



# **Combined State Binder Group**

Method of Acceptance for  
Asphalt Binders

RR 2007-3  
SUMMARY B

**COMBINED STATE BINDER GROUP ROUND ROBIN 2007-3  
SUMMARY B**

**PG 64-28P**

<b>Supplier Number</b>	<b>Rotational Viscosity (Pa.s) @135°C</b>	<b>DSR Original (kPa) @64°C</b>	<b>DSR Phase Angle @64°C</b>	<b>DSR RTFO (kPa) @64°C</b>	<b>Elastic Recovery (%) @25°C</b>	<b>DSR PAV (kPa) @22°C</b>	<b>Mass Loss (%) @163°C</b>	<b>BBR S-value (MPa) @-18°C</b>	<b>BBR m-value @-18°C</b>
IADOT	0.713	1.75	75.9	4.30	60	2,406	-0.485	206	0.317
MNDOT	0.712	1.64	75.8	4.69		2,396	-0.671	190	0.330
NCSPC	0.705	1.71	76.4	4.54	50	2,317	-0.614	208	0.324
NDDOT	0.700	1.61	76.1	4.15	63	3,178	-0.575	200	0.327
NEDOR	0.570	1.65	76.1	4.49	60	3,036	-0.422	227	0.323
OHDOT D2	0.725	1.73	76.0	5.09		3,251	-0.532	222	0.312
SDDOT	0.717	1.52	76.1	4.38	58	2,875	-0.474	212	0.317
UW	0.766	1.42	75.8	3.71		2,529	-0.875	192	0.308
WISDOT	0.750	1.50	76.4	4.65		2,970	-0.565	196	0.313
07	0.751	1.70	75.6	4.19	58	2,902	-0.536	211	0.322
12	0.741	1.66	76.4	4.30	54	2,764	-0.236	220	0.322
22	0.708	1.71	76.4	4.70		2,850	-0.628	202	0.332
24	0.750	1.74	75.8	5.13	56	2,690	-0.503	206	0.335
29	0.727	1.63	75.9	4.56	54	2,945	-0.597	214	0.317
35	0.743	1.69	75.9	4.33		2,554	-0.461	194	0.337
37	0.790	1.54	76.3	3.75	56	2,919	-0.371	208	0.320
42	0.742	1.75	72.3	4.60		2,833	-1.046	209	0.333
43	0.684	1.59	76.3	4.59	38	2,579	-0.514	217	0.329
49	0.728	1.63	76.0	4.80	70	2,605	-0.624	215	0.330
65	0.769	1.73	75.6	4.91		2,038	-0.580	203	0.322
69	0.748	1.61	76.1	4.11	56	2,780	-0.563	204	0.326
70	0.720	1.68	75.9	3.82		2,447	-0.405	196	0.328
77	0.755	1.75	75.9	6.01	86	3,355	-0.827	223	0.305
95	0.745	1.67	75.9	5.29	51	2,262	-0.508	209	0.345
A	0.690	1.60	75.9	4.36	55	2,725	-0.615	221	0.330
B	0.692	1.65	75.7	5.02		2,721	-0.475	214	0.319
C	0.700	1.59	75.9	4.64	58	2,357	-0.522	214	0.322
E	0.719	1.59	76.5	4.53	58	2,468	-0.659	198	0.324
F	0.707	1.69	76.0	4.41	58	2,542	-0.574	220	0.325
J	0.784	1.63	76.1	4.35	57	2,450	-0.413	197	0.324
L	0.782	1.56	76.1	4.79	58	3,324	-0.657	220	0.320
M	0.861	1.68	76.0	4.80		2,193	-0.518	206	0.339
O	0.733	1.62	75.8	3.56	54	1,741	-0.370	206	0.328
P	0.714	1.63	76.4	3.97		2,860	-0.505	180	0.345
S	0.699	1.62	76.8	4.57		2,700	-0.695	199	0.328
T	0.713	1.62	76.2	4.21	55	2,415	-0.428	193	0.330
U	0.745	1.72	75.9	5.31	56	2,625	-0.497	215	0.335
V	0.719	1.60	76.1	4.50	57	2,505	-0.605	203	0.333
<b>Average</b>	0.729	1.64	75.9	4.53	57	2,661	-0.556	207	0.326
<b>Std. Dev.</b>	0.0432	0.0742	0.6598	0.4814	7.9980	344.41	0.1455	10.68	0.0089
<b>Coef. of Var.</b>	5.924	4.519	0.869	10.631	13.948	12.945	26.154	5.160	2.744

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A	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
19	0.700	1.62	76.0	4.41	55	2,620	-0.602	219	0.333
51	0.682	1.58	75.8	4.25	55	2,700	-0.619	215	0.331
97	0.686	1.63	75.9	4.36	55	2,740	-0.618	224	0.328
98	0.690	1.58	76.0	4.41	55	2,840	-0.622	224	0.326
Average	0.690	1.60	75.9	4.36	55	2,725	-0.615	221	0.330

