



Combined State Binder Group

Round Robin 2003-4

Summary B

December 5, 2003

COMBINED STATE BINDER GROUP ROUND ROBIN 2003-4

SUMMARY B

PG 58-34

Supplier Number	Rotational Viscosity (Pa.s) @135°C	DSR Original (kPa) @58°C	DSR RTFO (kPa) @58°C	DSR PAV (kPa) @16°C	Mass Loss (%) @163°C	BBR S-value (MPa) @-24°C	BBR m-value @-24°C
IADOT	0.420	1.23	2.82	2,906	-0.623	284	0.320
MIDOT	0.405	1.17	2.94	3,005	-0.646	272	0.323
MNDOT	0.412	1.20	3.45	3,182	-0.730	252	0.321
NCSPC	0.400	1.39	3.38	2,497	-0.808	292	0.308
NDDOT	0.415	1.19	3.17		-0.721		
NEDOR		1.18	3.51	2,704	-0.579	262	0.344
OHDOT D2	0.399	1.23	3.12	2,720	-0.493	291	0.302
SDDOT	0.408	1.28	3.24	2,732	-0.525	208	0.334
UW	0.208	1.15	3.38	3,140	-0.723	325	0.314
WISDOT	0.428	1.12	2.90	2,167	-0.567	264	0.333
A	0.385	1.17	2.93	2,343	-0.711	292	0.328
B	0.404	1.16	3.10	1,967	-0.603	275	0.331
C	0.430	1.16	3.12	2,500	-0.736	285	0.312
E	0.455	1.19	3.04	2,566	-0.721	282	0.328
F	0.419	1.15	3.17	2,663	-0.703	269	0.320
G	0.432	1.17	2.89	2,527	-0.627	283	0.316
I	0.419	1.21	3.04	2,781	-0.561	274	0.323
J	0.433	1.18	2.95	2,677	-0.657	270	0.319
L	0.443	1.26	3.42	3,282	-0.722	274	0.323
M	0.396	1.12	3.00	2,762	-0.527	270	0.325
N	0.431	1.22	3.17	2,371	-0.655	281	0.333
O	0.438	1.16	3.02	1,970	-0.730	262	0.313
P	0.406	1.16	3.47	2,437	-0.717	258	0.331
Q	0.418	1.16	2.77	2,452	-0.608	268	0.330
R	0.422	1.08	2.87	2,635	-0.815	288	0.334
07	0.425	1.21	2.74	3,352	-0.601	297	0.316
12	0.402	1.15	2.98	3,138	-0.763	256	0.328
16	0.400	1.15	3.06	3,035	-0.609	270	0.327
18	0.443	1.13	2.99	2,677	-0.616	270	0.325
22	0.410	1.20	3.04	2,155	-0.919	288	0.325
24	0.416	1.30	3.07	3,012	-0.589	270	0.328
29	0.395	1.18	3.32	2,727	-0.710	284	0.313
35	0.426	1.36	3.41	1,991	-0.603	243	0.318
42	0.416	1.19	3.02	2,368	-0.804	261	0.317
46	0.400	1.11	2.59	2,912	-0.648	283	0.319
49	0.475	1.22	3.33	2,331	-0.533	271	0.322
53	0.410	1.14	2.87	2,658	-0.730	268	0.328
61	0.421	1.13	2.88	2,618	-0.802	254	0.314
64	0.411	1.14	2.96	2,702	-0.699	270	0.327
65	0.418	1.17	2.99	3,124	-0.604	266	0.319
67	0.427	1.18	2.79	2,178	-0.702	216	0.350
69	0.428	1.19	2.76	3,171	-0.654	282	0.323
70	0.404	1.13	2.74	2,484	-0.635	248	0.320
77	0.475	1.16	3.11	2,928	-0.606	269	0.316
87	0.400	1.18	3.12	2,825	-0.568	280	0.324
Average	0.4142	1.1842	3.0579	2,667.43	-0.6644	271.00	0.3232
Std. Dev.	0.0371	0.0599	0.2224	355.66	0.0902	19.56	0.0088
Coef. of Var.	8.951	5.061	7.272	13.333	13.578	7.217	2.737

