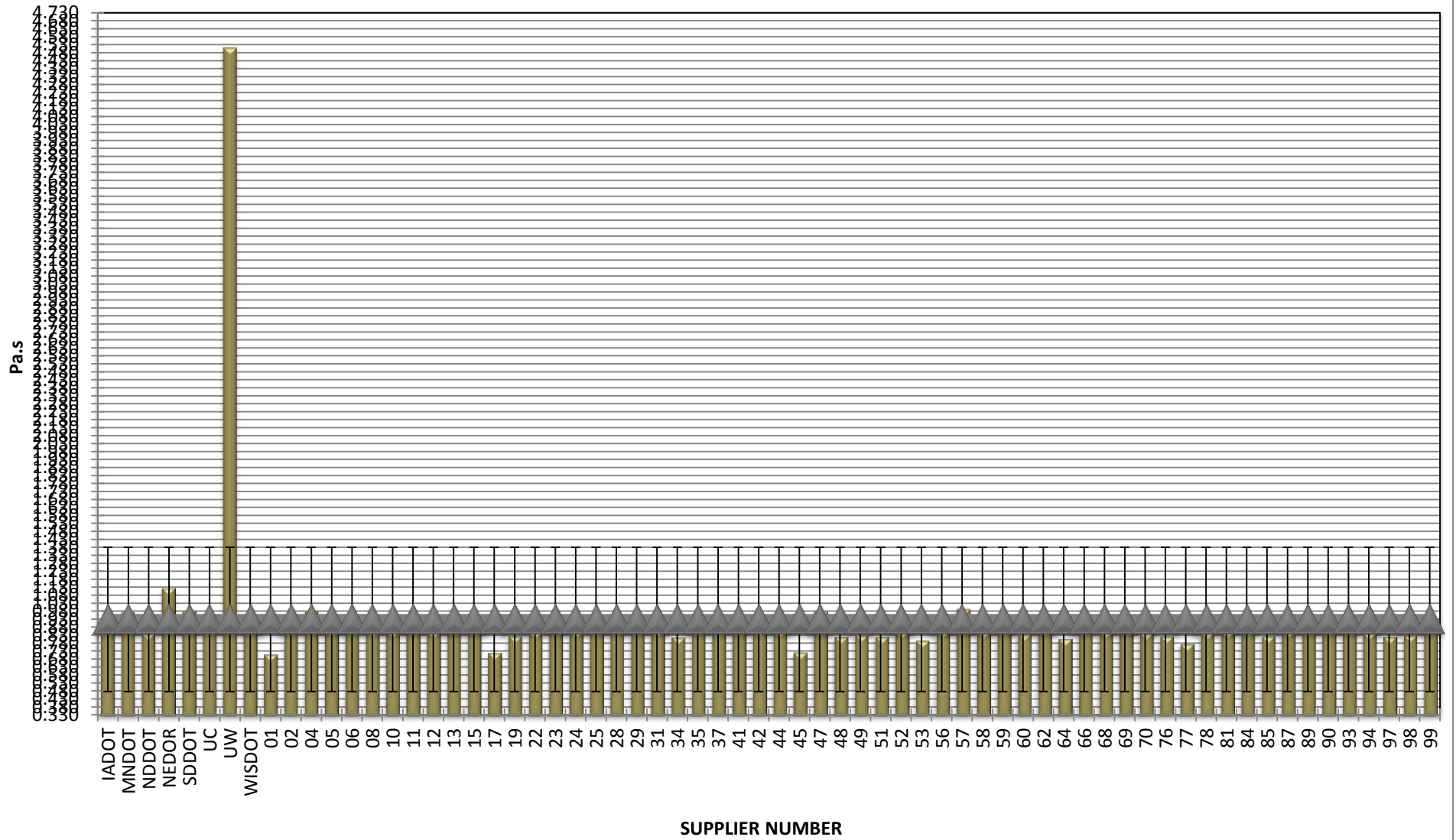


COMBINED STATE BINDER GROUP ROUND ROBIN SUMMARY A 2015-2

Supplier Number	Rotational Viscosity (Pa.s) @135°C	DSR Original (kPa)	DSR RTFO (kPa)	DSR PAV (kPa)	Mass Loss (%) @163°C	BBR S-value (MPa)	BBR m-value	Jnr @ 100 Pa	% Recov. @ 100 Pa	Jnr @ 3200 Pa	% Recov. @ 3200 Pa
IADOT	0.880	1.44	3.400	1.740	0.740	271	0.322	0.230	75.67	0.290	69.14
MNDOT	0.980	1.48	3.290	1.940	0.672	212	0.316	0.226	77.25	0.276	70.99
NDDOT	0.845	1.42	3.440	1.841	0.804	280	0.326	0.275	71.45	0.287	68.82
NEDOR	1.130	1.41	3.500	1.993	0.694	264	0.310	0.234	73.88	0.241	72.19
SDDOT	0.986	1.43	4.850	2.090	0.570	239	0.326	0.406	69.10	0.459	64.09
UC	0.874	1.35	3.080	2.443	0.688	293	0.322	0.310	71.65	0.330	68.84
UW	4.511	1.49	4.060	1.517	0.630	224	0.320	0.168	75.36	0.179	73.59
WISDOT	0.945	1.40	3.430	3.224	0.593	256	0.311	0.294	70.07	0.311	67.24
