



**Combined State Binder
Group**

Method of Acceptance for
Asphalt Binders

Round Robin 2006-4

Summary B

**COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B**

PG 70-28P

Supplier Number	Rotational Viscosity (Pa.s) @135°C	DSR Original (kPa) @70°C	DSR Phase Angle @70°C	DSR RTFO (kPa) @70°C	Elastic Recovery (%) @25°C	DSR PAV (kPa) @25°C	Mass Loss (%) @163°C	BBR S-value (MPa) @-18°C	BBR m-value @-18°C
IADOT	0.798	1.29	70.9	3.07	83	1,581	-0.110	213	0.317
MIDOT	0.763	1.18	70.5	2.92	84	1,744	-0.343	195	0.328
MNDOT	0.738	1.23	70.3	2.91		1,789	-0.341	185	0.311
NCSPC	0.729	1.27	70.9	2.91		1,708	-0.341	194	0.314
NDDOT	0.763	1.22	71.1	2.85	84	1,595	-0.344	195	0.328
NEDOR	0.880	1.14	70.4	3.17	83	2,279	-0.339	213	0.316
SDDOT	0.842	1.24	70.6	3.04	85	2,231	-0.364	226	0.305
UW	0.695	1.14	70.4	3.14		2,224	-0.599	240	0.300
WISDOT	0.815	1.16	70.0	2.82		1,464	-0.308	199	0.331
07	0.723	1.21	70.9	2.72	85	2,174	-0.336	196	0.321
12	0.786	1.24	70.7	2.60			-0.445		
16	0.775	1.19	70.0	2.93	75	1,858	-0.331	205	0.327
22	0.753	1.22	70.6	2.81		1,759	-0.390	207	0.335
24	0.795	1.21	69.8	3.14	84	1,830	-0.370	200	0.329
29	0.769	1.30	70.1	2.72	85	1,903	-0.396	203	0.320
35	0.787	1.26	70.3	3.13		1,662	-0.262	204	0.337
37	0.828	1.12	70.6	2.41	83	1,858	-0.292	176	0.324
42	0.849	1.34	69.8	3.24	85	1,640	-0.426	191	0.328
43	0.768	1.27	70.4	2.92	87	1,755	-0.341	186	0.339
46	0.808	1.34	70.4	3.08	63	1,756	-0.369	181	0.328
49	0.780	1.23	70.4	3.22	85	1,780	-0.294	206	0.325
61	0.759	1.29	69.3	2.96	85	1,690	-0.362	185	0.335
65	0.852	1.32	70.2	2.73		1,981	-0.306	188	0.327
69	0.729	1.22	70.8	2.68	84	2,167	-0.322	181	0.317
70	0.775	1.28	69.9	2.75		1,611	-0.330	199	0.335
77	0.825	1.22	70.5	3.62		1,648	-0.349	135	0.357
79	0.787	1.28	70.4	3.02	85	1,799	-0.352	213	0.321
95	0.800	1.24	70.8	3.21	86	1,600	-0.295	193	0.326
A	0.769	1.19	70.4	2.97	83	1,841	-0.456	212	0.325
B	0.758	1.38	70.3	3.61		1,764	-0.294	207	0.326
C	0.764	1.24	70.4	2.95	85	1,800	-0.338	215	0.320
E	0.763	1.18	70.6	3.05	85	1,553	-0.395	201	0.337
F	0.774	1.28	70.2	2.89	86	1,518	-0.287	201	0.335
J	0.805	1.20	70.3	2.84	83	1,694	-0.289	197	0.322
L	0.753	1.15	70.9	2.61	85	2,210	-0.406	198	0.323
M	0.962	1.24	70.5	2.86		1,737	-0.323	200	0.320
O	0.794	1.21	70.3	2.77	85	1,592	-0.319	191	0.333
P	0.764	1.19	70.9	2.93		1,473	-0.310	195	0.341
S	0.741	1.23	69.2	2.80		1,647	-0.384	191	0.327
T	0.770	1.22	70.6	3.04	84	1,082	-0.178	195	0.332
U	0.784	1.19	70.2	2.84	84	1,743	-0.294	209	0.333
Average	0.785	1.23	70.4	2.95	83	1,768	-0.340	198	0.326
Std. Dev.	0.0468	0.0577	0.4075	0.2383	4.6745	241.58	0.0746	16.03	0.0102
Coef. of Var.	5.960	4.682	0.579	8.084	5.609	13.661	21.959	8.100	3.115

COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B

A	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
51	0.768	1.18	70.5	3.01	83	1,751	-0.479	212	0.328
97	0.770	1.20	70.4	2.91	83	1,805	-0.439	209	0.325
98	0.768	1.20	70.3	2.99	83	1,967	-0.450	214	0.323
Average	0.769	1.19	70.4	2.97	83	1,841	-0.456	212	0.325

