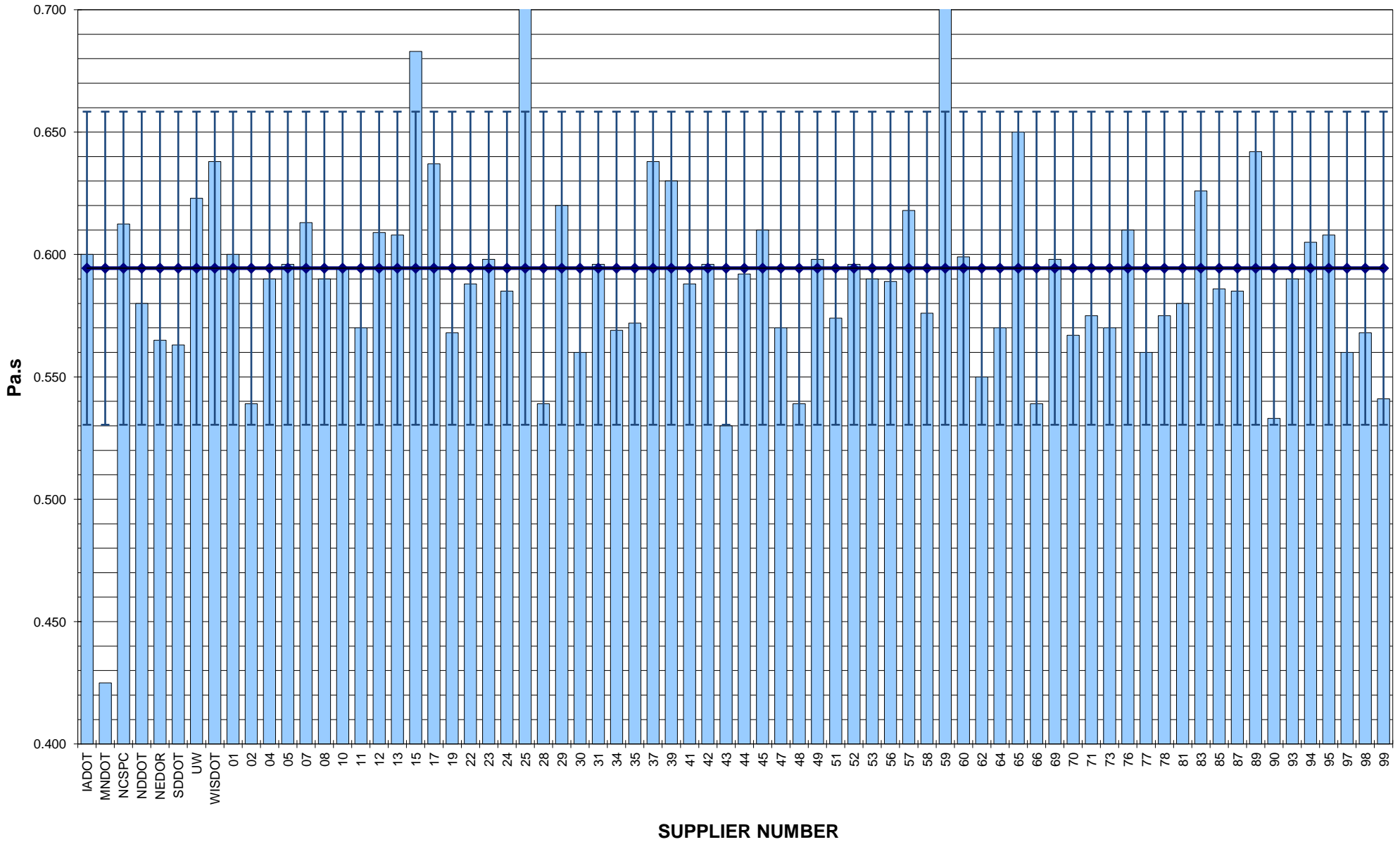


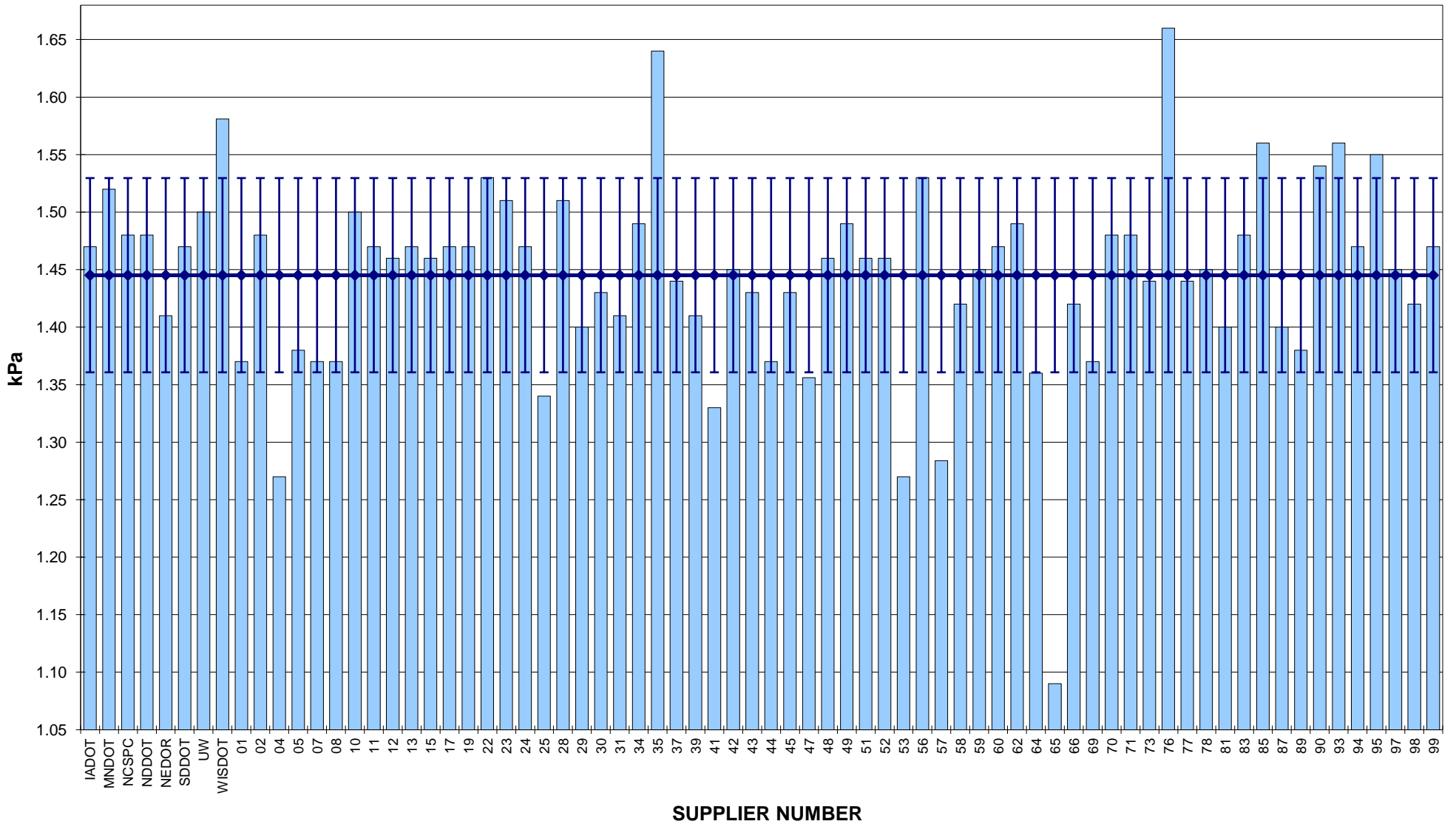
COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
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Supplier Number	Rotational Viscosity (Pa.s) @135°C	DSR Original (kPa) @64°C	DSR RTFO (kPa) @64°C	DSR PAV (kPa) @19°C	Mass Loss (%) @163°C	BBR S-value (MPa) @-24°C	BBR m-value @-24°C	Strain (%) @ 24°C	DTT Stress (MPa) @-24°C	CRITICAL CRACK TEMP (°C)	Jnr @ 100Pa @ 58°C	% RECOVERY @ 100Pa @58°C	Jnr @ 3200Pa @ 58°C	% RECOVERY @ 3200Pa @ 58°C
IADOT	0.600	1.47	3.41	1830	-0.630	229	0.331				0.211	77.87	0.317	69.19
MNDOT	0.425	1.52	2.93	1625	-0.756	161	0.342				0.261	76.90	0.388	68.10
NCSPC	0.613	1.48	4.07	2270	-0.820	278	0.321				0.191	75.87	0.226	72.50
NDDOT	0.580	1.48	3.53	1738	-0.702	224	0.326				0.235	74.78	0.274	72.55
NEDOT	0.565	1.41	3.47	1575	-0.641	227	0.331				0.240	73.94	0.301	70.03
SDDOT	0.563	1.47	3.39	1419	-0.534	212	0.336				0.247	75.28	0.289	73.05
UW	0.623	1.50	3.94	1850	-0.701	171	0.340				0.190	75.69	0.220	73.34
WISDOT	0.638	1.58	3.96	1704	-0.564	224	0.338				0.189	76.08	0.235	71.84
01	0.600	1.37	3.67	2004	-0.733	218	0.328				0.200	75.04	0.243	71.81
02	0.539	1.48	3.42	1857	-0.574	228	0.327				0.250	71.06	0.290	71.70
04	0.590	1.27	3.15	1092	-0.668	236	0.337				0.290	72.00	0.360	68.00
05	0.596	1.38	3.55	2150	-0.738	204	0.311				0.200	77.24	0.261	72.88
07	0.613	1.37	3.20	1779	-0.636	210	0.327				0.390	65.02	0.460	61.76
08	0.590	1.37	3.46	2120	-0.647	225	0.320				0.210	77.07	0.294	70.65
10	0.594	1.50	3.38	1942	-0.724	227	0.321				0.210	76.40	0.290	70.70
11	0.570	1.47	3.80	1834	-0.574	226	0.322				0.210	75.91	0.230	74.11
12	0.609	1.46	3.46	1766	-0.813	235	0.332	1.95	5.2					
13	0.608	1.47	3.82	1770	-0.694	288	0.335				0.150	81.74	0.236	74.46
15	0.683	1.46	3.71	1587	-0.702	215	0.345				0.210	75.57	0.240	73.76
17	0.637	1.47	4.04	2009	-0.687	216	0.326				0.180	76.04	0.208	73.23
19	0.568	1.47	3.58	1835	-0.677	234	0.329				0.230	75.00	0.260	72.70
22	0.588	1.53	3.51	1960	-0.642	233	0.337				0.200	77.40	0.270	72.10
23	0.598	1.51	3.78	1498	-0.722	222	0.341				0.160	81.36	0.238	74.02
24	0.585	1.47	3.86	1715	-0.739	230	0.330	1.74	4.54		0.160	80.92	0.229	74.42
25	1.020	1.34	3.63	2657	-0.725	232	0.328				0.200	77.33	0.250	73.55
28	0.539	1.51	3.46	1865	-0.611	242	0.326				0.240	74.89	0.280	73.19
29	0.620	1.40	4.00	1410	-0.812	211	0.333				0.210	74.72	0.230	73.07
30	0.560	1.43	3.61	1611	-0.630	220	0.327							
31	0.596	1.41	3.72	2058	-0.736	231	0.318				0.210	76.12	0.242	73.77
34	0.569	1.49	3.02	1603	-0.554	227	0.342				0.250	76.53	0.270	77.12
35	0.572	1.64	3.58	1680	-0.635	219	0.334							
37	0.638	1.44	3.52	3327	-0.614	221	0.318	1.25	4.03	-34.30	0.234	74.91	0.267	73.68
39	0.630	1.41	3.62	1850	-0.410	219	0.325				0.219	75.54	0.254	73.15
41	0.588	1.33	3.85	2069	-0.699	228	0.320				0.180	77.75	0.241	74.33