01	0.715	1.50	3.960	1.571	0.690	270	0.322	0.220	73.71	0.227	71.96
02	0.913	1.44	3.210	1.697	0.621	272	0.330	0.234	76.07	0.293	69.09
04	0.987	1.45	3.391	1.596	0.684	270	0.331				
05	0.869	1.40	3.646	1.780	0.705	274	0.320	0.167	80.76	0.223	74.02
06	0.880	1.37	3.450	1.780	0.979	241	0.316	0.577	66.62	0.657	59.64
08	0.869	1.40	3.735	1.725	0.722	282	0.315	0.190	79.22	0.250	72.25
10	0.863	1.40	3.387	1.692	0.801	282	0.317	0.182	80.01	0.252	72.23
11	0.913	1.44	3.660	1.729	0.680	272	0.329	0.210	78.18	0.262	71.81
12	0.859	1.36	3.220	1.810	0.810	282	0.320				
13	0.880	1.38	4.220	2.050	0.647	262	0.318	0.146	79.18	0.179	73.80
15	0.913	1.40	3.580	1.927	0.649	266	0.324	0.198	78.04	0.241	72.19
17	0.725	1.49	3.860	1.966	0.644	256	0.316	0.250	70.98	0.244	70.59
19	0.830	1.37	3.329	1.667	0.791	277	0.330	0.269	72.10	0.273	69.80
22	0.857	1.40	3.339	1.761	0.718	262	0.316	0.198	78.98	0.246	73.17