B	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
1	0.685	1.62	75.8	4.86		2,822	-0.504	210	0.313
17	0.695	1.69	75.6	4.78		2,408	-0.448	201	0.331
45	0.695	1.64	75.7	5.43		2,932	-0.472	230	0.312
Average	0.692	1.65	75.7	5.02		2,721	-0.475	214	0.319

C	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
21	0.699	1.58	76.0	4.71	60	2,275	-0.516	220	0.319
28	0.692	1.58	76.0	4.42	58	2,350	-0.486	211	0.331
66	0.700	1.59	76.0	4.83	58	2,452	-0.501	218	0.317
90	0.710	1.61	75.7	5.02	58	2,323	-0.511	208	0.323
99	0.699	1.59	76.0	4.21	58	2,385	-0.598	211	0.318
Average	0.700	1.59	75.9	4.64	58	2,357	-0.522	214	0.322

E	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
15	0.725	1.6	76.4	4.35	55	2458	-0.650	188	0.325
89	0.713	1.58	76.5	4.71	60	2478	-0.667	208	0.323
Average	0.719	1.59	76.5	4.53	58	2,468	-0.659	198	0.324

F	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
02	0.693	1.66	76.0	4.34	59	2,546	-0.578	216	0.324
11	0.715	1.74	75.8	4.43	59	2,259	-0.562	218	0.326
34	0.707	1.79	75.8	4.23	58	2,679	-0.572	216	0.322
48	0.700	1.65	76.1	4.38	56	2,623	-0.593	224	0.320
56	0.705	1.65	76.1	4.36	56	2,766	-0.571	224	0.329
62	0.720	1.65	76.0	4.74	58	2,378	-0.567	223	0.329
Average	0.707	1.69	76.0	4.41	58	2,542	-0.574	220	0.325

J	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
05	0.781	1.65	75.8	4.28	58	2,608	-0.426	206	0.314
08	0.784	1.65	75.9	4.48	57	2,453	-0.403	195	0.318
31	0.788	1.61	76.0	4.71	58	2,408	-0.407	192	0.328
41	0.793	1.61	76.3	4.48	56	2,341	-0.406	198	0.333
44	0.768	1.62	76.2	4.24	58	2,509	-0.424	201	0.319
52	0.794	1.67	76.1	4.25	58	2,219	-0.416	188	0.328
74	0.779	1.60	76.4	3.99	58	2,609	-0.407	196	0.328
Average	0.784	1.63	76.1	4.35	57	2,450	-0.413	197	0.324

L	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
25	0.788	1.57	76.0	4.72	58	3,327	-0.653	217	0.317
59	0.775	1.55	76.1	4.86	58	3,320	-0.660	222	0.322
Average	0.782	1.56	76.1	4.79	58	3,324	-0.657	220	0.320

M	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
04	0.863	1.69	75.8	4.82		2,154	-0.502	206	0.340
47	0.859	1.75	75.9	4.82		2,220	-0.487	204	0.340
57	0.860	1.61	76.2	4.75		2,206	-0.564	209	0.338
Average	0.861	1.68	76.0	4.80		2,193	-0.518	206	0.339

O	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
76	0.735	1.59	75.9	3.54	54	1759	-0.316	208	0.329
85	0.730	1.65	75.6	3.57	54	1722	-0.424	204	0.326
Average	0.733	1.62	75.8	3.56	54	1,741	-0.370	206	0.328

P	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
30	0.713	1.65	76.5	4.20		2,986	-0.503	183	0.344
71	0.722	1.66	76.6	4.07		2,617	-0.515	198	0.338
73	0.707	1.59	76.1	3.63		2,977	-0.497	158	0.352
Average	0.714	1.63	76.4	3.97		2,860	-0.505	180	0.345

S	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
53	0.699	1.61	76.7	4.56		2828	-0.701	196	0.333
64	0.698	1.62	76.8	4.58		2572	-0.689	202	0.322
Average	0.699	1.615	76.8	4.57		2700	-0.695	199	0.328

T	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
39	0.713	1.66	76.3	4.51	53	2380	-0.430	200	0.327
87	0.713	1.58	76.1	3.9	58	2450	-0.426	185	0.332
Average	0.713	1.62	76.2	4.21	55	2415	-0.428	193	0.330