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A	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
51	0.386	1.19	2.94	2.373	-0.726	286	0.331
97	0.386	1.17	2.93	2.231	-0.770	293	0.326
98	0.384	1.16	2.93	2.424	-0.637	298	0.328
Average	0.385	1.17	2.93	2.343	-0.711	292	0.328

B	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
01	0.403	1.18	3.07	2.338	-0.600	276	0.327
17	0.403	1.14	3.13	1.762	-0.611	283	0.333
45	0.405	1.17	3.09	1.800	-0.597	265	0.332
Average	0.404	1.16	3.10	1.967	-0.603	275	0.331

C	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
21	0.432	1.18	3.14	2.416	-0.731	281	0.311
28	0.432	1.16	3.08	2.599	-0.740	283	0.311
90	0.428	1.16	3.14	2.527	-0.742	288	0.314
99	0.428	1.13	3.11	2.456	-0.730	288	0.312
Average	0.430	1.16	3.12	2.500	-0.736	285	0.312

E	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
15	0.463	1.18	3.08	2.566	-0.728	281	0.327
89	0.446	1.19	3.00	2.565	-0.713	283	0.328
Average	0.455	1.19	3.04	2.566	-0.721	282	0.328

F	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
02	0.410	1.09	3.11	2.559	-0.733	272	0.321
11	0.425	1.13	3.21	2.731	-0.707	274	0.322
34	0.410	1.16	3.23	2.672	-0.713	263	0.311
48	0.425	1.17	3.36	2.799	-0.718	273	0.322
56	0.408	1.18	3.13	2.522	-0.666	268	0.323
62	0.435	1.17	2.97	2.693	-0.681	261	0.320
Average	0.419	1.15	3.17	2.663	-0.703	269	0.320

G	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
26	0.430	1.16	2.86	2.631	-0.633	281	0.316
36	0.433	1.18	2.91	2.422	-0.620	285	0.316
Average	0.432	1.17	2.89	2.527	-0.627	283	0.316

I	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
03	0.418	1.17	2.92	3.188	-0.557	279	0.323
09	0.418	1.19	3.09	2.836	-0.569	270	0.324
13	0.423	1.21	3.01	2.880	-0.557	277	0.323
33	0.418	1.28	3.14	2.220	-0.560	268	0.320
Average	0.419	1.21	3.04	2.781	-0.561	274	0.323

J	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
05	0.429	1.18	2.90	2.634	-0.647	270	0.320
08	0.431	1.22	2.78	2.784	-0.646	269	0.313
10	0.437	1.18	2.96	2.740	-0.630	268	0.316
31	0.444	1.15	2.97	2.746	-0.663	270	0.318
38	0.425	1.15	2.92	2.671	-0.700	275	0.324
41	0.438	1.21	2.99	2.675	-0.680	276	0.322
44	0.425	1.18	2.98	2.652	-0.660	278	0.320
52	0.440	1.16	3.14	2.594	-0.624	264	0.322
74	0.425	1.18	2.93	2.599	-0.659	262	0.317
Average	0.433	1.18	2.95	2.677	-0.657	270	0.319

L	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
25	0.443	1.24	3.34	3.304	-0.646	276	0.323
59	0.443	1.27	3.50	3.259	-0.798	271	0.322
Average	0.443	1.26	3.42	3.282	-0.722	274	0.323

M	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
04	0.420	1.14	3.21	2.617	-0.498	272	0.323
37	0.355	1.04	3.16	3.043	-0.520	269	0.323
47	0.412	1.19	2.63	2.625	-0.563	269	0.328
Average	0.396	1.12	3.00	2.762	-0.527	270	0.325

N	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
43	0.417	1.23	3.18	2.243	-0.646	281	0.336
95	0.445	1.21	3.15	2.499	-0.663	280	0.330
Average	0.431	1.22	3.17	2.371	-0.655	281	0.333