23	0.898	1.42	3.680	1.927	0.722	279	0.325	0.193	77.60	0.237	71.59
24	0.863	1.48	3.390	2.070	0.663	277	0.320	0.197	79.29	0.255	72.79
25	0.900	1.41	3.464	1.831	0.007	267	0.327	0.238	75.29	0.293	68.64
28	0.897	1.41	3.270	2.037	0.597	260	0.318	0.305	70.28	0.302	69.49
29	0.904	1.44	3.410	1.853	0.615	269	0.321	0.266	72.92	0.266	71.61
31	0.868	1.59	3.525	1.868	0.739	270	0.313	0.187	79.29	0.254	71.86
34	0.823	1.48	3.220	1.663	0.531	277	0.323	0.286	71.97	0.294	70.03
35	0.907	1.45	3.260	1.970	0.828	256	0.329				
37	0.925	1.51	3.420	1.661	-0.528	250	0.340	0.266	73.05	0.271	71.26
41	0.876	1.43	3.572	1.910	0.816	277	0.311	0.177	79.97	0.237	72.97
42	0.873	1.34	3.490	1.800	0.874	260	0.329	0.211	77.42	0.259	71.28
44	0.865	1.40	3.426	1.809	0.813	270	0.316	0.188	79.24	0.254	71.81
45	0.727	1.51	4.030	1.952	0.715	257	0.310	0.212	74.31	0.212	72.81