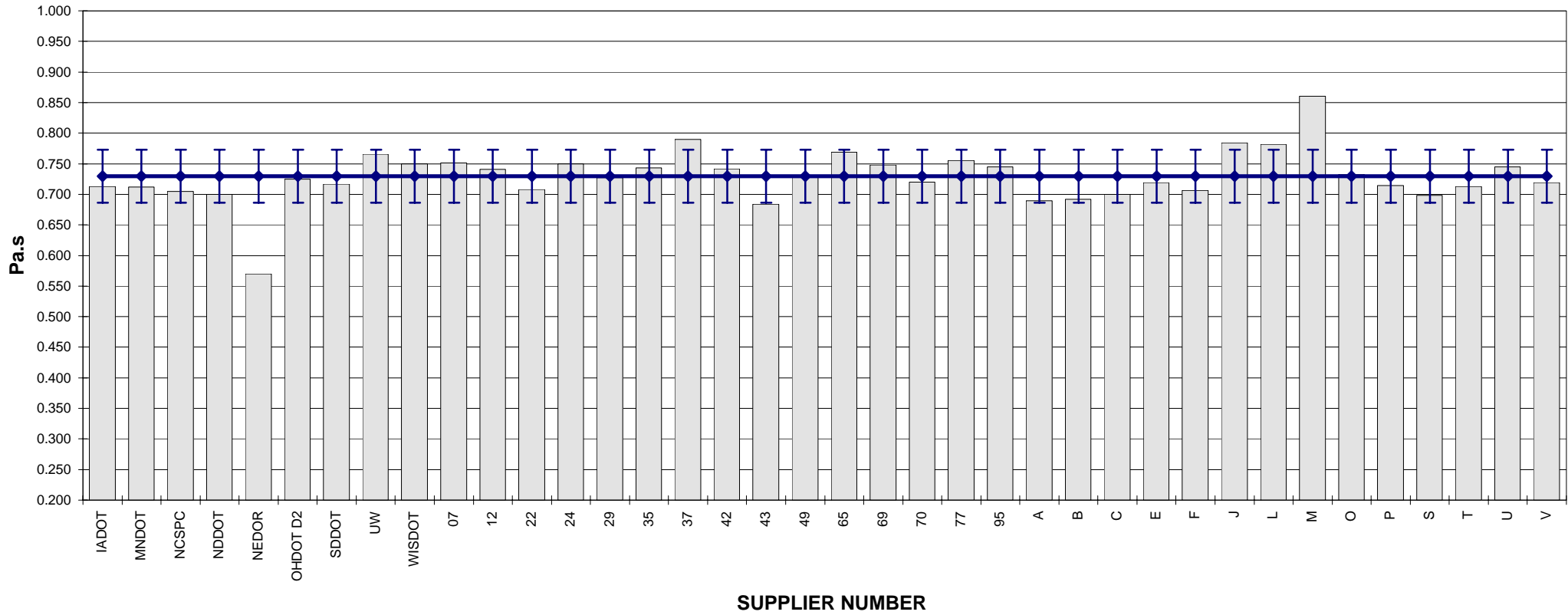
U	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
13	0.745	1.72	75.9	5.32	57	2620	-0.497	214	0.334
93	0.745	1.71	75.9	5.29	55	2630	-0.496	215	0.335
Average	0.745	1.72	75.9	5.31	56	2625	-0.497	215	0.335

V	Rot. Visc.	ODSR	Phase An	RTFO DSR	Elas Rec	PAVDSR	Mass Loss	S-value	m-value
58	0.718	1.61	76.1	4.45	56	2521	-0.603	202	0.332
78	0.720	1.61	76.1	4.51	58	2521	-0.605	207	0.335
81	0.720	1.57	76.0	4.53	56	2472	-0.607	201	0.331
Average	0.719	1.60	76.1	4.50	57	2505	-0.605	203	0.333