O	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
76	0.435	1.07	3.06	1.948	-0.683	262	0.316
85	0.44	1.24	2.98	1.991	-0.777	262	0.310
Average	0.438	1.16	3.02	1.970	-0.730	262	0.313

P	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
71	0.407	1.21	3.72	2.474	-0.733	267	0.328
73	0.405	1.11	3.22	2.399	-0.700	248	0.334
Average	0.406	1.16	3.47	2.437	-0.717	258	0.331

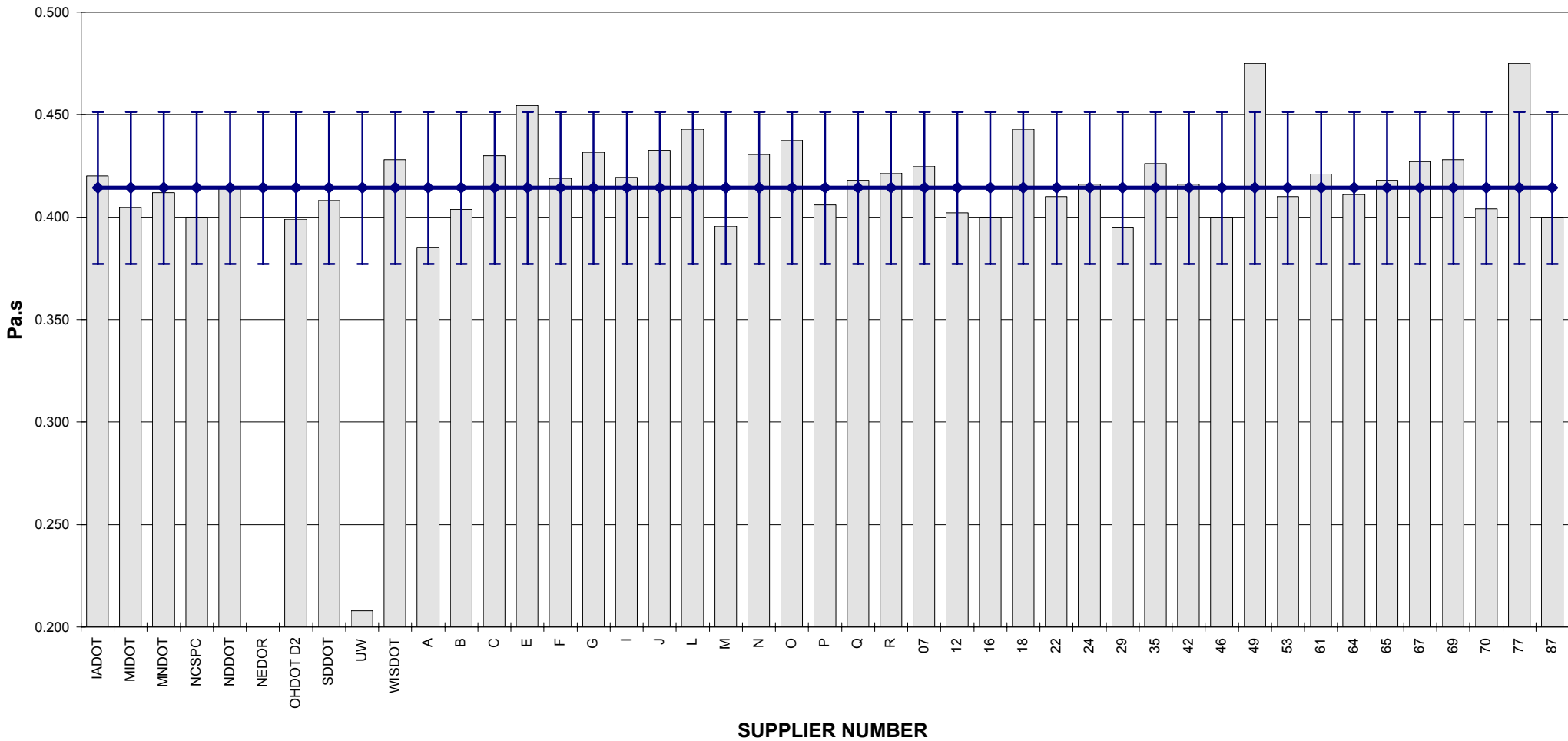
Q	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
54	0.418	1.17	2.76	2.391	-0.608	273	0.327
88	0.418	1.14	2.77	2.512	-0.607	263	0.332
Average	0.418	1.16	2.77	2.452	-0.608	268	0.330