B	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
01	0.755	1.38	70.3	3.68		1,745	-0.271	212	0.326
17	0.760	1.34	70.5	3.54		1,733	-0.301	198	0.326
45	0.760	1.43	70.0	3.61		1,815	-0.310	204	0.326
Average	0.758	1.38	70.3	3.61		1,764	-0.294	205	0.326

C	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
21	0.761	1.21	70.6	3.11	85	1,836	-0.331	219	0.316
28	0.769	1.28	70.2	2.85	85	1,771	-0.327	221	0.318
66	0.756	1.22	70.2	3.15	85	1,888	-0.325	217	0.320
90	0.758	1.22	70.5	2.79	85	1,708	-0.321	218	0.318
99	0.777	1.26	70.4	2.86	85	1,798	-0.386	199	0.329
Average	0.764	1.24	70.4	2.95	85	1,800	-0.338	215	0.320

E	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
15	0.763	1.18	70.5	3.09	85	1,535	-0.407	198	0.336
89	0.763	1.18	70.6	3.01	85	1,570	-0.383	203	0.337
Average	0.763	1.18	70.6	3.05	85	1,553	-0.395	201	0.337

F	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
02	0.755	1.27	70.3	2.80	85	1,394	-0.291	199	0.339
11	0.758	1.28	70.2	3.00	87	1,543	-0.307	202	0.335
34	0.789	1.26	70.2	3.04	85	1,594	-0.272	202	0.332
48	0.773	1.27	70.3	3.13	86	1,585	-0.281	204	0.336
56	0.790	1.31	69.9	2.92	85	1,559	-0.284	203	0.334
62	0.778	1.30	70.1	2.46	86	1,433	-0.286	196	0.333
Average	0.774	1.28	70.2	2.89	86	1,518	-0.287	201	0.335

J	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
05	0.802	1.27	70.2	2.88	85	1,728	-0.288	200	0.322
08	0.808	1.19	70.4	2.81	85	1,955	-0.311	200	0.322
10	0.800	1.31	70.3	3.01		1,634	-0.271	193	0.325
31	0.800	1.18	70.2	2.91	85	1,690	-0.333	198	0.318
38	0.817	1.19	70.5	2.79	81	1,648	-0.267	197	0.324
41	0.800	1.18	70.3	2.78	85	1,553	-0.273	196	0.323
44	0.813	1.16	70.4	2.87	80	1,713	-0.301	199	0.318
52	0.813	1.12	70.2	2.79	81	1,742	-0.274	200	0.320
74	0.796	1.19	70.4	2.72	85	1,582	-0.280	191	0.324
Average	0.805	1.20	70.3	2.84	83	1,694	-0.289	197	0.322

L	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
25	0.742	1.14	70.8	2.87	85	2,217	-0.416	198	0.325
59	0.763	1.15	70.9	2.35	86	2,202	-0.395	198	0.321
Average	0.753	1.15	70.9	2.61	85	2,210	-0.406	198	0.323

M	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
04	0.962	1.25	70.3	2.82		1,721	-0.321	202	0.318
47	0.968	1.21	70.6	2.88		1,741	-0.328	197	0.321
57	0.955	1.25	70.6	2.88		1,748	-0.319	200	0.320
Average	0.962	1.24	70.5	2.86		1,737	-0.323	200	0.320

O	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
76	0.788	1.21	70.3	3.00	85	1,625	-0.283	195	0.330
85	0.800	1.21	70.3	2.53	85	1,559	-0.354	186	0.336
Average	0.794	1.21	70.3	2.77	85	1,592	-0.319	191	0.333

P	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
71	0.765	1.22	70.7	3.09		1,735	-0.340	202	0.336
73	0.763	1.16	71.1	2.76		1,210	-0.279	188	0.346
Average	0.764	1.19	70.9	2.93		1,473	-0.310	195	0.341

S	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
53	0.743	1.2	69.3	2.85		1,775	-0.399	193	0.322
64	0.739	1.26	69.0	2.74		1,518	-0.368	188	0.331
Average	0.741	1.23	69.2	2.80		1,647	-0.384	191	0.327