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SUMMARY B

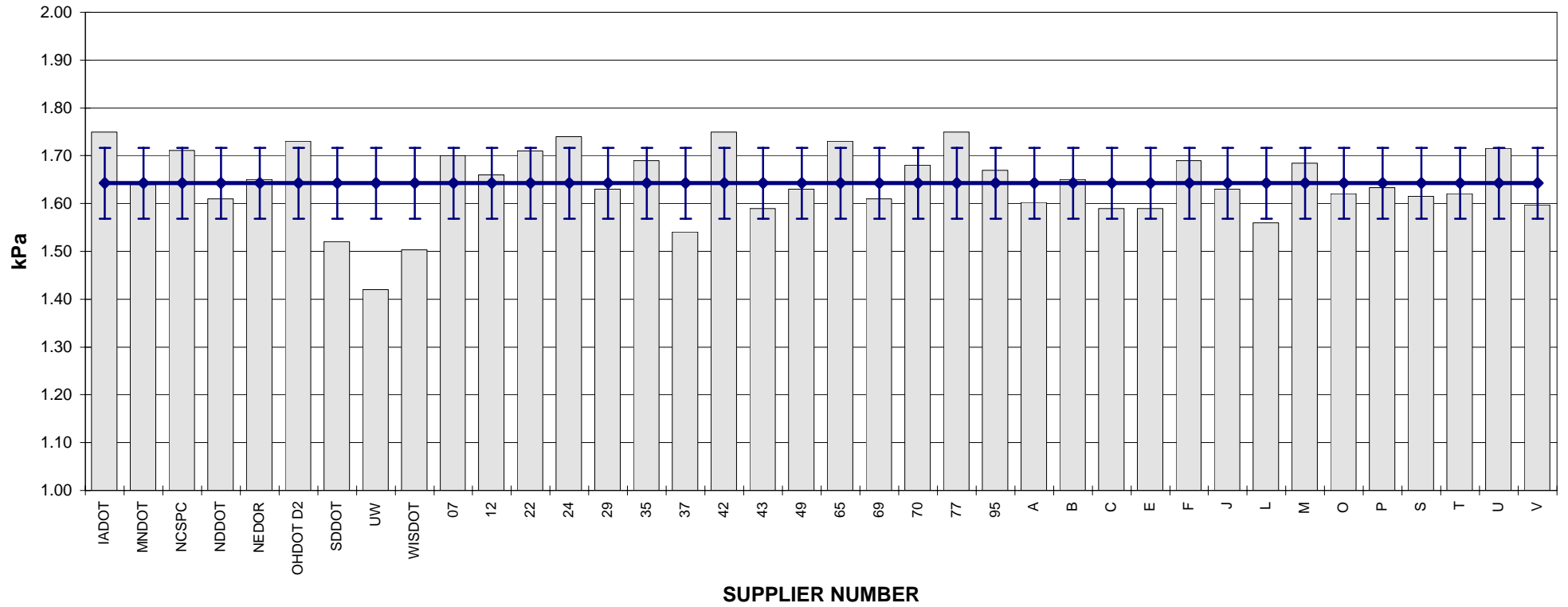
PG 64-28P

ROTATIONAL VISCOSITY



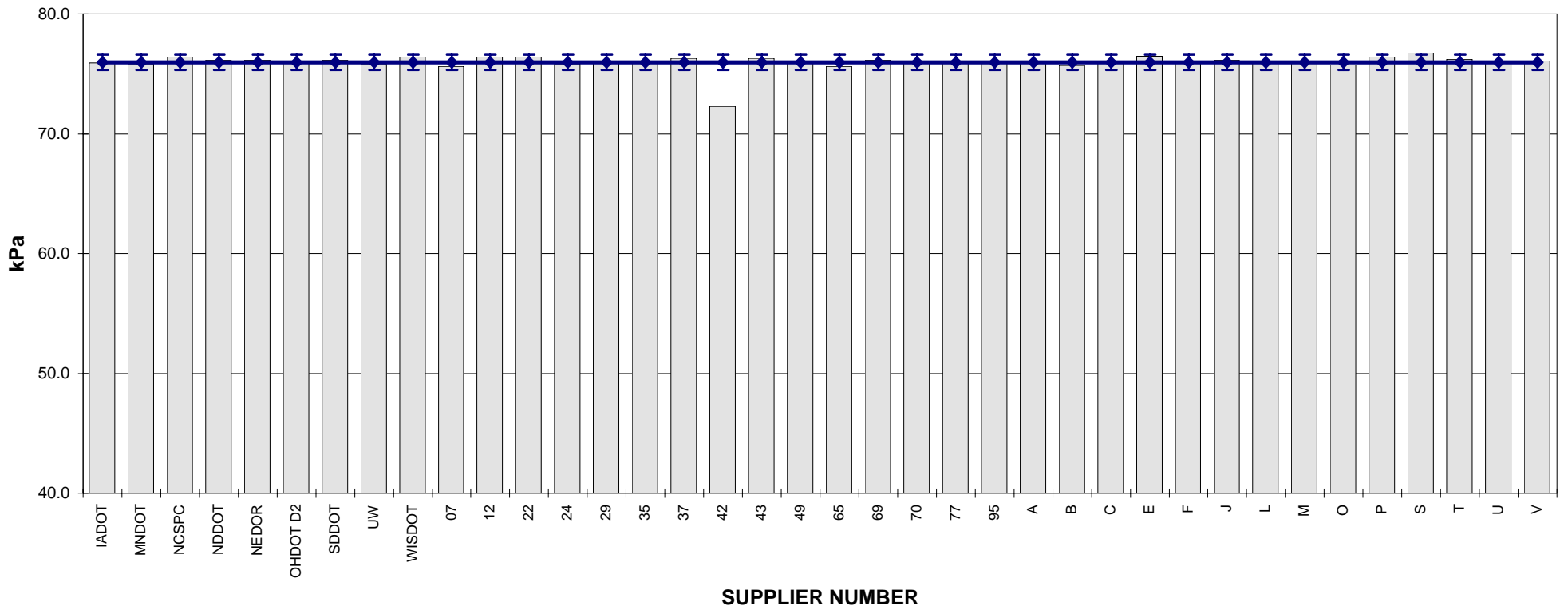
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SUMMARY B  
PG 64-28P**