42	0.596	1.45	3.94	1530	-0.817	224	0.343				0.140	82.33	0.204	75.68
43	0.530	1.43	3.92	1670	-0.701	228	0.344				0.190	76.51	0.224	73.77
44	0.592	1.37	3.52	1959	-0.741	233	0.332				0.210	76.80	0.260	72.60
45	0.610	1.43	3.79	1790	-0.686	212	0.324				0.190	75.84	0.222	72.78
47	0.570	1.36	3.00	1457	-0.544	220	0.337				0.310	71.00	0.370	67.00
48	0.539	1.46	3.56	1697	-0.496	223	0.335				0.230	74.97	0.270	72.73
49	0.598	1.49	3.39	1620	-0.727	223	0.337				0.190	79.62	0.292	71.41
51	0.574	1.46	3.63	1756	-0.668	230	0.331				0.220	75.10	0.260	72.80
52	0.596	1.46	3.52	1948	-0.626	223	0.326				0.220	74.50	0.350	64.80
53	0.590	1.27	3.15	1092	-0.668	236	0.337							
56	0.589	1.53	3.57	1639	-0.526	226	0.339				0.230	75.23	0.250	73.94
57	0.618	1.28	3.46	1613	-0.688	225	0.324				0.230	74.00	0.290	71.00
58	0.576	1.42	3.75	1720	-0.654	231	0.329				0.190	78.55	0.291	69.51
59	0.725	1.45	3.68	1912	-0.661	230	0.336							
60	0.599	1.47	3.29	1680	-0.680	233	0.333				0.260	74.22	0.295	71.93
62	0.550	1.49	3.98	1740	-0.541	232	0.330				0.220	72.43	0.270	68.40
64	0.570	1.36	3.00	1457	-0.544	220	0.337							
65	0.650	1.09	3.72	1799	-0.361	227	0.337				0.200	75.80	0.233	73.00
66	0.539	1.42	3.53	1797	-0.636	231	0.333				0.230	75.06	0.270	73.19
69	0.598	1.37	3.26	1723	-0.613	229	0.337				0.390	66.19	0.470	62.52
70	0.567	1.48	3.44	1592	-0.660	228	0.342				0.300	68.45	0.413	59.49
71	0.575	1.48	3.87	1747	-0.663	224	0.341							
73	0.570	1.44	3.77	1768	-0.700	226	0.332							
76	0.610	1.66	3.76	989	-0.566	235	0.333				0.210	75.71	0.243	73.30
77	0.560	1.44	3.72	1800	-0.609	211	0.342				0.230	73.15	0.270	70.22
78	0.575	1.45	3.68	1710	-0.662	223	0.333				0.180	79.10	0.273	70.92
81	0.580	1.40	3.74	1730	-0.653	224	0.333				0.230	74.76	0.373	61.59
83	0.626	1.48	3.74	1653	-0.649	228	0.331				0.213	75.86	0.257	72.55
85	0.586	1.56	3.91	1230	-0.573	244	0.330				0.200	75.96	0.227	73.98
87	0.585	1.40	3.53	1578	-0.748	226	0.330				0.180	79.10	0.250	73.50
89	0.642	1.38	3.73	1531	-0.668	219	0.344				0.210	7.90	0.233	74.19
90	0.533	1.54	3.17	1639	-0.615	234	0.336				0.280	73.39	0.320	71.26
93	0.590	1.56	3.83	1430	-0.712	226	0.344				0.170	80.51	0.248	72.97
94	0.605	1.47	3.66	1701	-0.314	205	0.324				0.230	74.42	0.282	70.76
95	0.608	1.55	3.90	1650	-0.587	241	0.333				0.200	76.50	0.230	74.50
97	0.560	1.45	3.67	1826	-0.657	234	0.329				0.210	75.40	0.250	73.40
98	0.568	1.42	3.54	1865	-0.681	235	0.331				0.240	74.40	0.280	71.90
99	0.541	1.47	3.42	1608	-0.615	238	0.327				0.250	74.44	0.290	72.41
Average	0.594	1.45	3.59	1746	-0.648	226	0.332	1.65	4.59	-34.30	0.221	74.52	0.276	71.61
Std. Dev.	0.0640	0.0844	0.2620	317.57	0.0932	16.11	0.0073	0.3592	0.5866	#DIV/0!	0.0450	8.9969	0.0552	3.3831
Coef. of Var.	10.760	5.843	7.288	18.189	14.386	7.133	2.186	21.815	12.780	#DIV/0!	20.363	12.073	20.016	4.725