R	VISC	ORIG DSR	RTFO DSR	PAV DSR	LOSS	S-value	m-value
40	0.420	1.08	2.80	2.671	-0.920	288	0.334
79	0.423	1.07	2.93	2.599	-0.710	287	0.333
Average	0.422	1.08	2.87	2.635	-0.815	288	0.334

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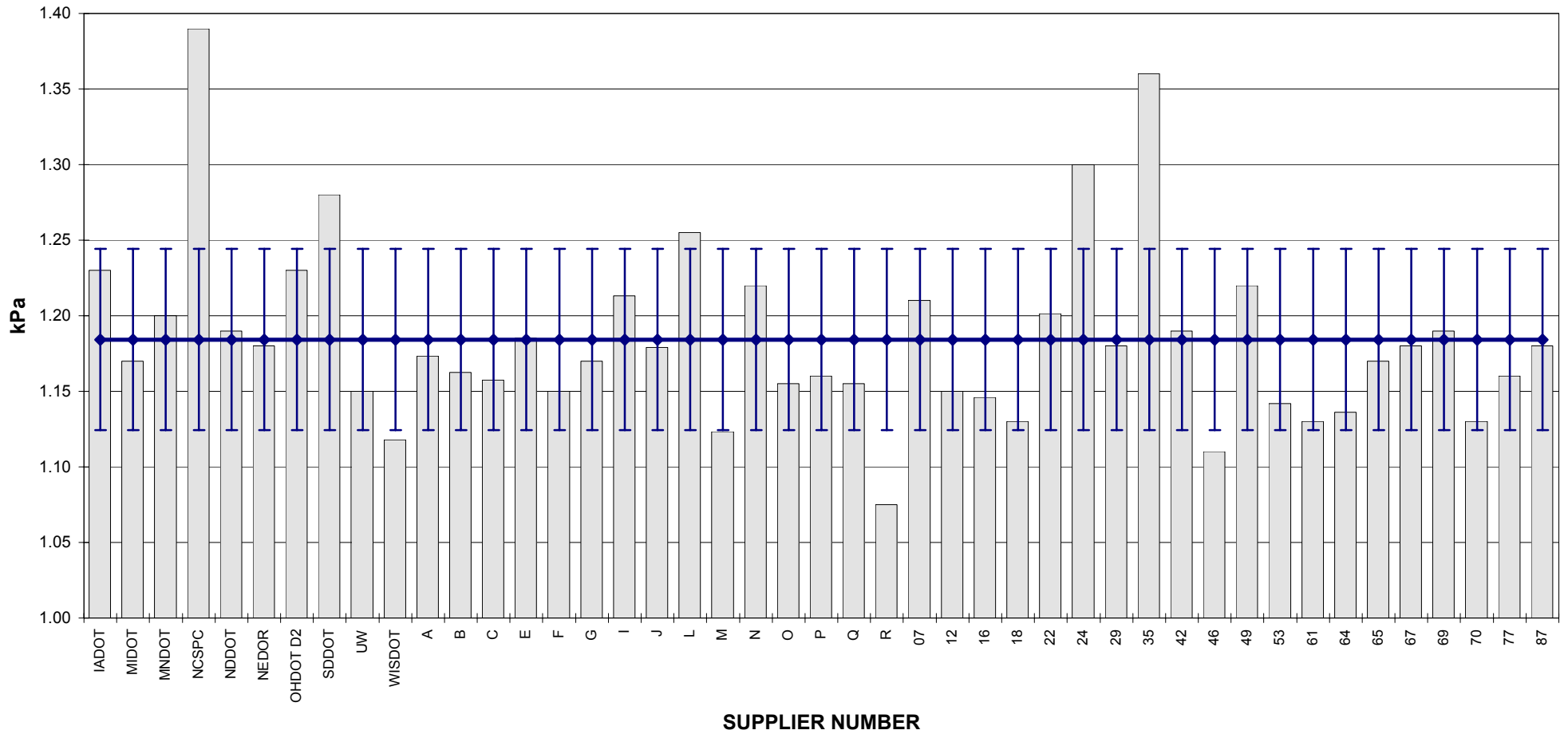
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ROTATIONAL VISCOSITY



