures because of high heat distortion temperature
- Process flexibility from adjustability to various gel times
- Lloyd's Register certified

PROPERTIES – LIQUID

Property(1)	Unit	33375-00
NVM	%	67
Viscosity(2)	cps	205
Gel Time(3)	minutes	53
Total Time to Peak	minutes	93
Peak Exotherm	°C/°F	135/275
Specific Gravity	-	1.056
Flash Point (Seta Closed Cup)	°C/°F	32/89

1) All properties at 25°C/77°F unless otherwise noted
2) Brookfield Viscometer LV Spindle #2 at 12 RPM
3) Promotion: 0.3 g of 12% Cobalt per 100.0 g of resin; initiator: 2.0 cc of CHP per 100.0 g of resin

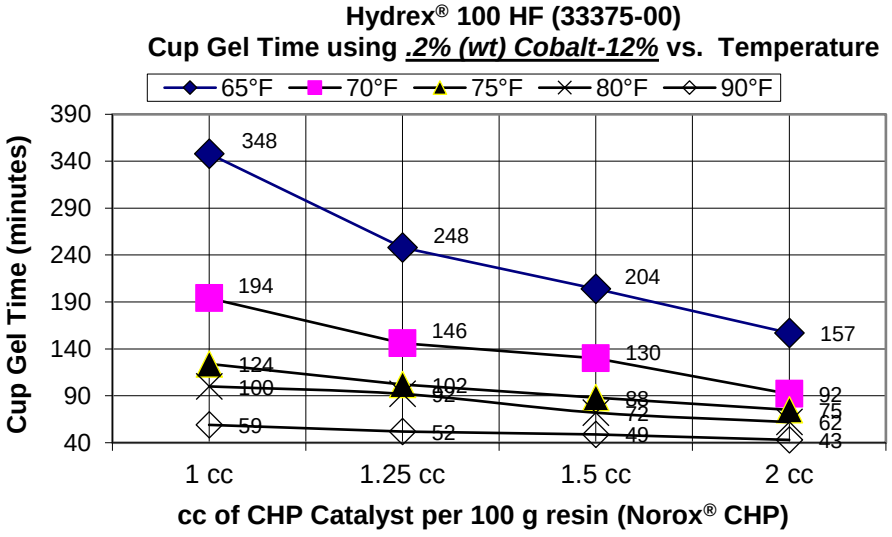
PROPERTIES – PHYSICAL

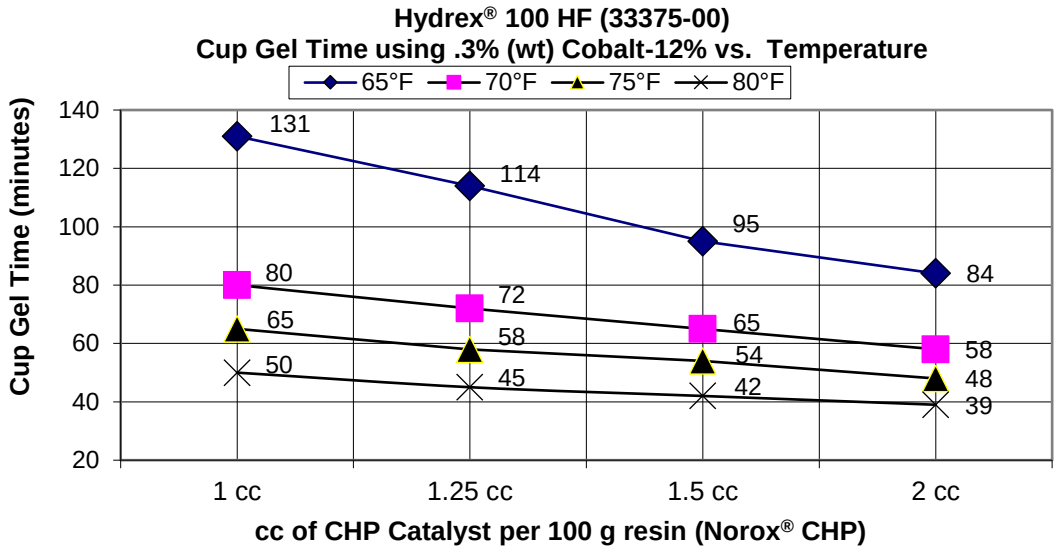
Property[1]	Unit	Neat Resin Casting[2]	Test Method
Tensile Strength	psi	12,300	ASTM D 638
Tensile Modulus	psi	587,000	ASTM D 638
Tensile Elongation	%	4.10	ASTM D 638
Flexure Strength	psi	19,000	ASTM D 790
Flexure Modulus	psi	550,000	ASTM D 790
Compression Strength	psi	16,000	ASTM D 695
Heat Deflection Temperature	°C/°F	72/162	ASTM D 648
Hardness, Barcol Model 934-1	HB	44	ASTM D 2583
Water Absorption - 2 hours at 212°F - 24 hours at 73°F	 % gain % gain	 0.65 0.22	ASTM D 570
Izod Impact -Type "E"	ft-lb/in	4.18	ASTM D 256