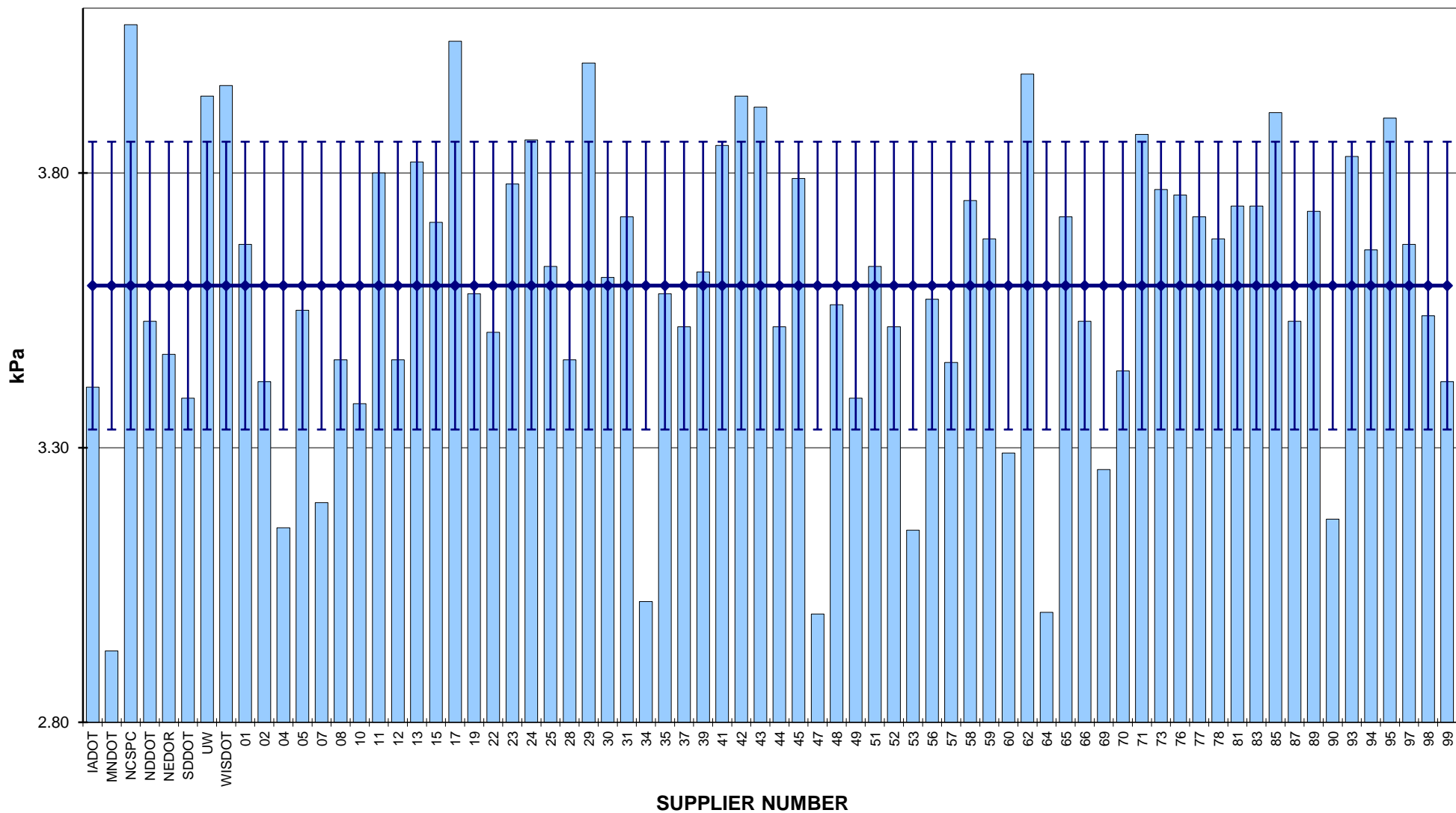
**COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
PG 64-34
ROTATIONAL VISCOSITY**



COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
PG 64-34
DSR - ORIGINAL

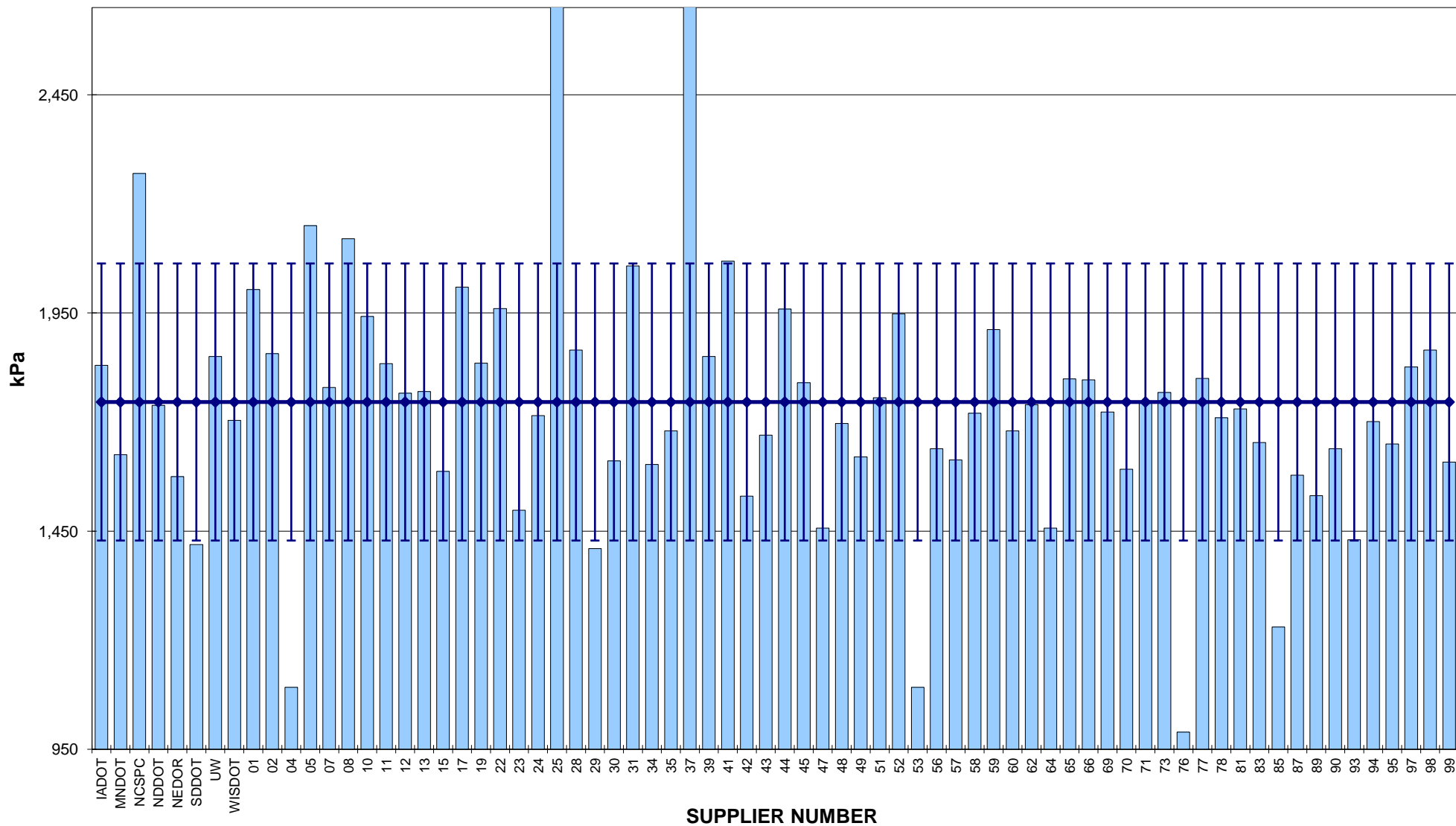


COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
PG 64-34
DSR - RTFO



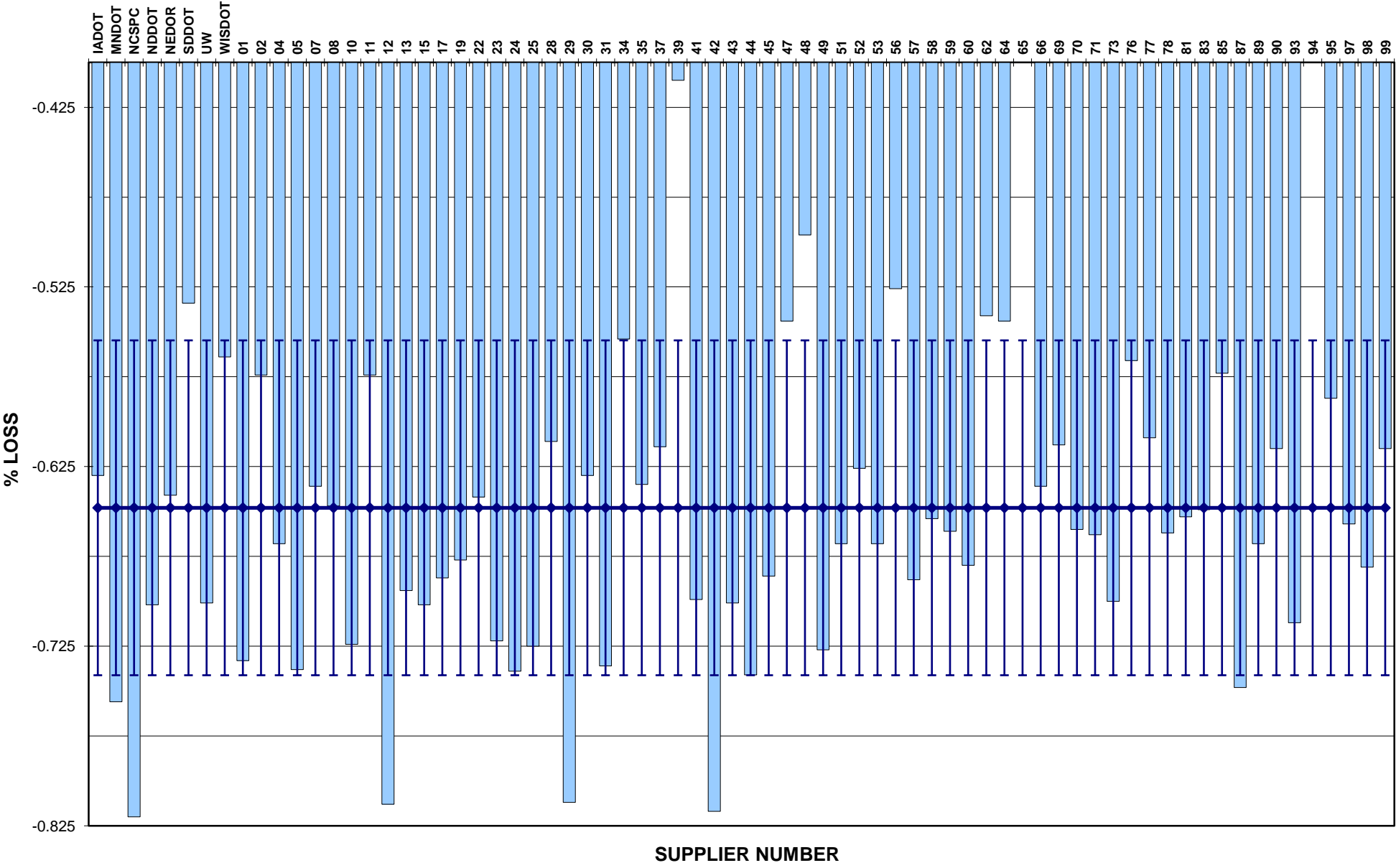
**COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
PG 64-34**

DSR - PAV



COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
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RTFO MASS LOSS