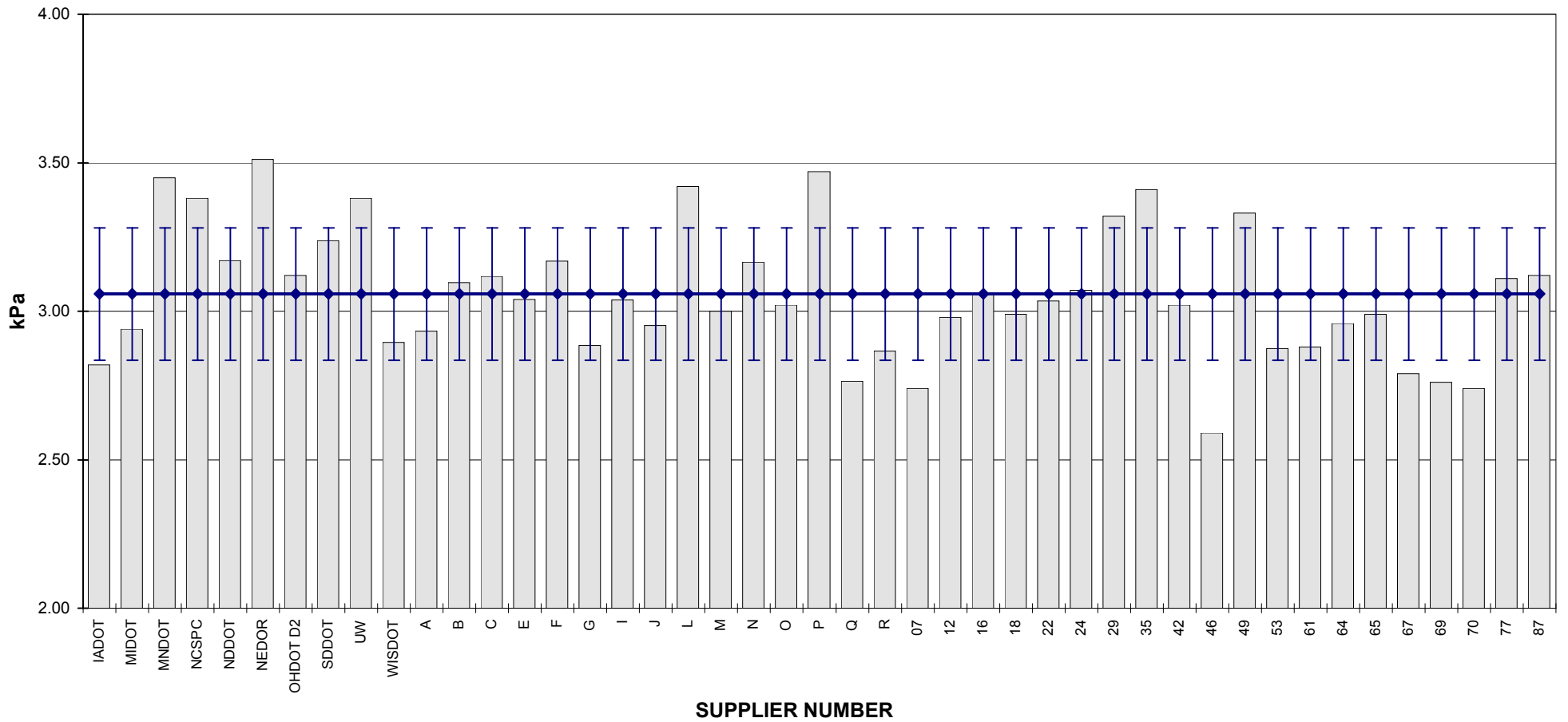
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DSR - ORIGINAL