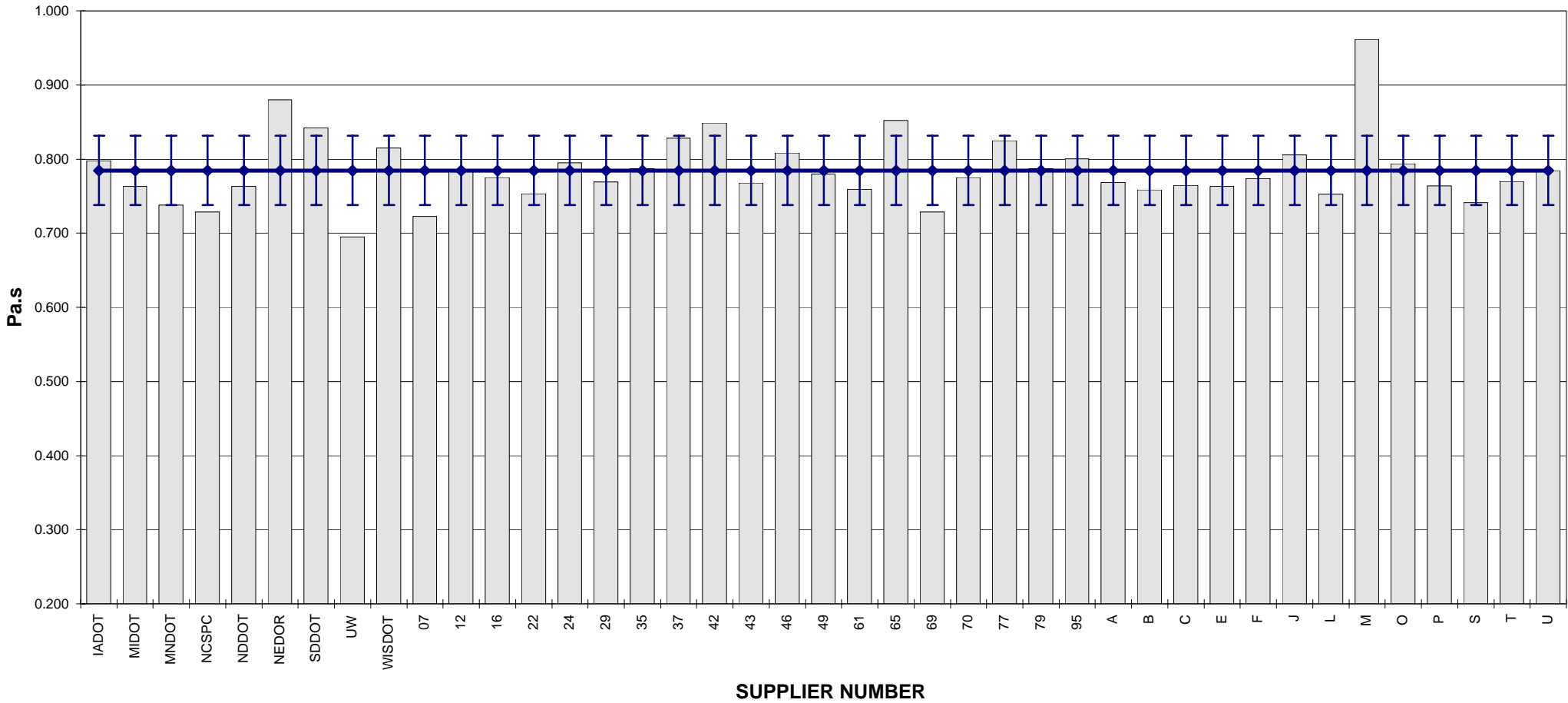
T	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
39	0.771	1.24	70.6	2.92	84	655	-0.299	194	0.335
54	0.772	1.2	70.6	3.08	84	1,212	-0.350	192	0.336
87	0.765	1.23	70.5	3.05	84	1,613	-0.028	202	0.328
88	0.772	1.22	70.6	3.11	85	849	-0.035	190	0.330
Average	0.770	1.22	70.6	3.04	84	1,082	-0.178	195	0.332

U	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
13	0.800	1.18	70.3	2.73	85	1,727	-0.265	198	0.336
33	0.783	1.28	70.0	3.08	84	1,730	-0.351	228	0.331
93	0.770	1.12	70.4	2.71	84	1,771	-0.267	200	0.332
Average	0.784	1.19	70.2	2.84	84	1,743	-0.294	209	0.333