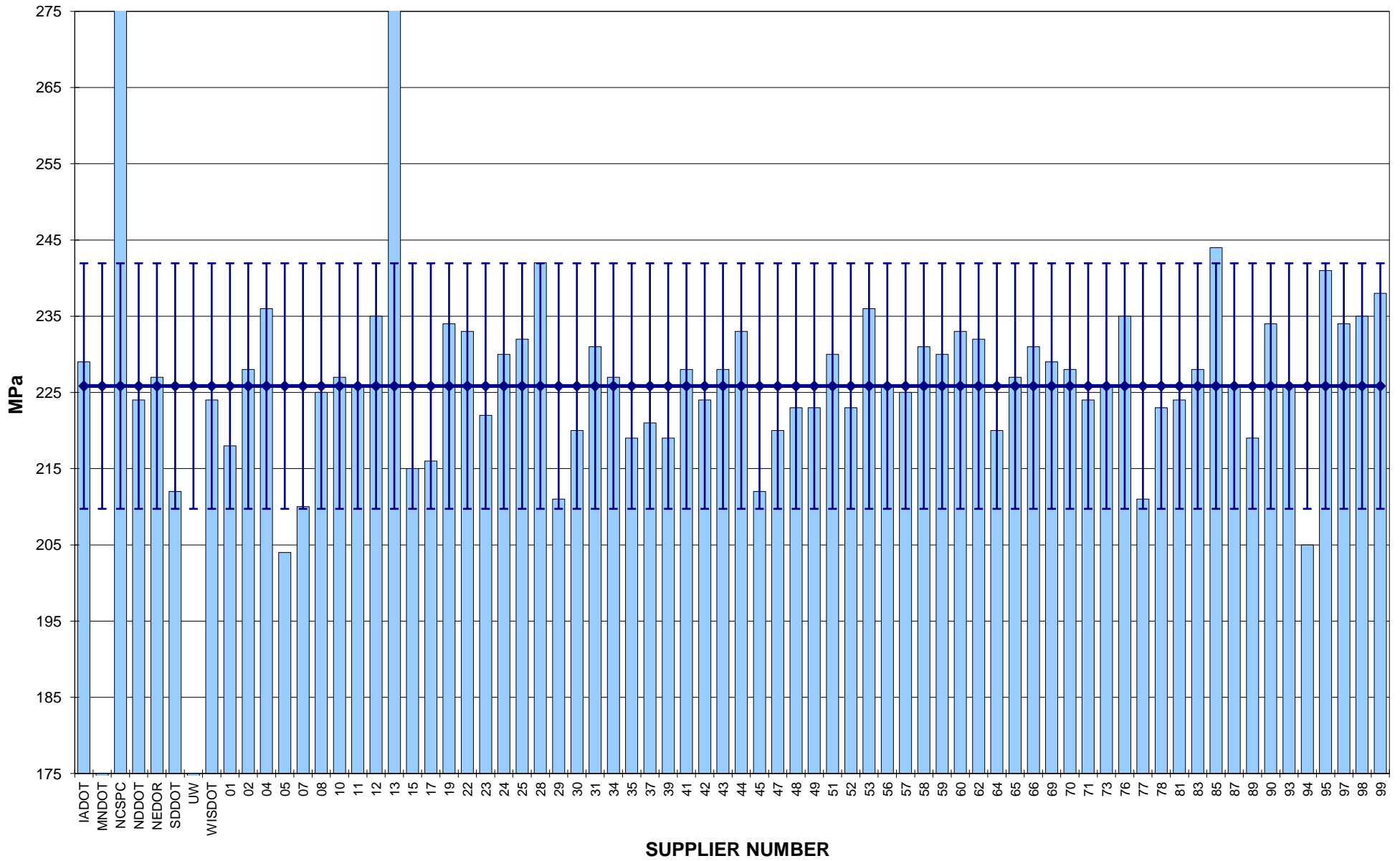


COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1

SUMMARY A

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BBR STIFFNESS

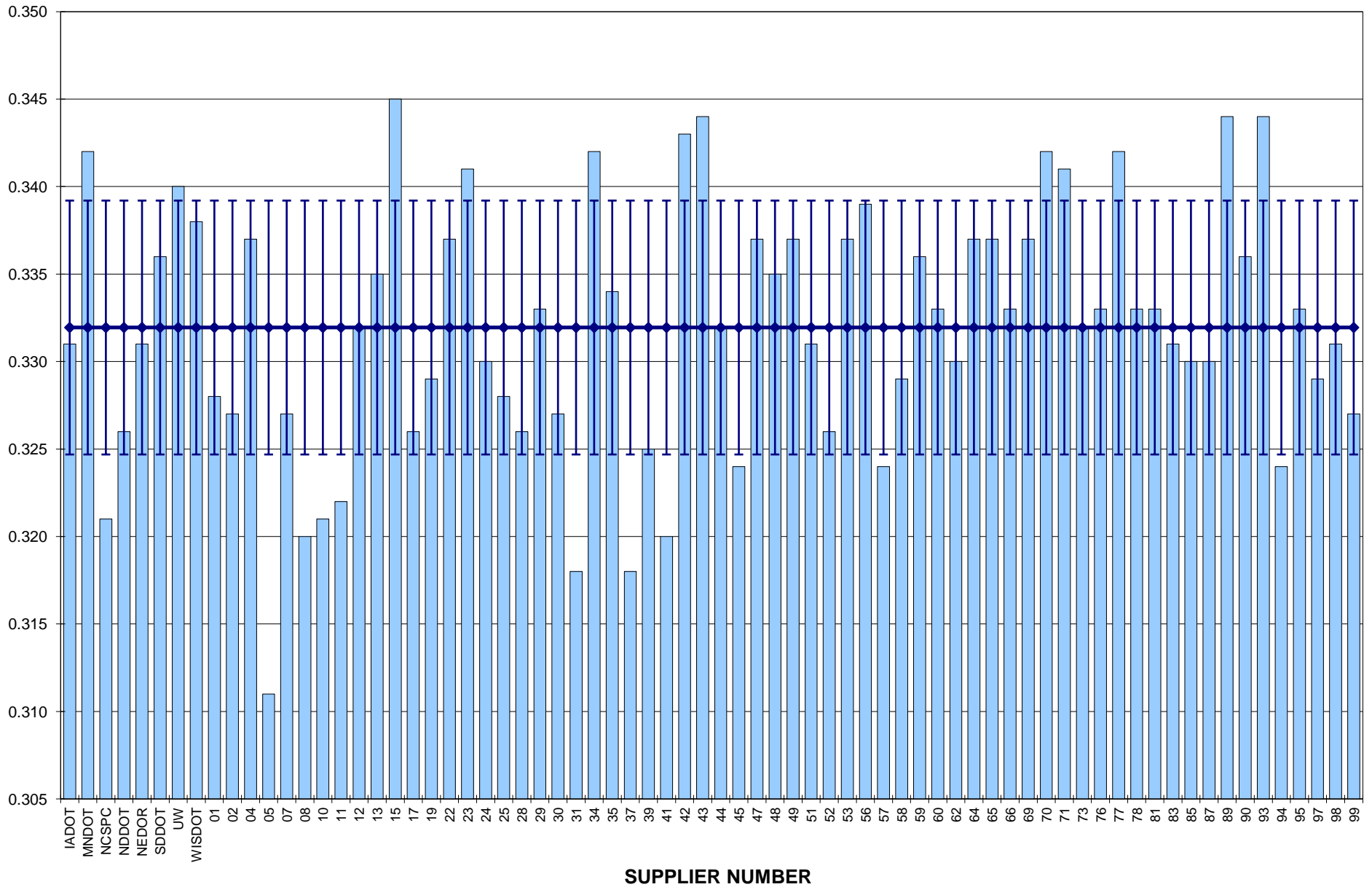


COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1

SUMMARY A

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BBR m-VALUE

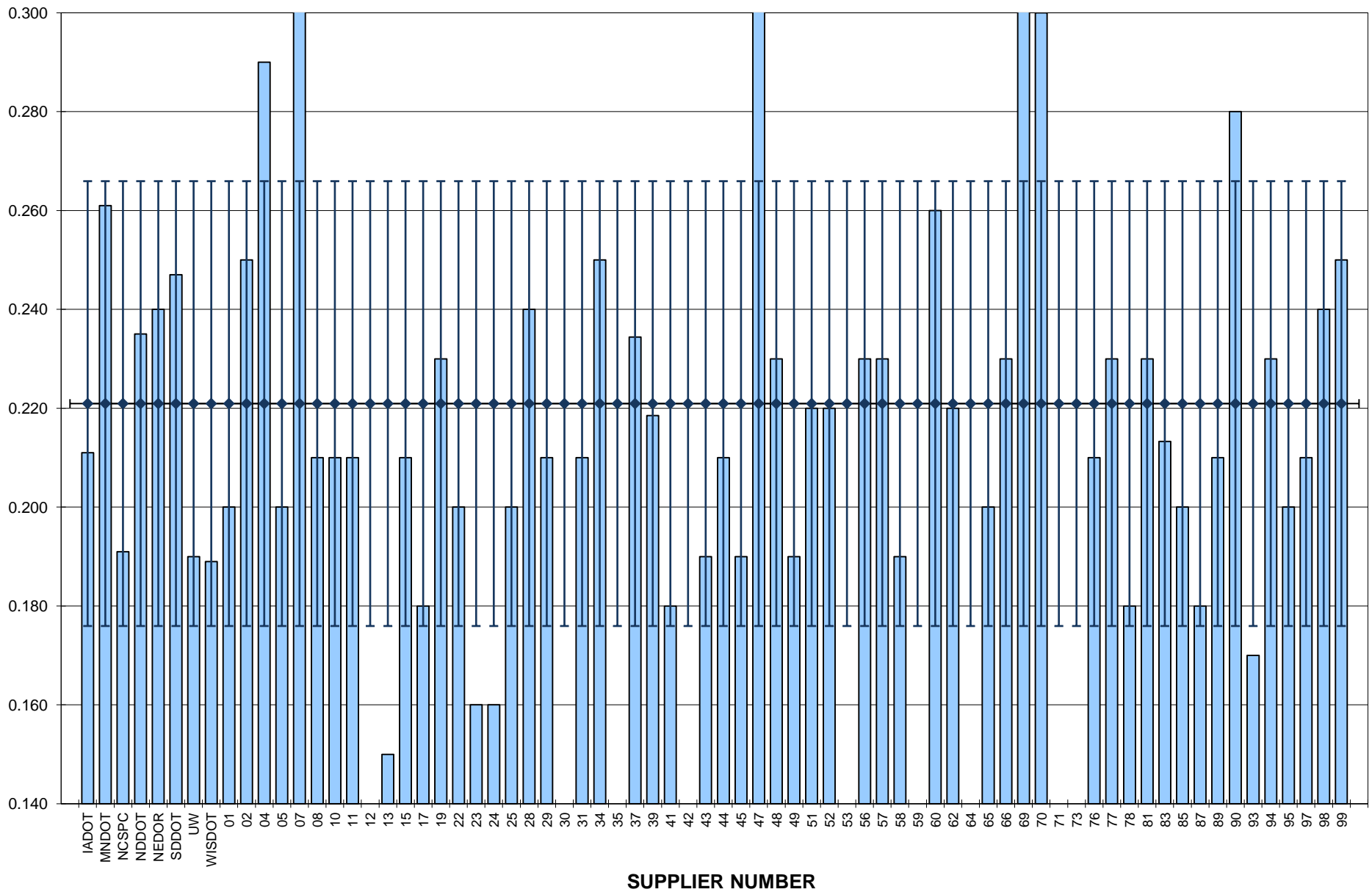


COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1

SUMMARY A

PG 64-34

Jnr@100 Pa

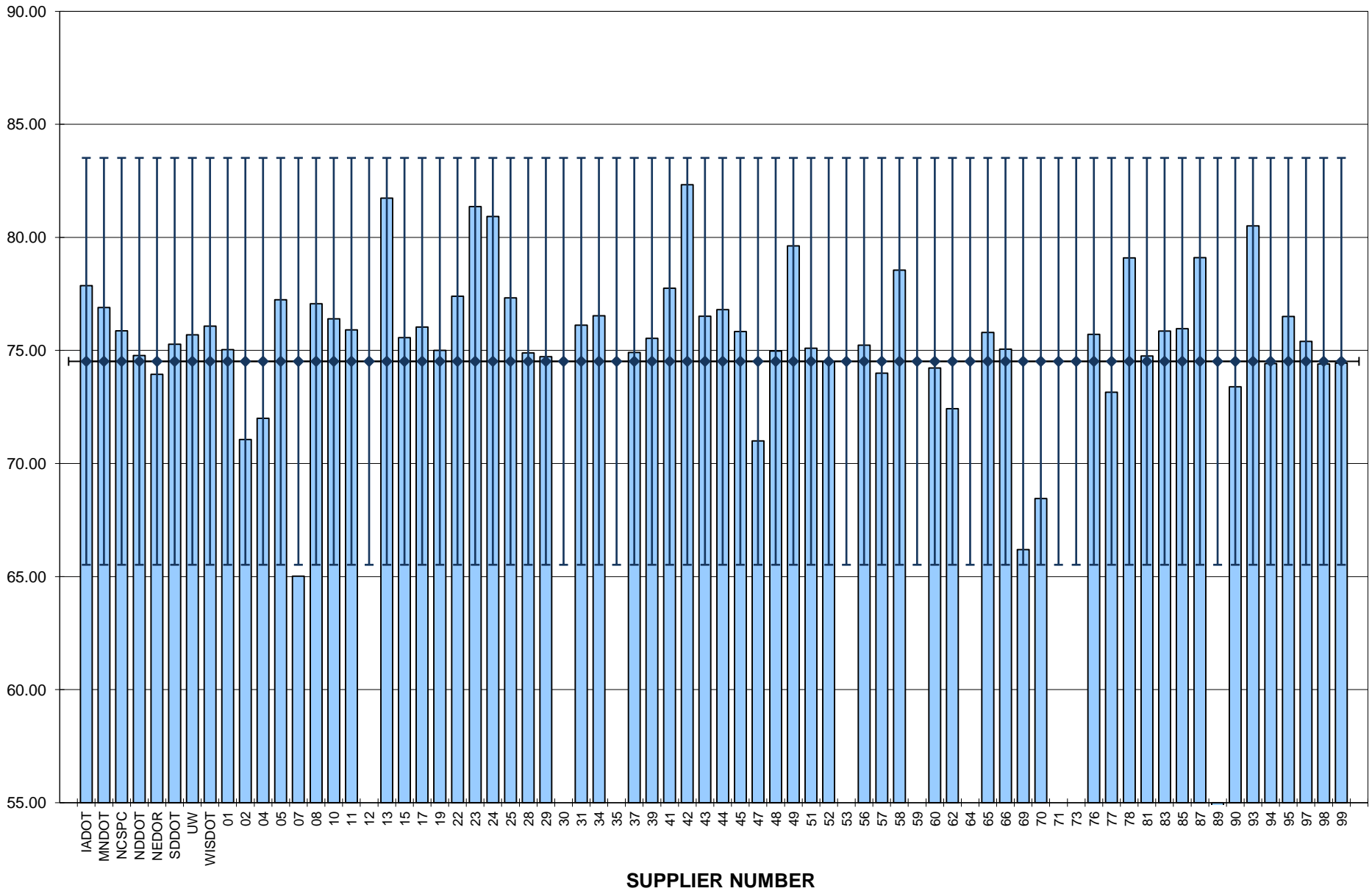


COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1