**DSR - ORIGINAL**



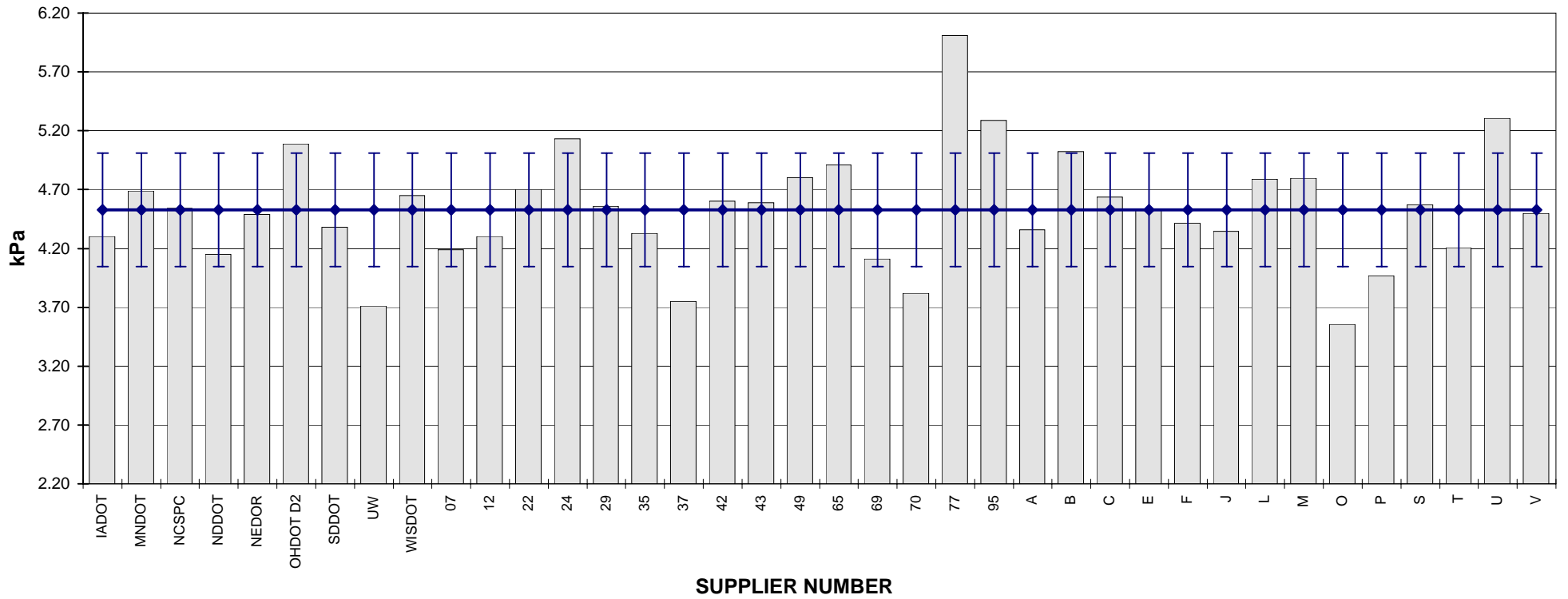
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DSR - PHASE ANGLE