47	0.985	1.44	3.377	1.474	0.677	271	0.336				
48	0.825	1.43	3.370	1.627	0.524	258	0.331	0.268	72.51	0.274	70.71
49	0.836	1.40	3.370	1.810	0.663	266	0.321	0.245	74.91	0.302	68.14
51	0.826	1.37	3.301	1.619	0.780	270	0.336	0.271	72.30	0.273	70.20
52	0.857	1.42	3.540	1.716	0.737	273	0.316	0.171	80.51	0.240	72.73
53	0.801	1.37	3.420	1.740	0.009	251	0.326	0.258	72.94	0.261	71.29
56	0.863	1.41	3.430	1.780	0.677	268	0.321	0.217	77.09	0.267	70.75
57	0.999	1.44	3.378	1.475	0.694	270	0.333				
58	0.860	1.39	3.390	2.145	-0.784	276	0.322	0.260	75.22	0.320	68.18
59	0.950	1.38	2.672	1.920	0.685	273	0.324	0.467	64.50	0.544	58.00
60	0.843	1.33	3.060	2.000	0.780	270	0.312	0.304	71.75	0.317	69.27
62	0.874	1.43	3.980	1.610	0.715	282	0.326	0.166	79.30	0.205	73.52
64	0.814	1.38	3.420	1.750	0.009	252	0.328	0.259	72.99	0.263	71.22
66	0.879	1.45	3.230	2.083	0.587	263	0.316	0.279	72.90	0.286	71.09
