

- DESCRIPTION**                    4mate-vis-HT is a synthetic polymer used to viscosify formate based drilling and completion fluids.
- ADVANTAGES**                    ➤        4mate-vis-HT has excellent heat stability allowing fluids to be used in applications where the temperature is up to and in excess of 400°F.
- APPLICATION**                    ➤        Viscosity control in sodium, potassium or cesium formate based drilling fluids.  
   ➤        Viscosity control in completion fluids using sodium, potassium or cesium formate.
- PROPERTIES**                    ➤        Off-White Powder  
   ➤        Specific Gravity – 1.36  
   ➤        Activity – 100%  
   ➤        Packaged in 50 lb. bags  
   ➤        Loading Rate – 2 to 10 lb./bbl  
   ➤        See Rheology Data

The information contained herein is based on data considered accurate with representative samples. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. The above data does not imply specifications for this product. Fritz Industries, Inc. assumes no responsibility for personal injury or property damage to vendees, users or third parties, caused by the material. Such vendees or users assume all risks associated with the use of the material. Consult the Material Safety Data Sheet before using this product.

## 4mate-vis-HT Heat Aging

Loading for all tests – 6 ppb 4mate-vis-HT  
All readings @ 120°F

	600 rpm Reading							
Hours Hot Rolled @ 375°F	16	24	48	168	336	504	672	744
Cs/K Formate	126	116	112	109	91	89	87	86
Cs Formate	122	118	113	100	100	96	92	92
50/50 Cs/K		135	128	114	109	109	107	110

	300 rpm Reading							
Hours Hot Rolled @ 375°F	16	24	48	168	336	504	672	744
Cs/K Formate	75	68	66	58	52	50	49	49
Cs Formate	74	71	68	60	60	57	55	55
50/50 Cs/K		83	76	66	63	63	61	63

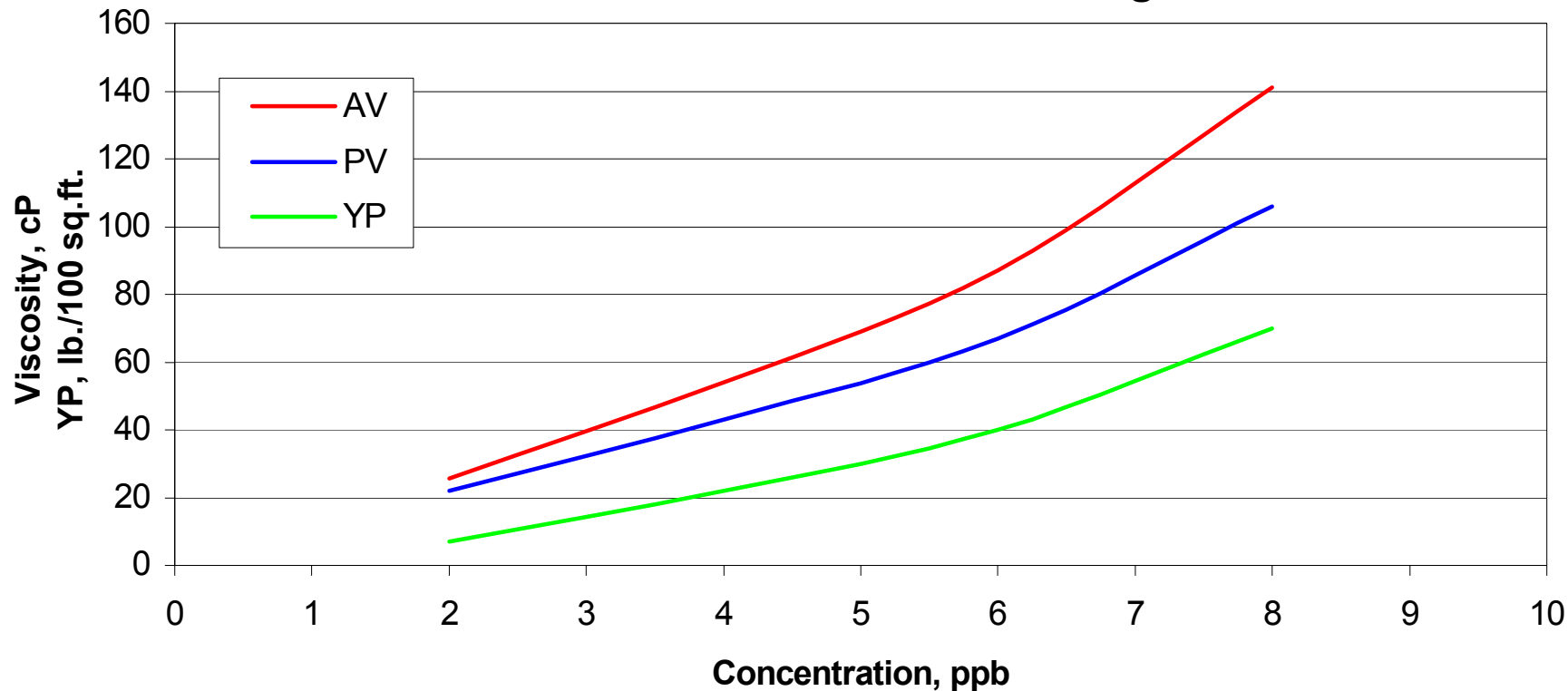
	Apparent Viscosity							
Hours Hot Rolled @ 375°F	16	24	48	168	336	504	672	744
Cs/K Formate	63	58	56	54.5	45.5	44.5	43.5	43
Cs Formate	61	59	56.5	50	50	48	46	46
50/50 Cs/K		67.5	64	57	54.5	54.5	53.5	55