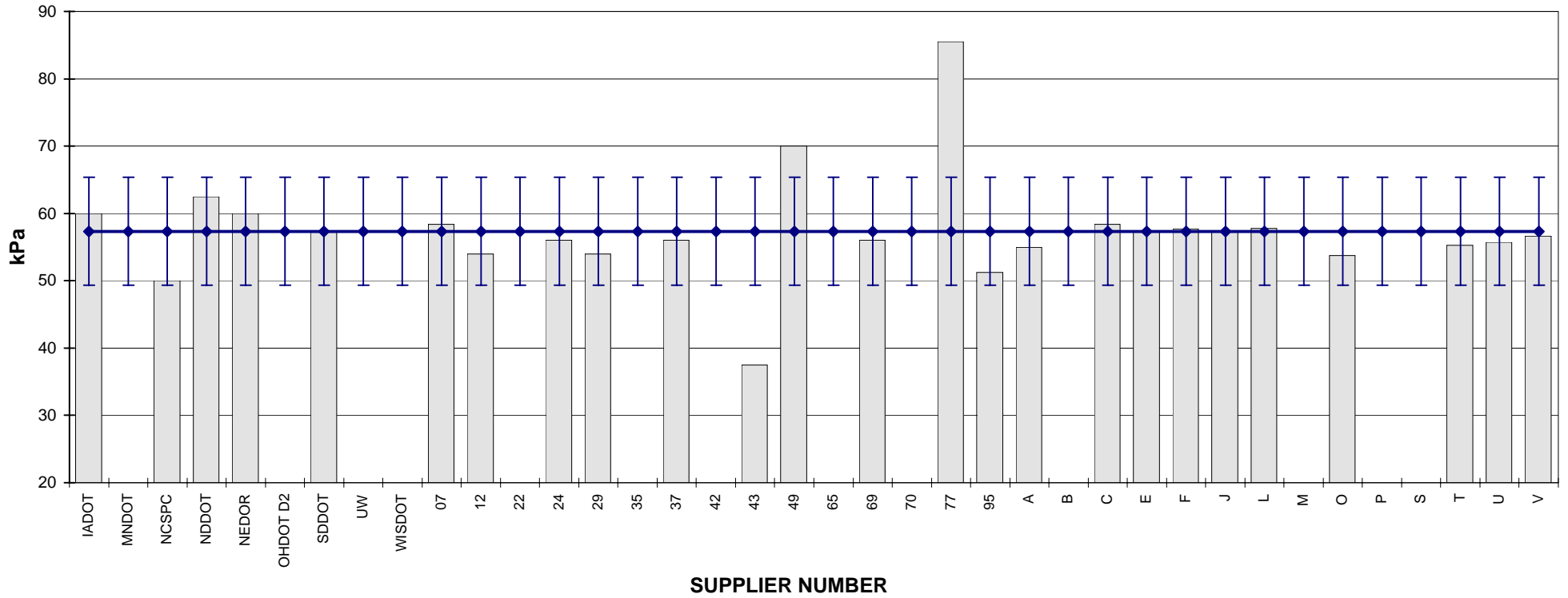
**COMBINED STATE BINDER GROUP ROUND ROBIN 2007-3  
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**DSR - RTFO**



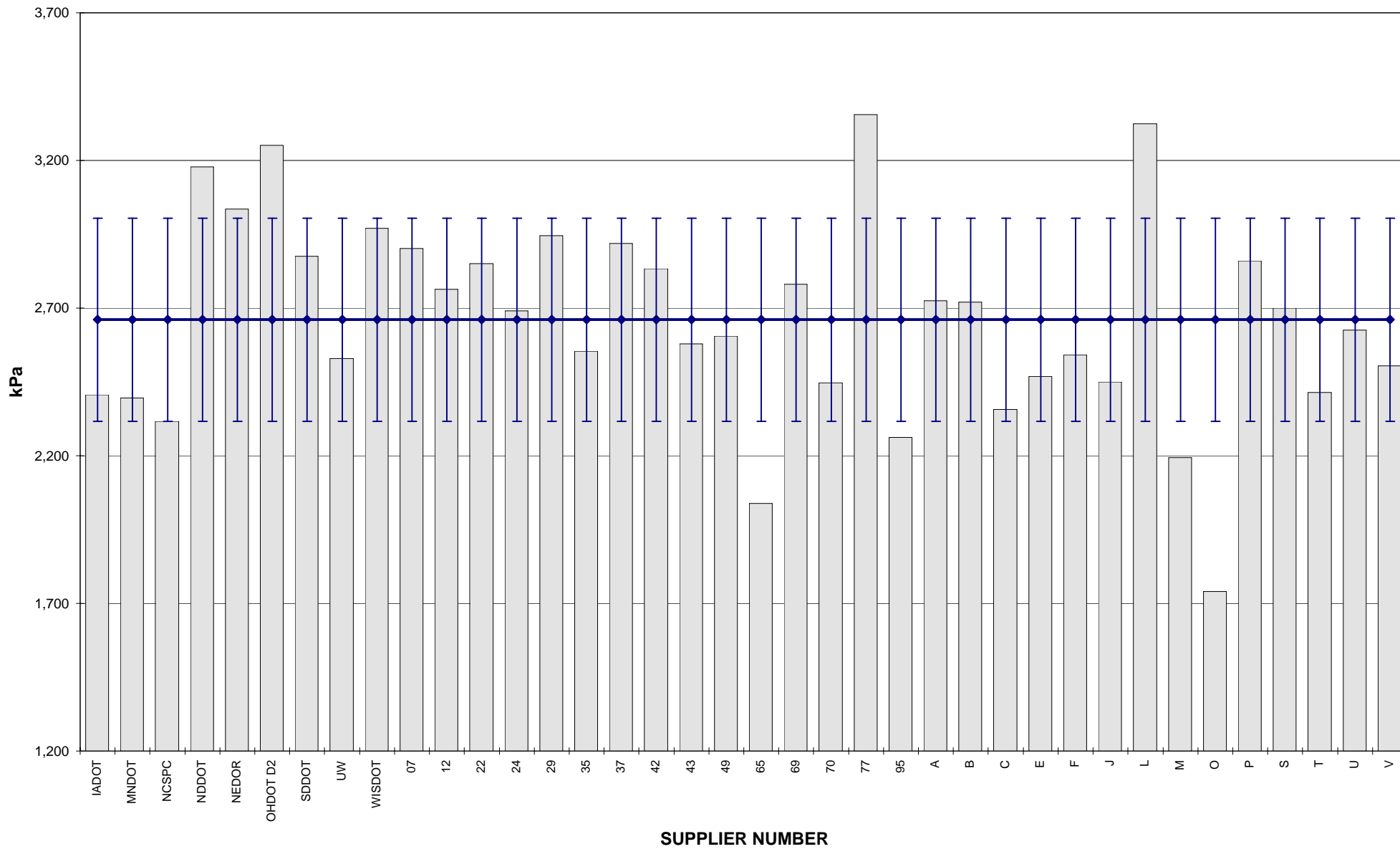
**COMBINED STATE BINDER GROUP ROUND ROBIN 2007-3  
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**ELASTIC RECOVERY**