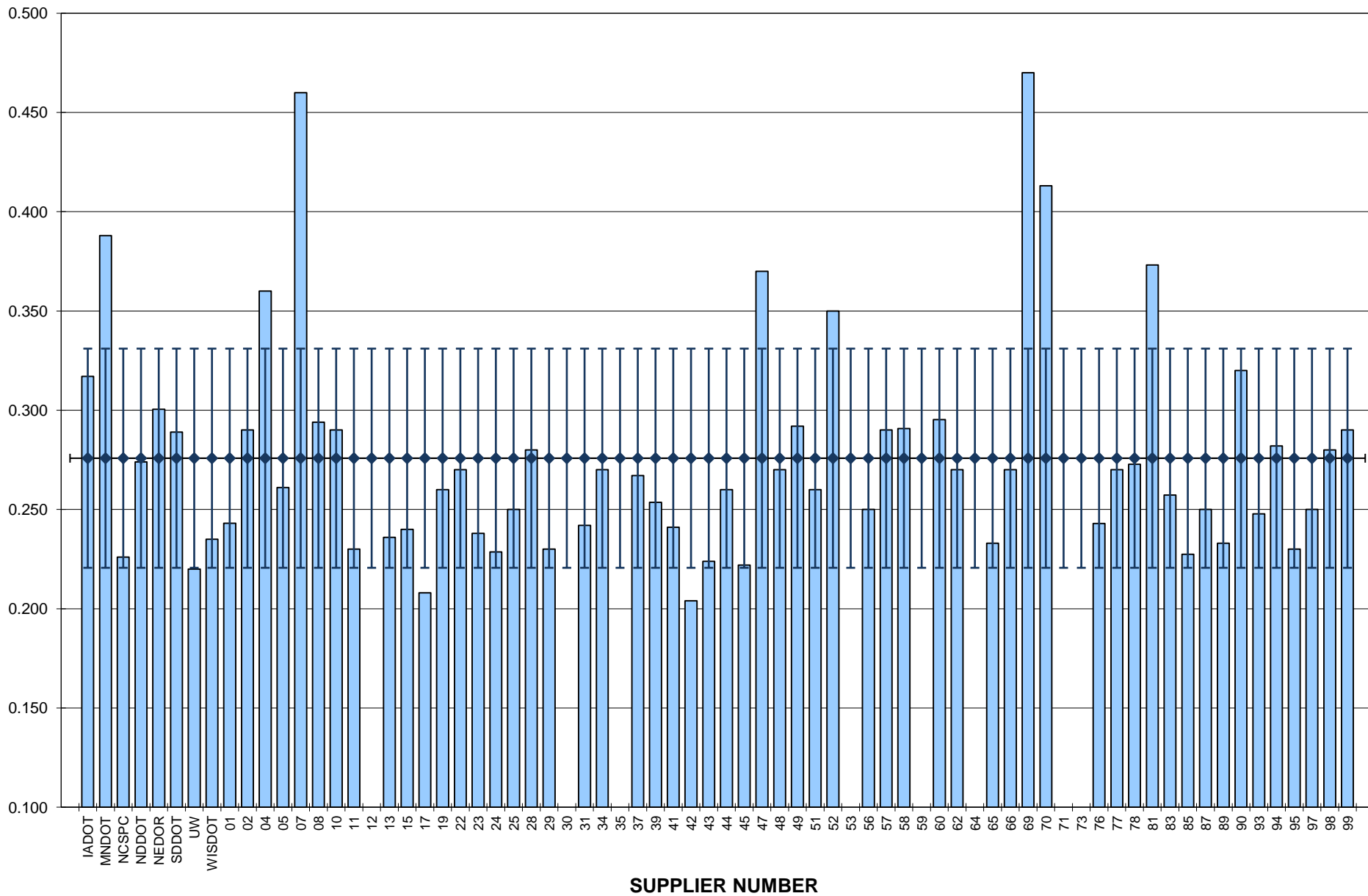
SUMMARY A

PG 64-34

%Recovery@100 Pa



COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
PG 64-34
Jnr @3200 Pa

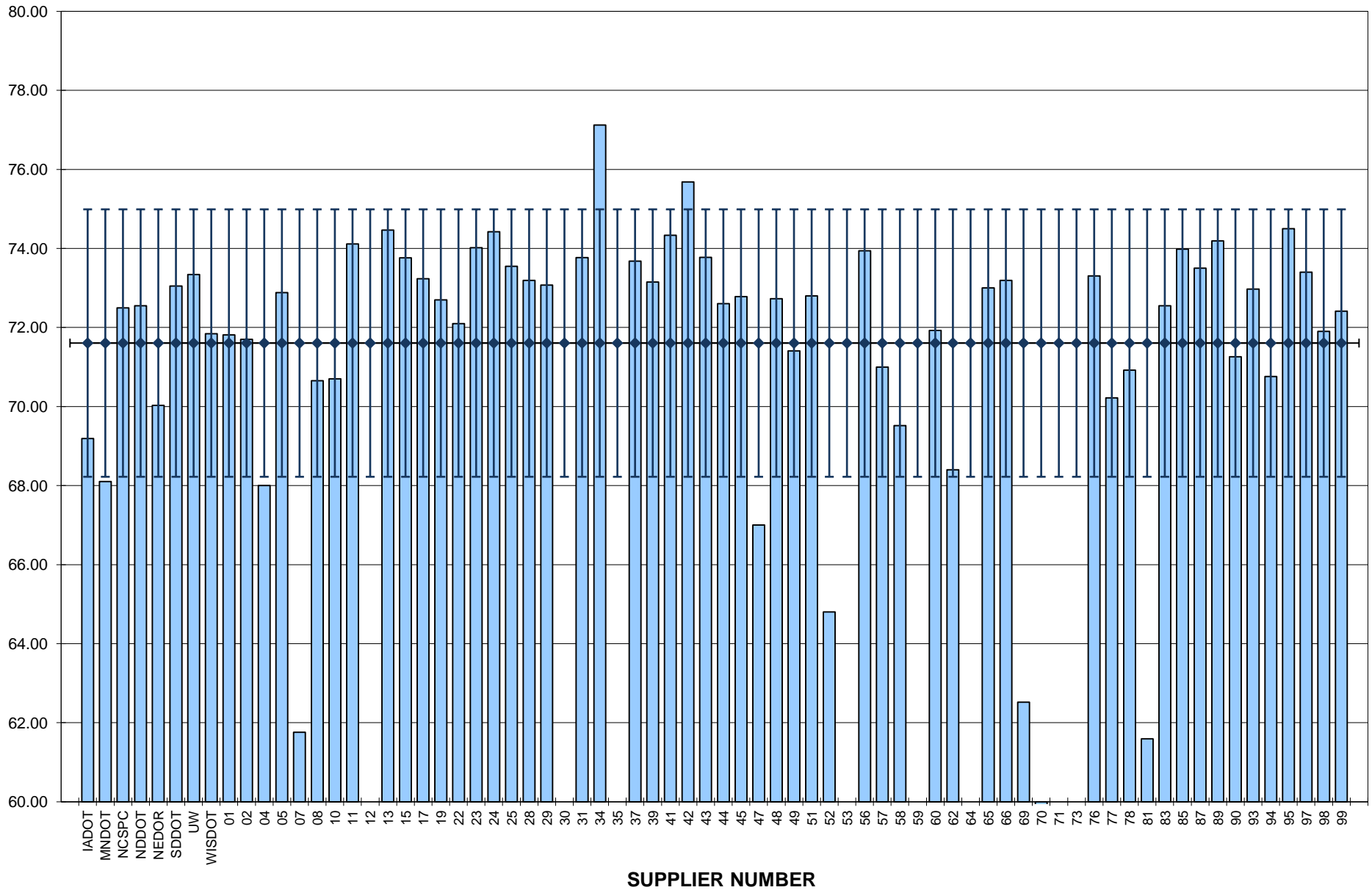


COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1

SUMMARY A

PG 64-34

%Recovery@3200 Pa



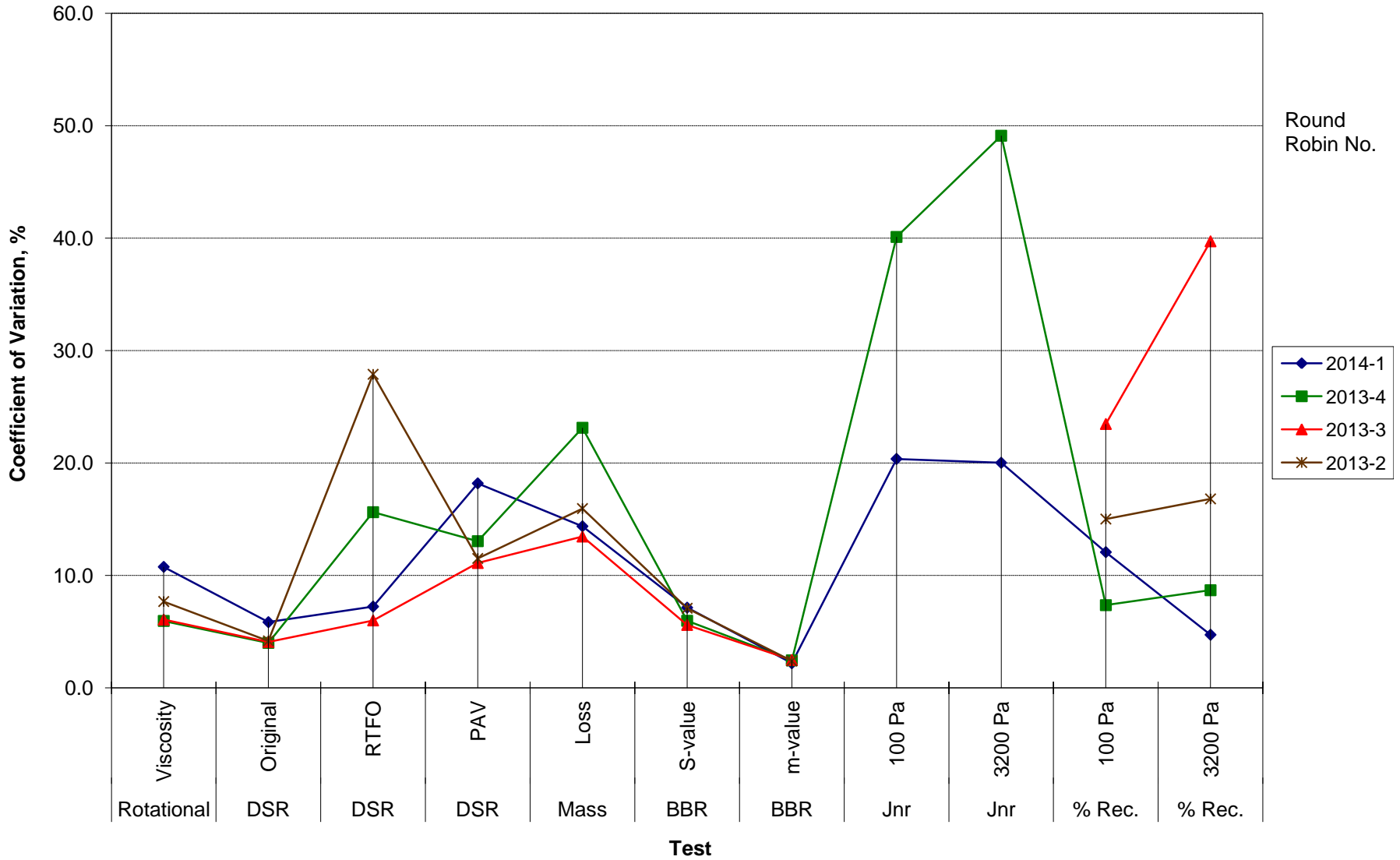
**COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
64-34**

COEFFICIENT OF VARIATION

R R No.	Number of Participants	Coefficient of Variation, %											