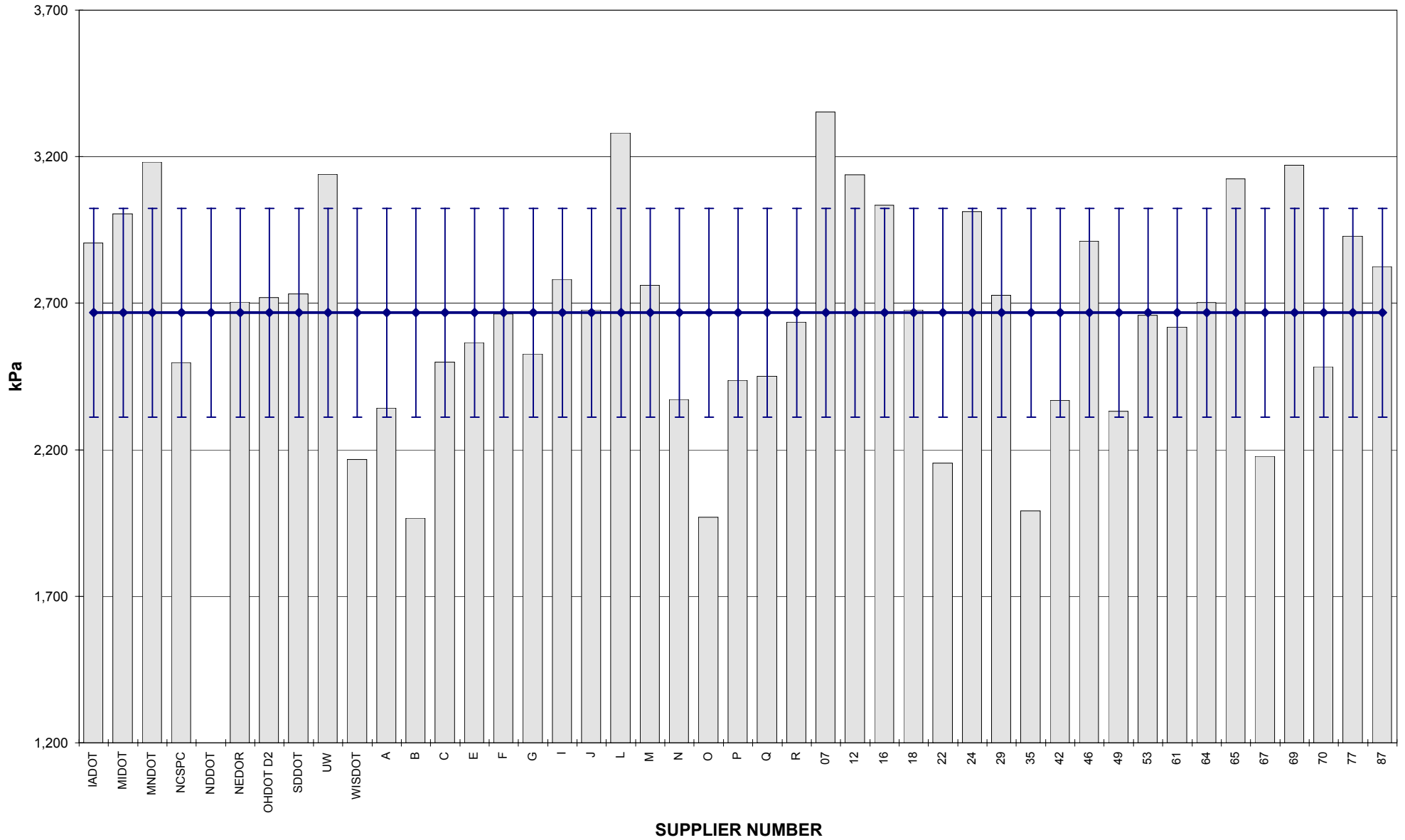


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