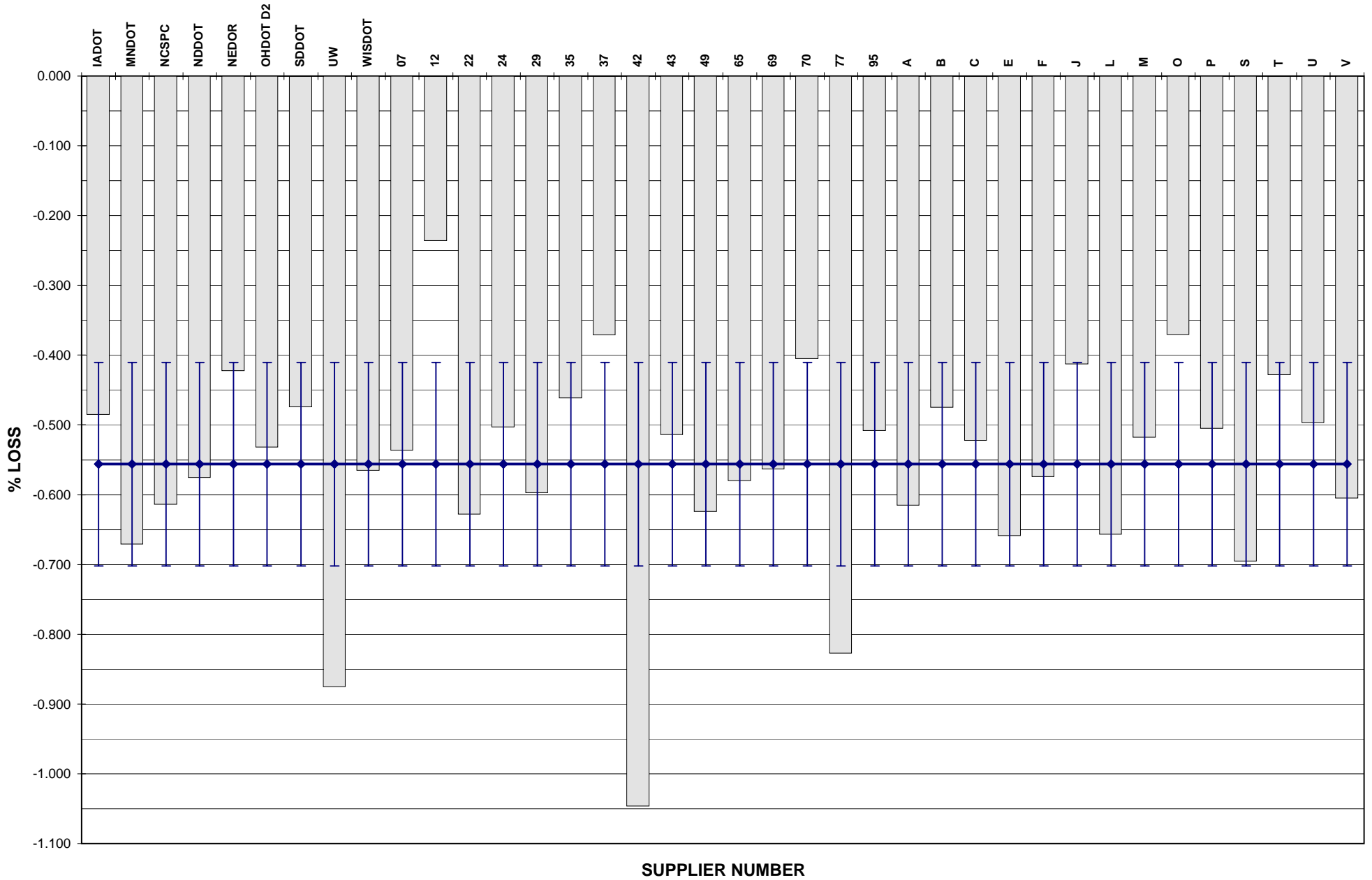




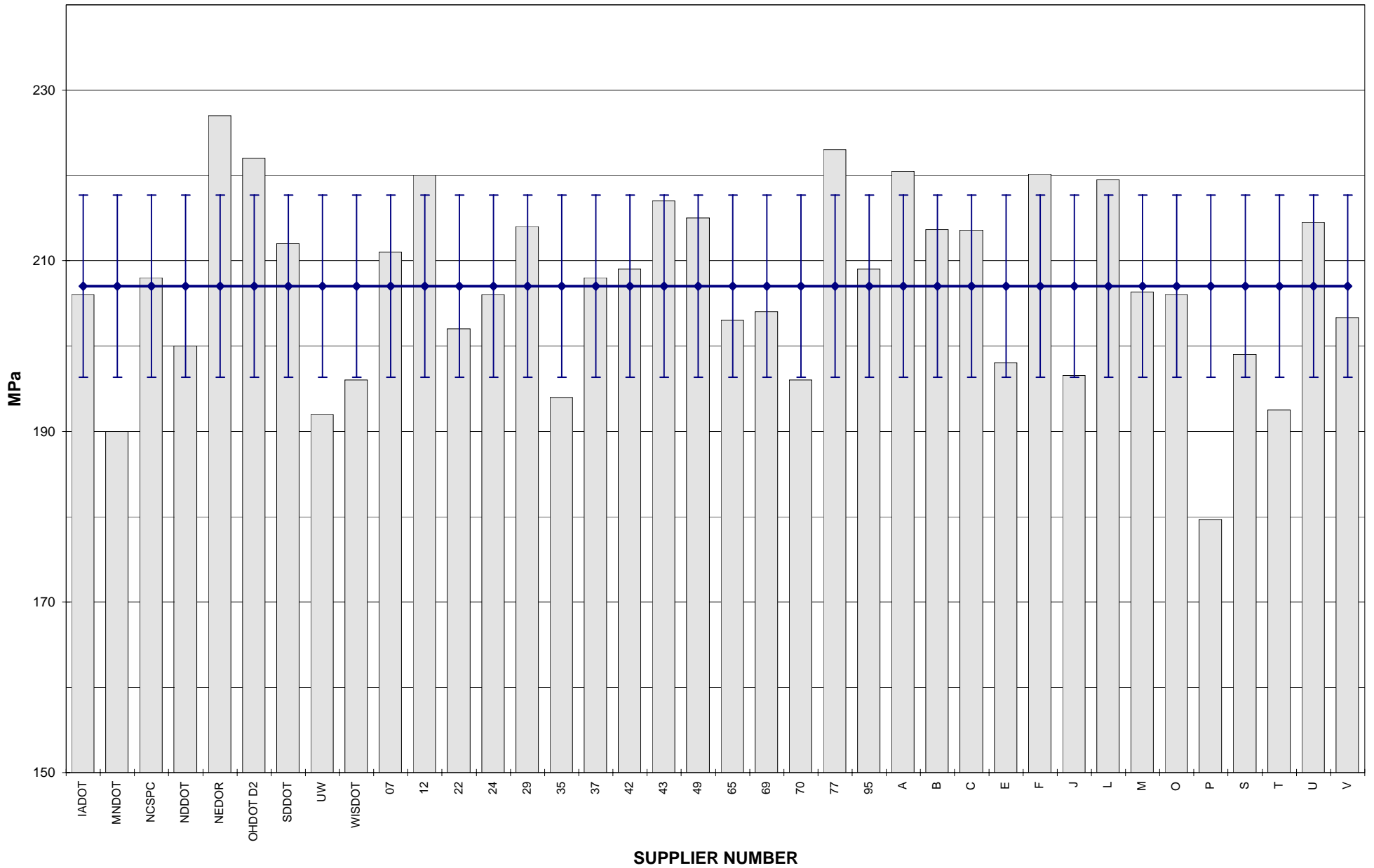
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**SUMMARY B**  
**PG 64-28P**  
**DSR - PAV**



COMBINED STATE BINDER GROUP ROUND ROBIN 2007-3  
 SUMMARY B  
 PG 64-28P  
**RTFO MASS LOSS**



**COMBINED STATE BINDER GROUP ROUND ROBIN 2007-3**  
**SUMMARY B**  
**PG 64-28P**  
**BBR STIFFNESS**



**COMBINED STATE BINDER GROUP ROUND ROBIN 2007-3**  
**SUMMARY B**  
**PG 64-28P**  
**BBR m-VALUE**