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SUMMARY B

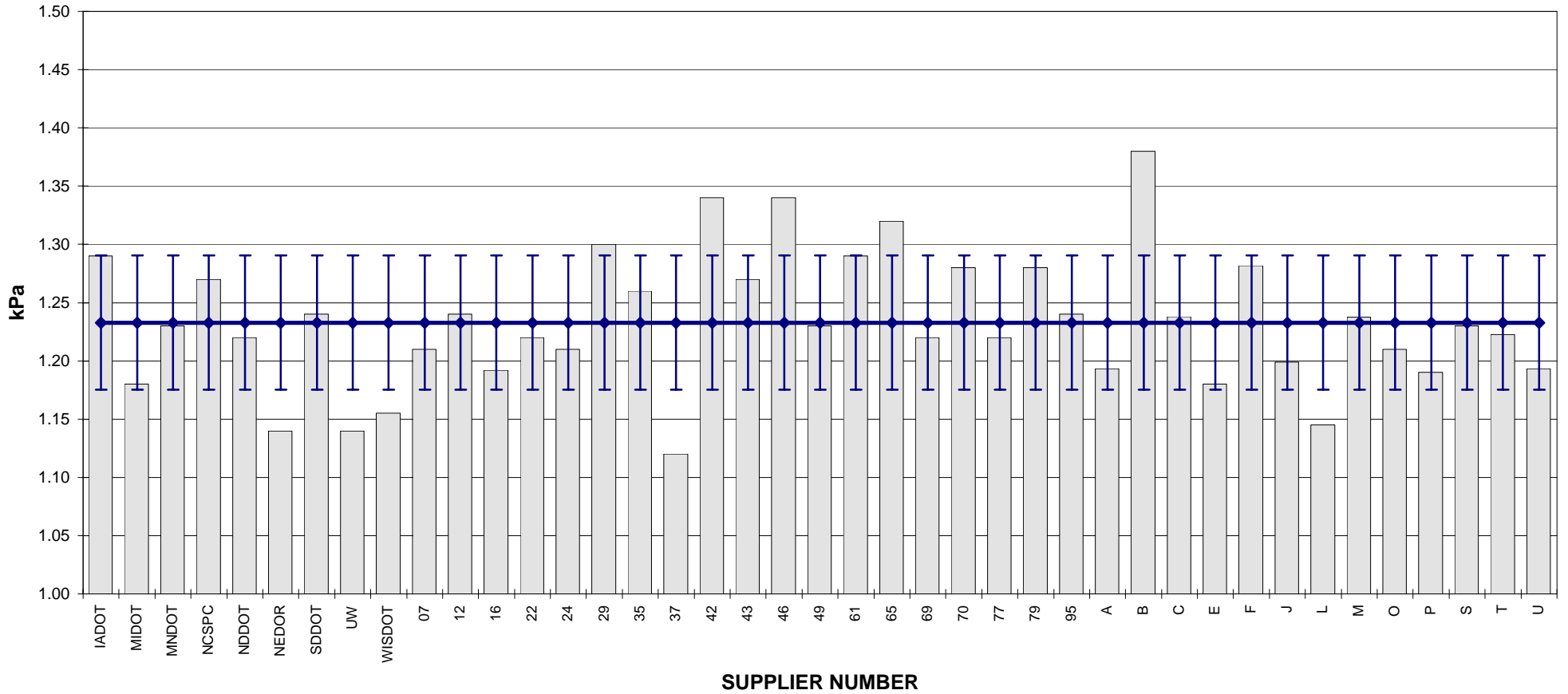
PG 70-28P

ROTATIONAL VISCOSITY



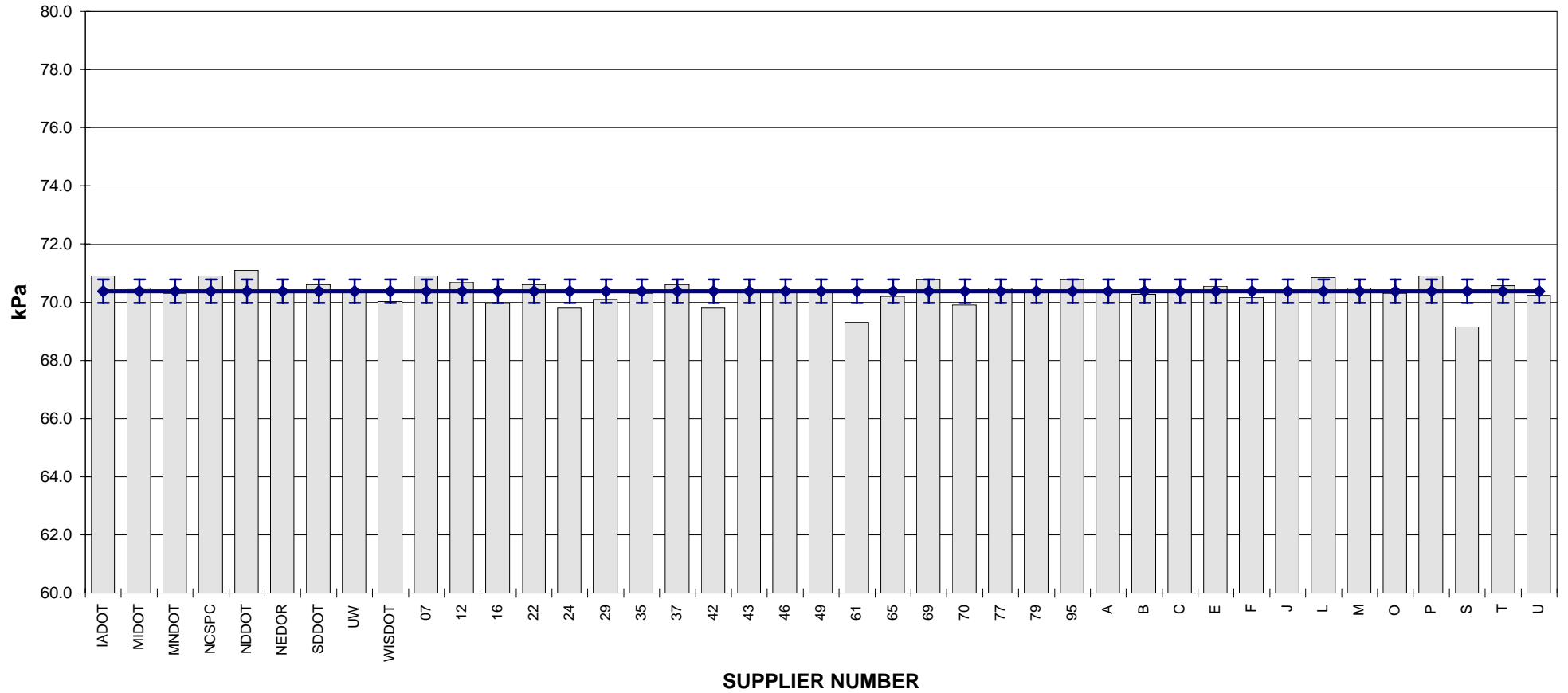
**COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B
PG 70-28P**