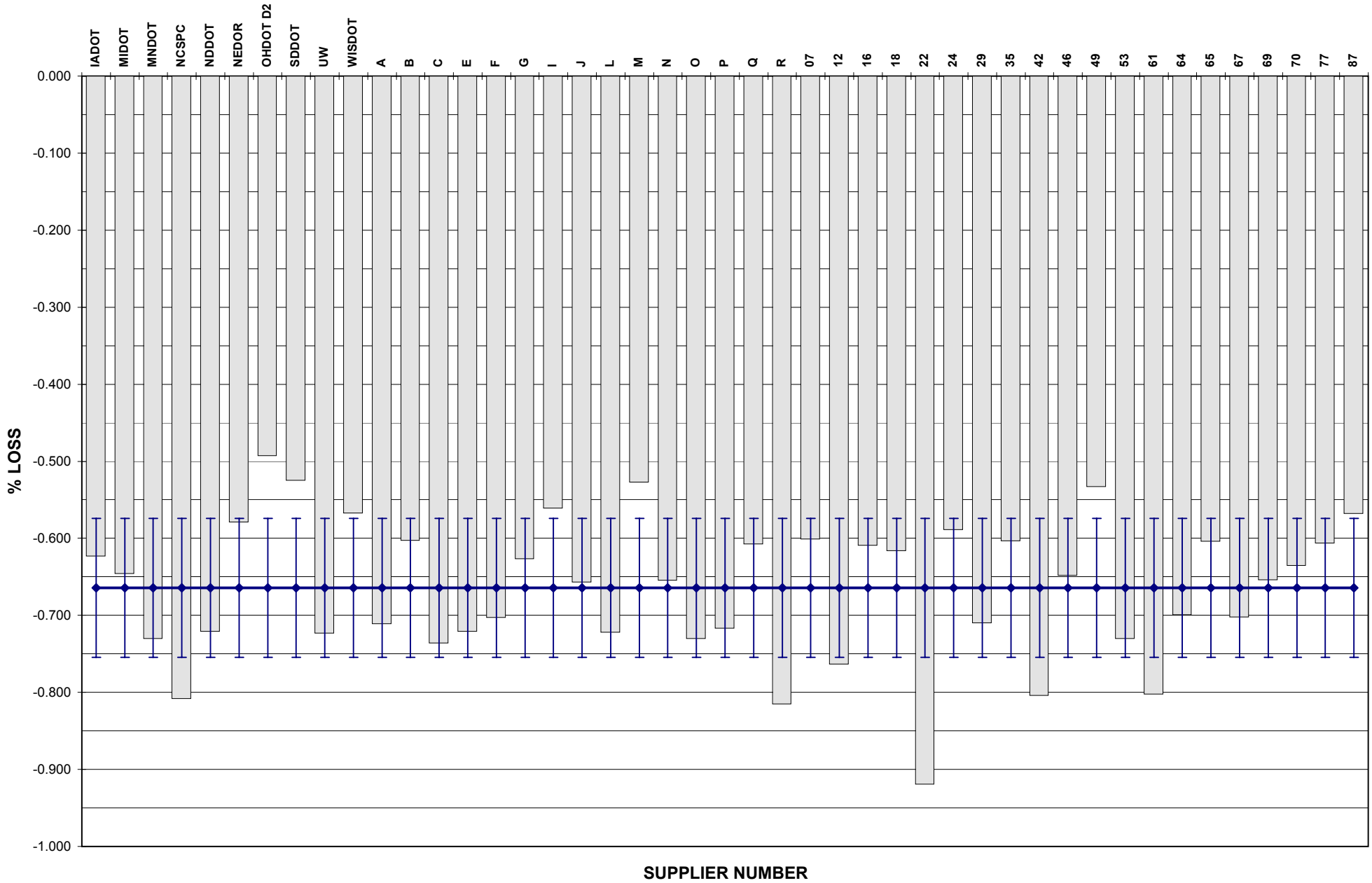
DSR - RTFO



