



BULLETIN VC-518B (Supersedes VC-518A)

Ambergum™ 1221 water-soluble polymer

Desensitizing Gum for Fountain Solutions Compatibility with Isopropanol Substitutes

Lithographic fountain solutions commonly incorporate alcohols (such as isopropanol) to improve press operating latitude. However, the volatility of these alcohols has led to the development of a number of alcohol substitutes that also offer press latitude. The compatibility of Ambergum 1221 water-soluble polymer, an improved desensitizing gum, with several alcohol substitutes has been tested.

Ambergum 1221 water-soluble polymer solutions, at 2%, 5%, and 10% solids, proved to be compatible with Butyl Cellosolve*, Dowanol PM*, and Dowanol DPM*, as well as isopropanol.

Test Procedure

Solutions of Ambergum 1221 water-soluble polymer were prepared at 2%, 5%, and 10% solids. A preservative (methyl parasept) was added at 0.1% level.

The alcohol substitutes were added, 6% by volume, to the Ambergum 1221 water-soluble polymer solutions and stirred for 30 minutes. Viscosity and solution compatibility were studied after 1 hour and after 1, 7, 14, 21, and 28 days. Ambergum 1221 water-soluble polymer solutions, with preservative only, were tested as a control.

Results

The solutions of Ambergum 1221 water-soluble polymer were compatible with all three alcohol substitutes, showing no separation over time. Results of the stability study are listed in the following table.

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- * Isutyl Cellosolve ethylene glycol monobutyl ether (Union Carbide).
 - * Dowanol PM propylene glycol monomethylether (Dow Chemical Company).
 - * Dowanol DPM dipropylene glycol monomethylether (Dow Chemical Company).

Stability Study

Ambergum™ 1221 water-soluble polymer (Control)	Viscosity ^(a)						pH	Solution Compatibility ^(b)
	1 hr	1 day	7 days	14 days	21 days	28 days		
2%	7	6	6	6	6	5	7.6	Clear yellow, compatible
5%	16	15	14	13	13	13	7.5	Amber, compatible
10%	72	68	57	54	52	49	7.8	Dark amber, compatible
Ambergum 1221 + 6% Butyl Cellosolve^(c)								
2%	7	7	6	6	7	6	7.3	Clear yellow, compatible
5%	16	16	15	14	14	14	7.6	Amber, compatible
10%	75	71	60	58	57	53	8.0	Dark amber, compatible
Ambergum 1221 + 6% Dowanol PM^(c)								
2%	8	7	7	7	7	7	7.3	Clear yellow, compatible
5%	17	16	15	15	15	14	7.6	Amber, compatible
10%	76	72	62	59	58	55	8.0	Dark amber, compatible
Ambergum 1221 + 6% Dowanol DPM^(c)								
2%	7	7	7	7	7	6	7.3	Clear yellow, compatible
5%	17	16	15	15	15	14	7.6	Amber, compatible
10%	76	72	62	59	58	55	8.0	Dark amber, compatible

^(a) Brookfield LVT viscometer 60 rpm at 25°C.

^(b) Solution compatibility did not change during the course of study.

^(c) The volume of Butyl Cellosolve, Dowanol PM or Dowanol DPM used was 6% of the carboxymethylcellulose (CMC) solution volume.

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