DSR - ORIGINAL



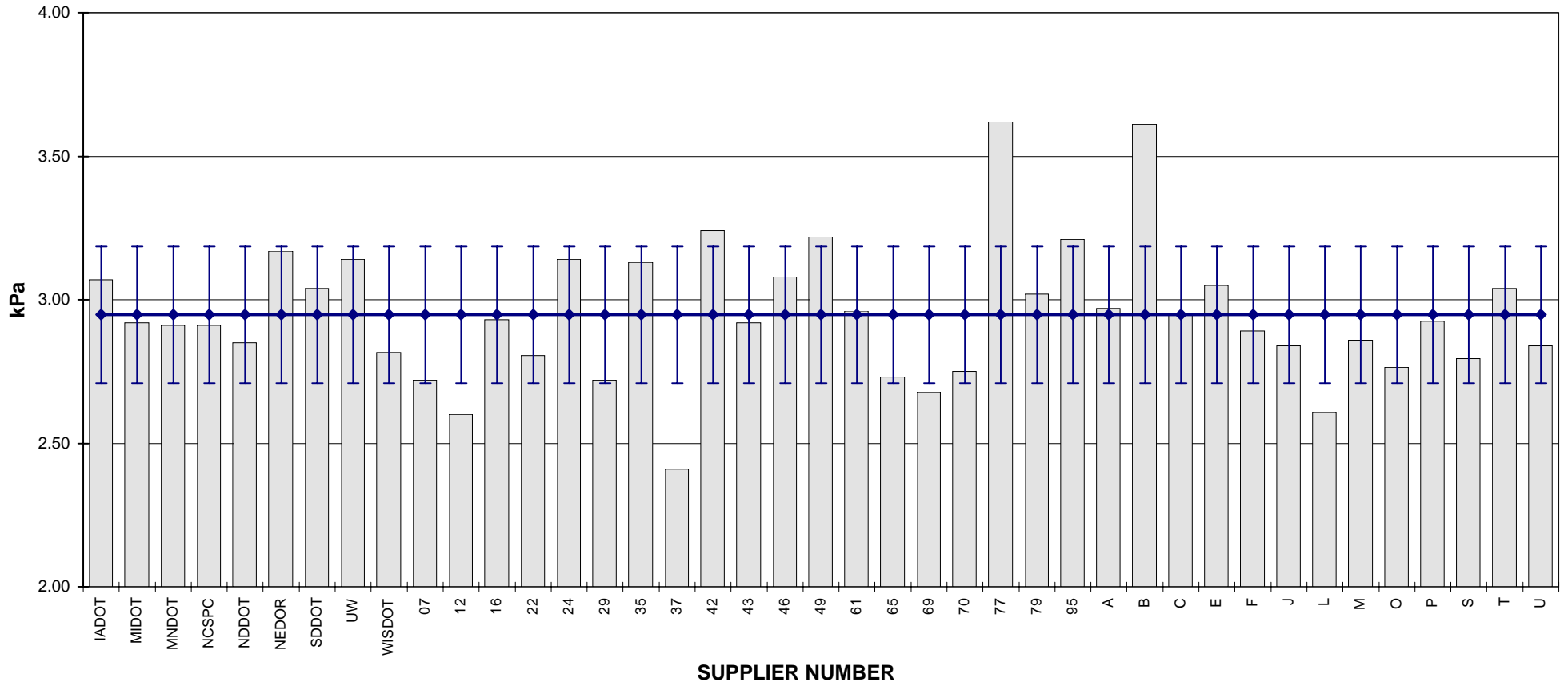
COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B
PG 70-28P