68	0.860	1.39	3.560	1.928	0.778	274	0.322	0.245	73.41	0.256	71.29
69	0.886	1.42	3.250	2.243	0.711	292	0.318	0.370	65.22	0.390	62.55
70	0.848	1.43	3.170	1.857	-0.732	297	0.322	0.329	69.99	0.351	66.73
76	0.828	1.38	3.180	2.000	0.664	272	0.324	0.285	72.78	0.287	71.09
77	0.780	1.31	3.580	2.000	0.718	248	0.323	0.205	77.38	0.252	79.23
78	0.852	1.39	3.380	2.145	-0.799	276	0.325	0.240	75.69	0.300	68.93
81	0.860	1.39	3.500	2.170	-0.806	274	0.325	0.220	76.42	0.270	69.88
84	0.876	1.35	3.290	2.210	0.931	275	0.313	0.245	75.04	0.272	71.01
85	0.830	1.35	3.140	1.780	0.698	277	0.320	0.292	72.40	0.299	70.47
87	0.864	1.39	3.476	1.803	0.801	285	0.319	0.180	79.83	0.248	72.16
89	0.908	1.37	3.610	1.839	0.772	275	0.320	0.195	78.12	0.236	72.53
90	0.878	1.41	3.380	2.048	0.551	263	0.319	0.263	72.90	0.269	70.94
93	0.888	1.50	3.710	1.816	0.867	267	0.322	0.195	77.92	0.237	72.06