	Plastic Viscosity							
Hours Hot Rolled @ 375°F	16	24	48	168	336	504	672	744
Cs/K Formate	51	48	46	51	39	39	38	37
Cs Formate	48	47	45	40	40	39	37	37
50/50 Cs/K		52	52	48	46	46	46	47

	Yield Point							
Hours Hot Rolled @ 375°F	16	24	48	168	336	504	672	744
Cs/K Formate	34	20	20	7	13	11	11	12
Cs Formate	26	24	23	20	20	18	18	18
50/50 Cs/K		31	24	18	17	17	15	16

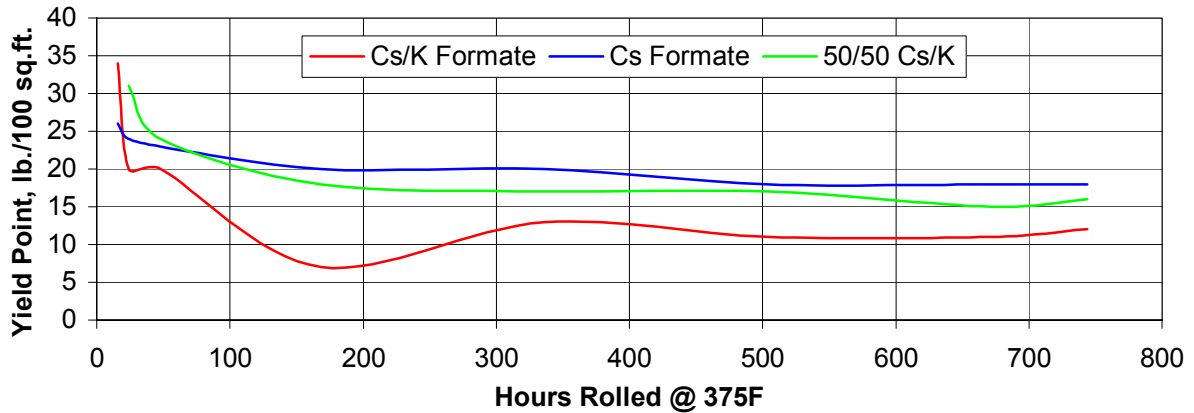
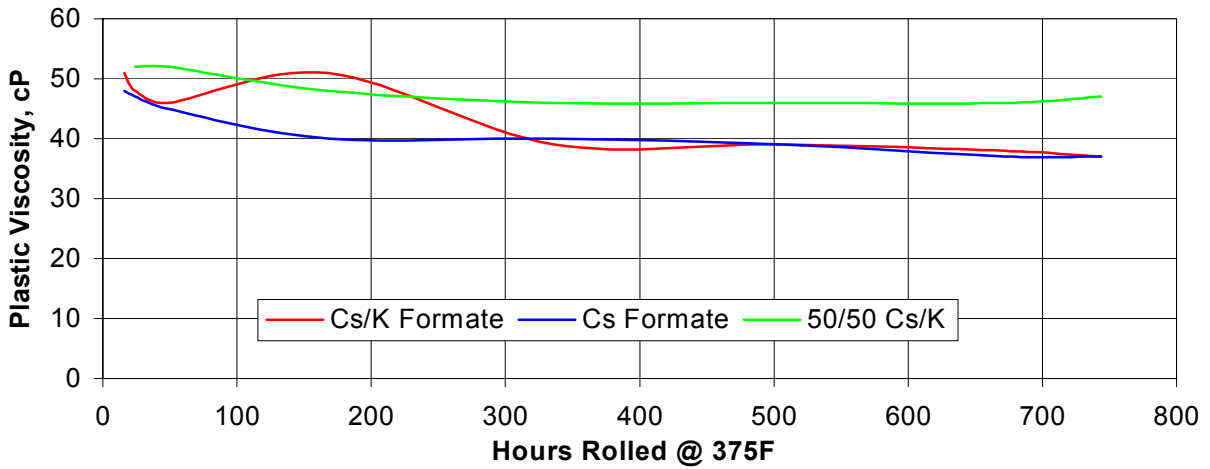
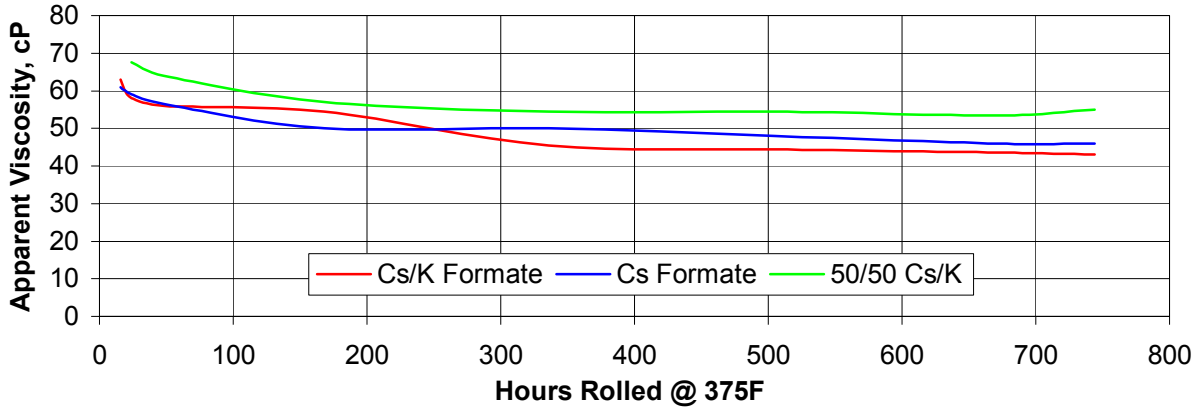
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**AV, PV, & YP vs. 4mate-vis-HT  
Concentration in Cesium Formate Unaged**



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