DSR - PHASE ANGLE



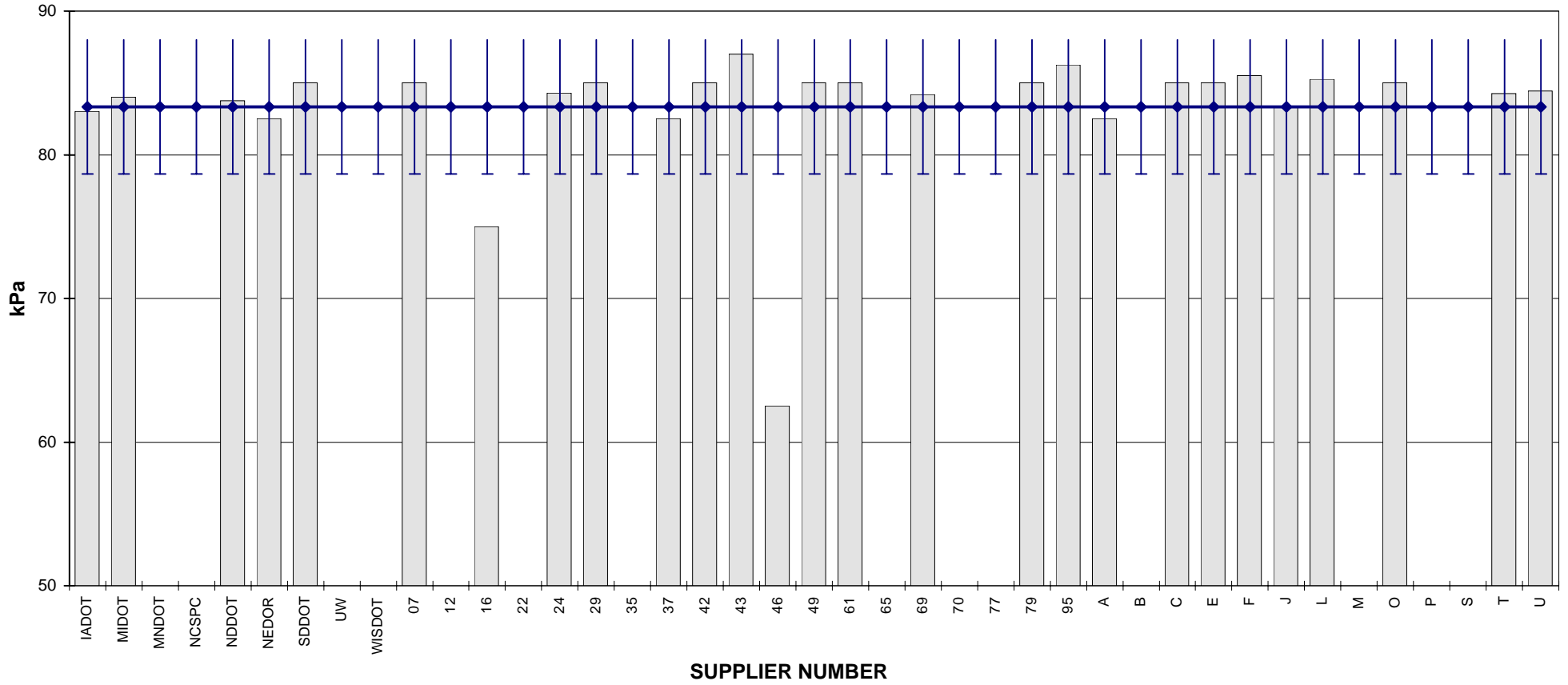
**COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B
PG 70-28P**

