Mónsanto

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SUBJECT ADHESIVES DATA DEVELOPED THROUGH TESTING TWO BATCHES OF GELVA S-55XH

REFERENCE

TO [redacted]

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Various plasticizers were tested in two different batches of Gelva S-55XH at two different times (August and September) to determine the effect different batches of the same latex emulsion have on selected adhesive properties. Mixing and test procedures were identical for both series of formulations.

Formulations studied in this project follow:

Gelva S-55 XH	90
Plasticizer	10

Viscosity stability testing will be the only test data reviewed in this report. The viscosity is tabulated so that the formulas tested at different times can be easily compared.

Plasticizer Addition - 10%

	VISCOSITY STABILITY (CPS)					
	0.5 Hr.	1 Day	7 Days	14 Days	21 Days	28 Days
S-160 Aug. *	5800	6550	6550	-	6350	6600
S-160 Sept.*	6500	5800	6100	6050	6100	6100
DBP Aug.	6650	7300	6900	-	6900	6900
DBP Sept.	6800	6400	6800	6600	6650	6700
Benzoflex 9-88 Aug.	6900	7100	6500	-	6300	6200
Benzoflex 9-88 Sept.	6700	6300	6700	6400	6550	6900
Benzoflex 50 Aug.	7200	7200	7000	-	6750	6850
Benzoflex 50 Sept.	7200	7400	6600	6550	6600	6800
XA 1012 Aug.	6700	7800	7650	-	7300	7200
XA 1012 Sept.	6900	7000	7500	7150	7100	7100
XA 1013 Aug.	6600	8100	8050	-	7450	7400
XA 1013 Sept.	7300	7100	7200	7100	7150	7250

*Both lots of Gelva S-55XH had a per se viscosity of 3900 cps. One day viscosity can be used as a reference point.

One day viscosity can be used as a reference point for comparison since most manufacturers consider that viscosity measurement as initial viscosity. The viscosity variation from batch to batch is illustrated as follows:

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One Day Viscosity

	August	September	Change
Santicizer 160	6550	5800	- 750
DBP	7300	6400	- 900
Benzoflex 9-88	7100	6300	- 800
Benzoflex 50	7200	7400	+ 200
XA 1012	7800	7000	- 800
XA 1013	8100	7100	-1000

With the exception of DBP all viscosities decreased in the emulsion tested in September vs results developed in a different batch of emulsion in August. It is not thought that the differences are caused by changes in mixing, testing procedures, ambient temperatures, etc., because all of these variables were kept constant. It is thought the PVAc resin itself is different from batch to batch due to change in amount of protective colloid, surfactant used to make the PVAc emulsion. This phenomenon is reported by companies such as H. B. Fuller who keep a control on hand at all times in order to determine extent of viscosity change in different batches of resin.

Formulas containing 15% plasticizer were compared as above and the same trend was seen in every single case where the viscosity for the resin batch tested in August was significantly higher than those developed in September. Again, it should be stated that temperature differences from August to September do not account for the changes, since all samples are kept in the CTH room constantly.

This study highlights a portion of the reason why viscosity numbers are so difficult to reproduce from batch to batch. What is hoped for in this type of testing is that the same trends are seen regarding plasticizer influence on PVAc resin from batch to batch. Testing done in recent months indicate that trends have generally carried through different batches of PVAc resin tested.

Neil

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