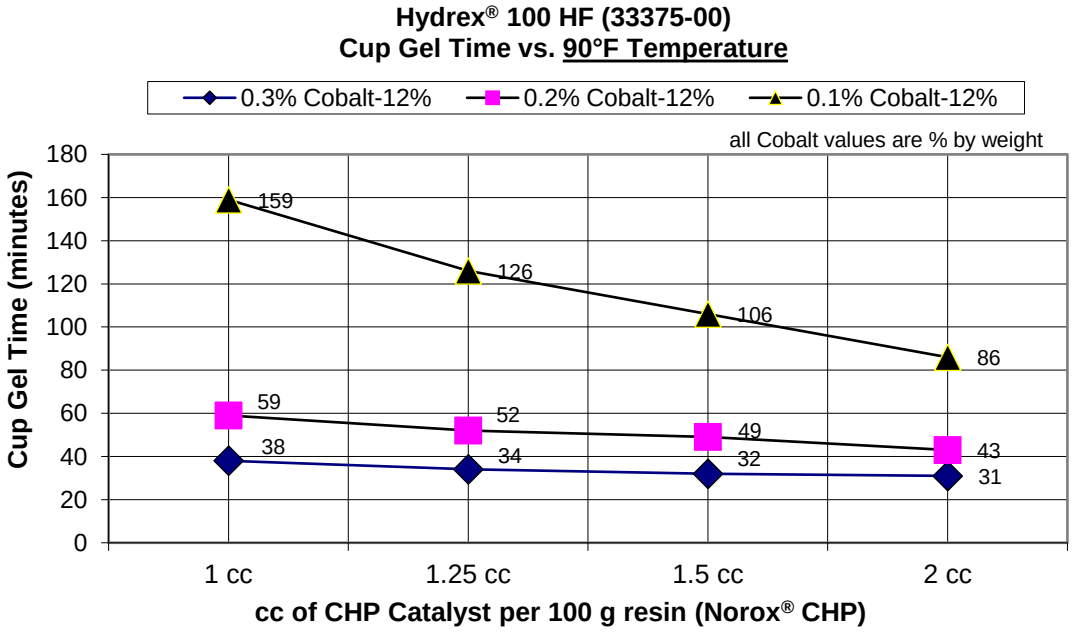
1) Physical properties were determined using internal Polynt test methods that are similar to those listed above.
2) Promotion: 0.3% g of 12% Cobalt per 100.0 g resin; Initiation: 2.0% United Initiators CHP. Cured 16 hrs. @ 73°F and post-cured 2 hrs. @ 140°F

APPLICATION

HYDREX® 100 HF 33375-00 is un-promoted to allow for customization of fast and slow gel times for small or large parts. The graphs below show promotion and initiator levels recommended to achieve a range of gel times at various temperatures.




Hydrex® 100 HF (33375-00)
Cup Gel Time using .3% (wt) Cobalt-12% vs. Temperature
65°F
70°F
75°F
80°F
Cup Gel Time (minutes)
140
120
100
80
60
40
20
131
114
95
84
80
72
65
58
65
58
54
48
50
45
42
39
1 cc
1.25 cc
1.5 cc
2 cc
cc of CHP Catalyst per 100 g resin (Norox® CHP)


Hydrex® 100 HF (33375-00)
Cup Gel Time vs. 90°F Temperature
0.3% Cobalt-12%
0.2% Cobalt-12%
0.1% Cobalt-12%
all Cobalt values are % by weight
Cup Gel Time (minutes)
180
160
140
120
100
80
60
40
20
0
159
126
106
86
59
52
49
43
38
34
32
31
1 cc
1.25 cc
1.5 cc
2 cc
cc of CHP Catalyst per 100 g resin (Norox® CHP)

How to Promote Hydrex® 100 HF 33375-00 to Achieve Shorter Gel Times

	% by weight of extra Promoter (1)(2)(3)		
Co-12% Solution	0.3	0.4	0.4
DMA			0.35
DEA		0.4	
Gel Time (min)	57.4	21	19.25
Interval (min)	35.0	11.7	8.7
Peak Exotherm (°F)	310	333	352

1) Initiator: 2 cc CHP / 100 g resin
2) Mix all promoters well before adding any initiator
3) This will produce a much higher laminate exotherm than the standard Hydrex® 100 HF and this promoter chart is suggested for faster cure and demold times using thinner laminates.

Refer to Polynt's Composites Applications Guide ("Cookbook") for equipment and application recommendations. Each user must determine the suitability of this product to his/her particular mode of operation and intended end-use application. A Polynt representative will be available to assist in the proper selection of all Polynt-Reichhold products available for commercial use.

SHELF LIFE & STORAGE

The shelf life of HYDREX® 100 HF 33375-00 resin is 180 days from the date of manufacture from Polynt. To maximize usage life and maintain optimum properties, resins and gel coats should be stored in the original closed container at temperatures below 23°C/73°F and away from ignition sources and sunlight. Keep containers sealed to prevent moisture pick-up and monomer loss.

SAFETY & WARRANTY

To receive a copy of our safety and warranty information, please email safetyandwarranty@polynt.com.