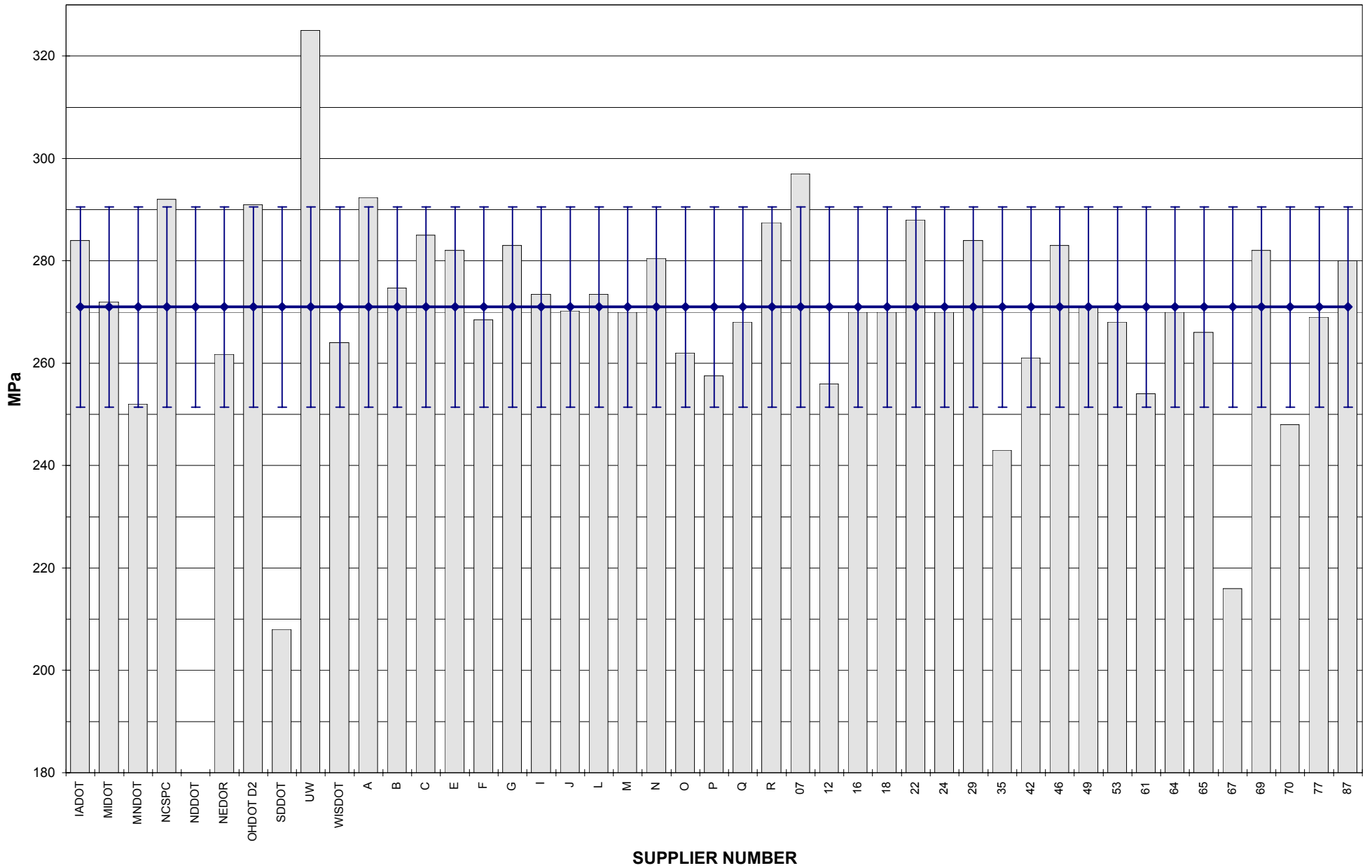
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DSR - PAV**



COMBINED STATE BINDER GROUP ROUND ROBIN 2003-4
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RTFO MASS LOSS



COMBINED STATE BINDER GROUP ROUND ROBIN 2003-4
SUMMARY B
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BBR STIFFNESS



COMBINED STATE BINDER GROUP ROUND ROBIN 2003-4
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PG 58-34
BBR m-VALUE