		Rotational Viscosity	DSR Original	DSR RTFO	DSR PAV	Mass Loss	BBR S-value	BBR m-value	Jnr 100 Pa	Jnr 3200 Pa	% Rec. 100 Pa	% Rec. 3200 Pa	DTT Strain
2014-1	72	10.760	5.843	7.228	18.189	14.368	7.133	2.186	20.363	20.016	12.070	4.720	8.048
2013-4	72	5.951	4.000	15.623	13.043	23.130	5.964	2.446	40.101	49.104	7.354	8.681	30.613
2013-3	72	6.066	4.085	5.997	11.103	13.455	5.594	2.477			23.467	39.713	30.613
2013-2	67	7.677	4.174	27.888	11.506	15.945	7.077	2.385			15.014	16.805	22.720

**COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
64-34**

COEFFICIENT OF VARIATION



**COMBINED STATE BINDER GROUP ROUND ROBIN 2014-1
SUMMARY A
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STATISTICS WITH OUTLIERS REMOVED:

	Rotational Viscosity (Pa.s) @135°C	DSR Original (kPa) @64°C	DSR RTFO (kPa) @64°C	DSR PAV (kPa) @19°C	Mass Loss (%) @163°C	BBR S-value (MPa) @-24°C	BBR m-value @-24°C	Jnr @ 100Pa @ 58°C	% RECOV. @ 100Pa @58° C	Jnr @ 3200Pa @ 58°C	% RECOV. @ 3200Pa @ 58° C
Average	0.586	1.45	3.59	1,724	-0.660	226	0.332	0.215	75.90	0.265	72.42
Std. Dev.	0.0357	0.0735	0.2620	257.05	0.0723	8.31	0.0073	0.0335	2.5333	0.0374	1.8996
Coef. of Var.	6.084	5.070	7.288	14.913	10.952	3.680	2.186	15.552	3.338	14.084	2.623