DSR - RTFO

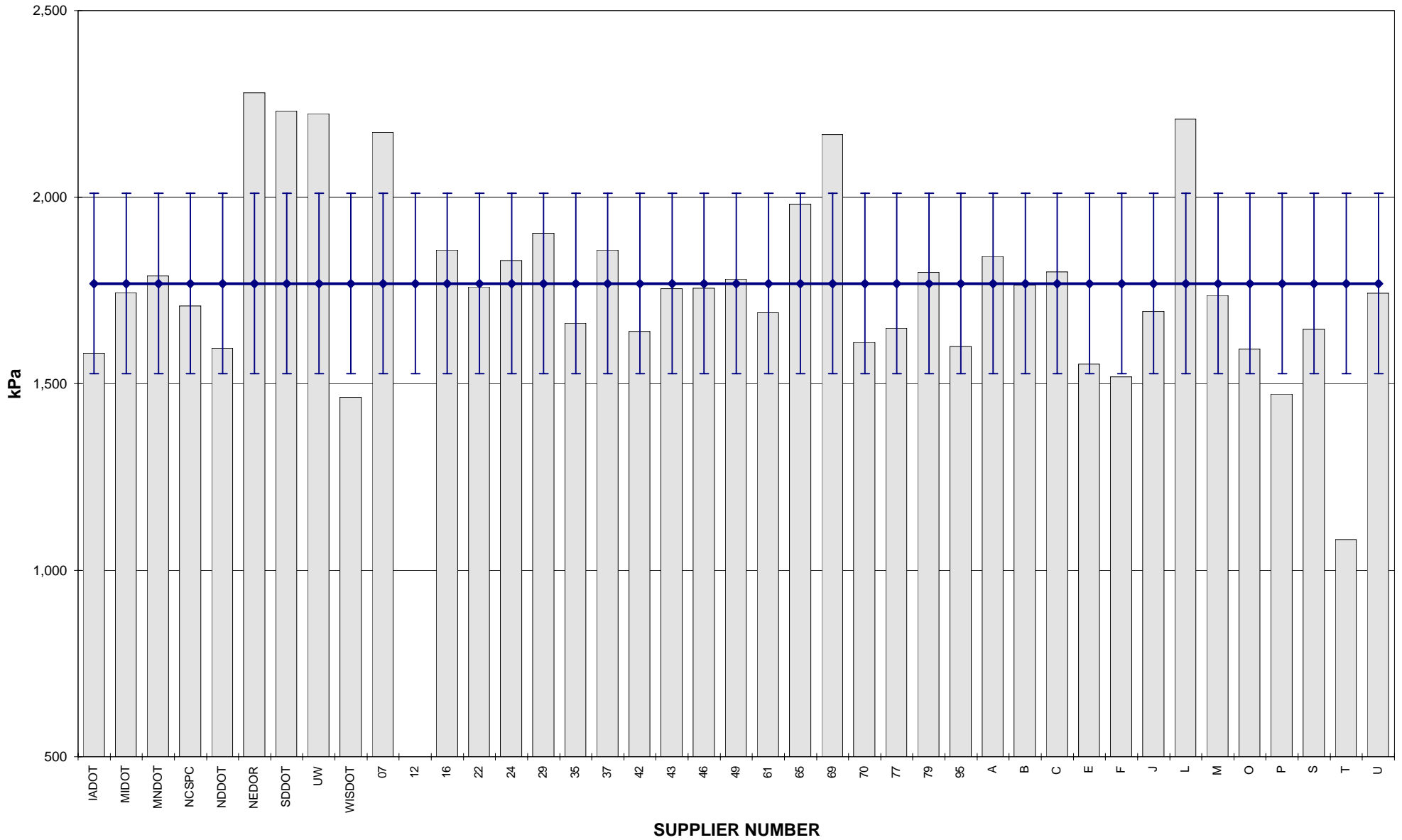


**COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B
PG 70-28P**

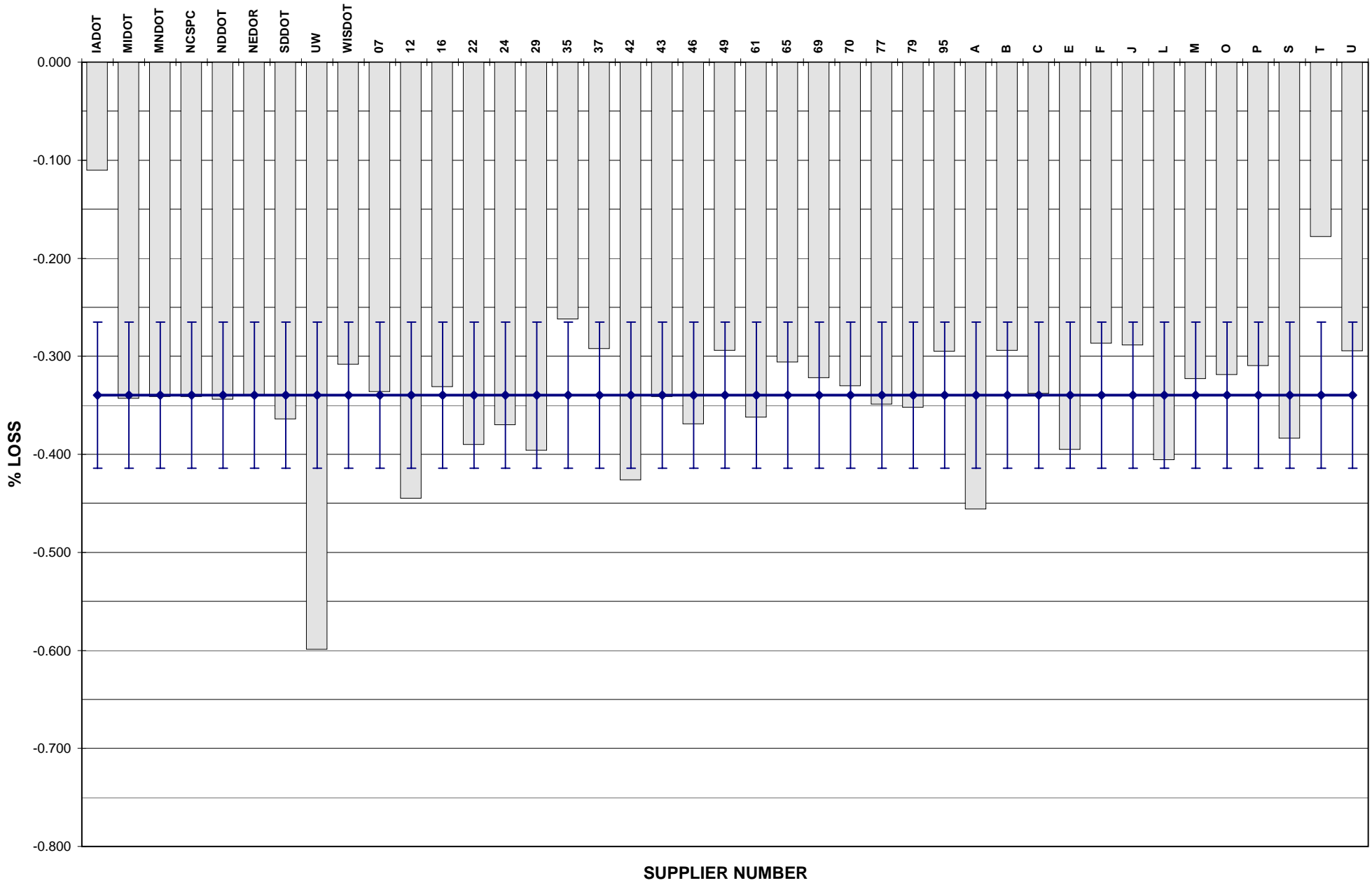
ELASTIC RECOVERY



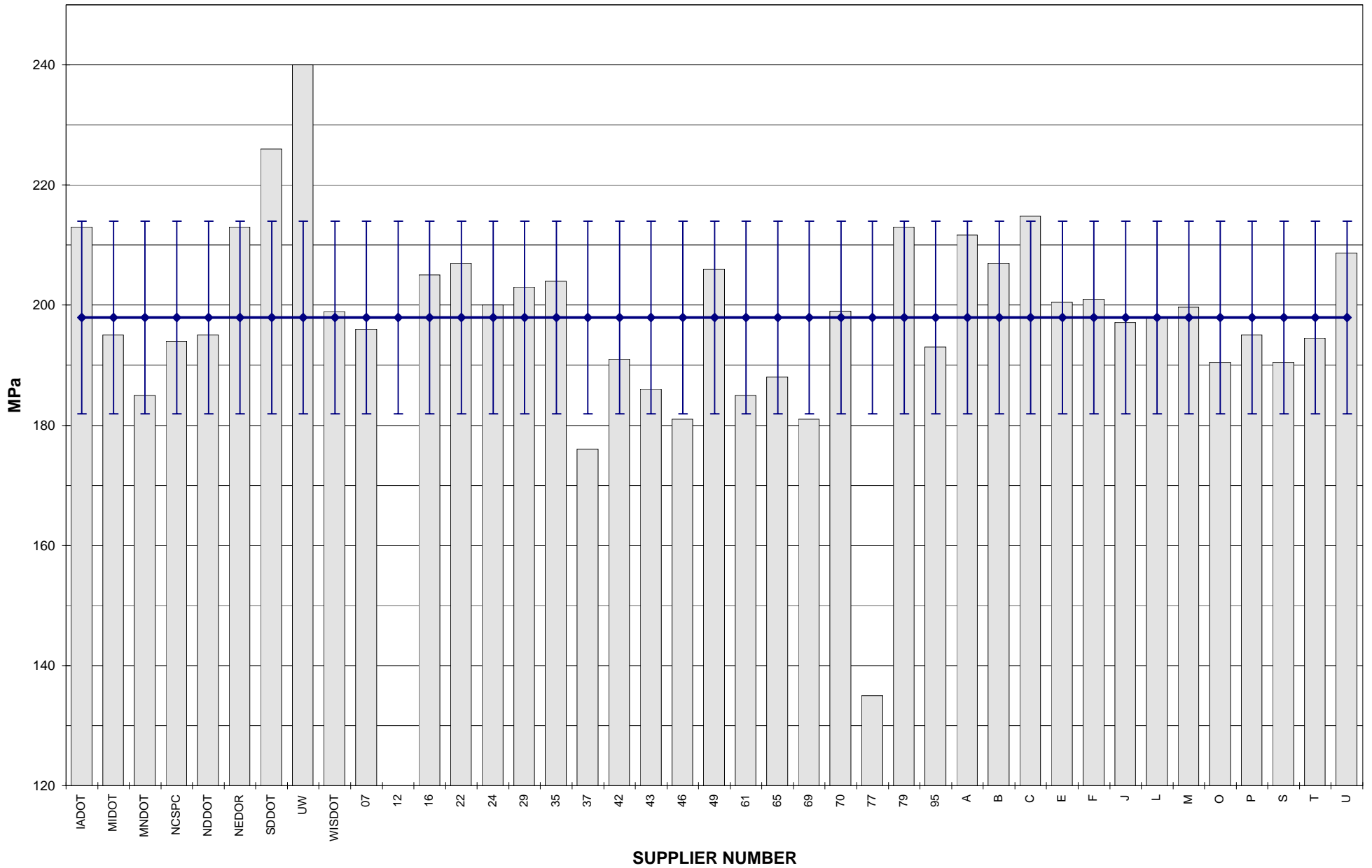
**COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B
PG 70-28P
DSR - PAV**



COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B
PG 70-28P
RTFO MASS LOSS



COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B
PG 70-28P
BBR STIFFNESS



COMBINED STATE BINDER GROUP ROUND ROBIN 2006-4
SUMMARY B
PG 70-28P
BBR m-VALUE