94	0.850	1.37	4.210	1.516	0.730	221	0.340	0.151	80.24	0.190	74.60
97	0.825	1.37	3.198	1.629	0.743	277	0.324	0.282	72.10	0.285	69.90
98	0.834	1.40	3.221	1.724	0.779	269	0.329	0.285	71.80	0.293	69.60
99	0.882	1.38	3.320	1.824	0.524	267	0.314	0.289	71.70	0.291	70.22
Average	0.929	1.41	3.474	1.866	0.570	267	0.322	0.248	74.73	0.281	70.49
Std. Dev.	0.452	0.05	0.320	259	0.414	15	0.007	0.074	3.85	0.075	3.25
Coef. of Var.	48.681	3.53	9.208	14	72.575	6	2.143	29.617	5.15	26.721	4.61

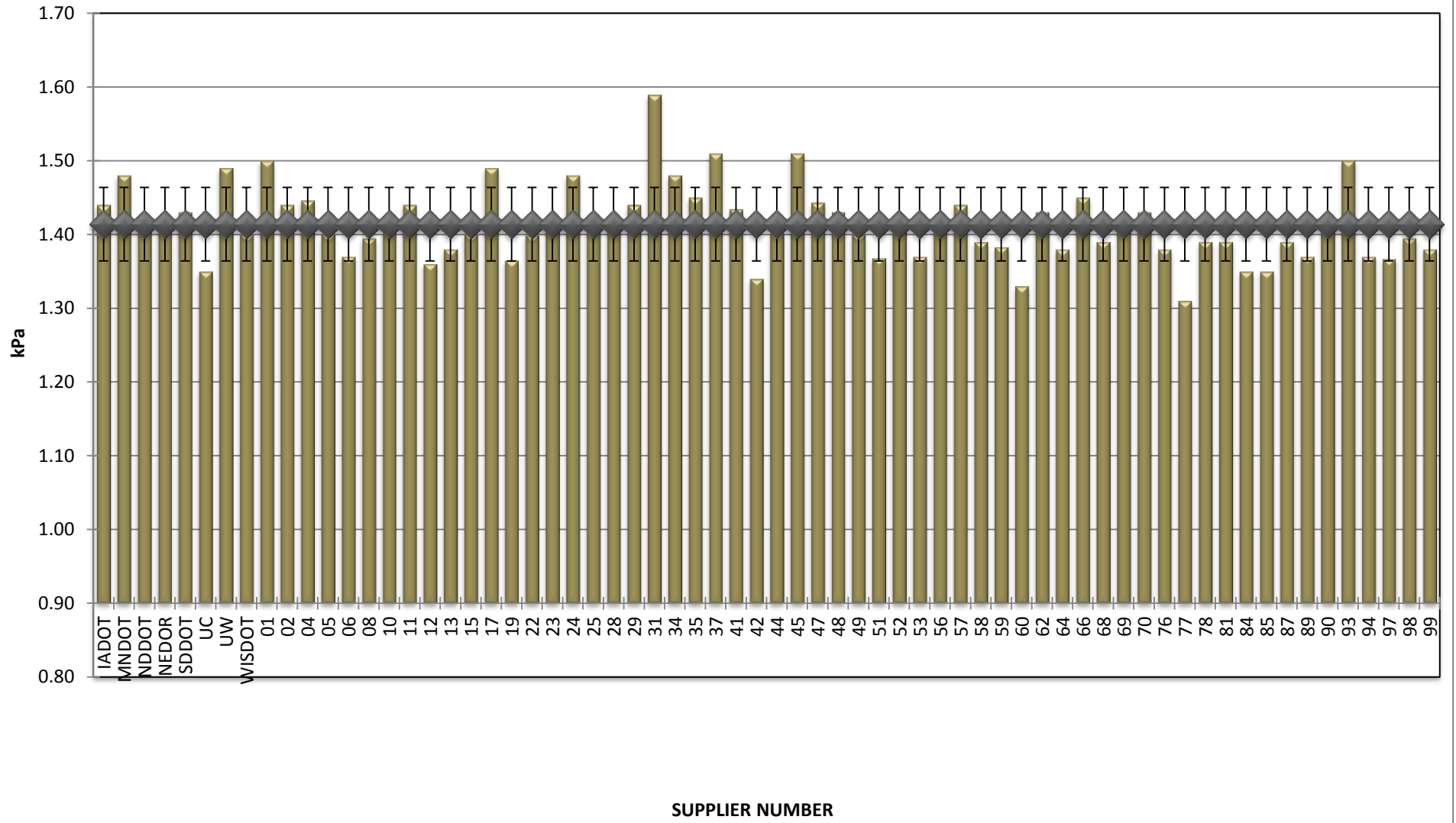
COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2

ROTATIONAL VISCOSITY



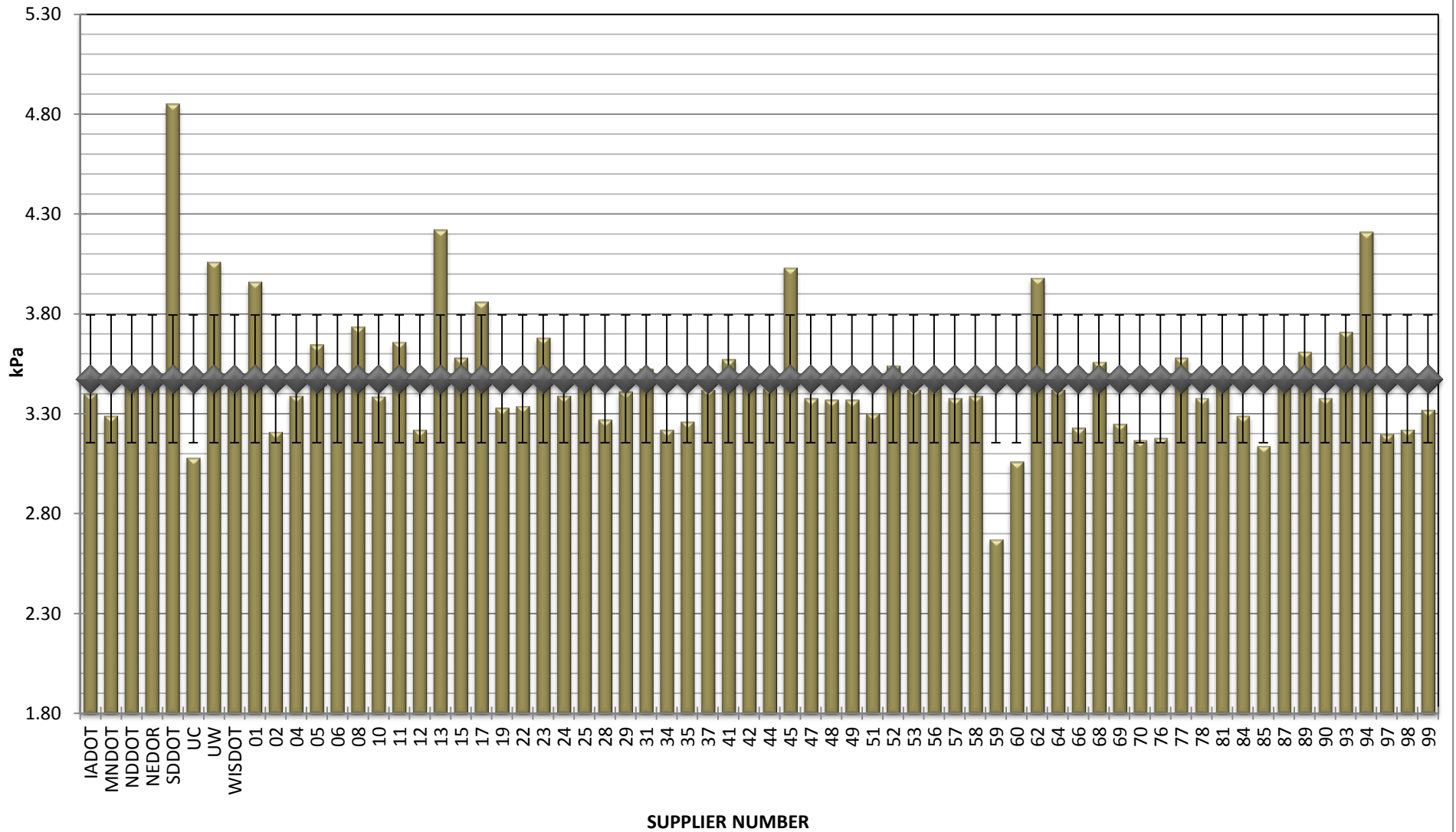
**COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2**

DSR - ORIGINAL



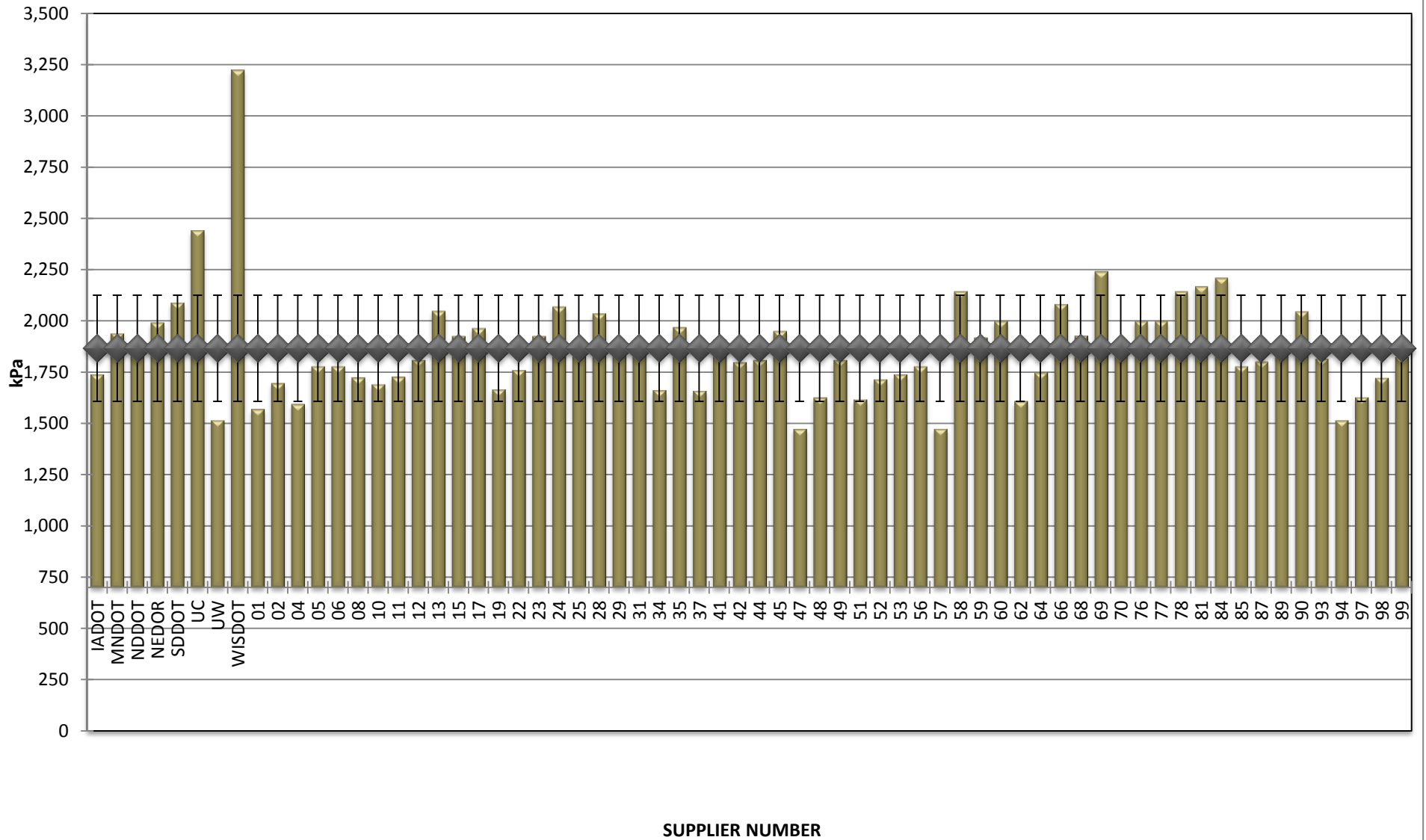
COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2

DSR - RTFO



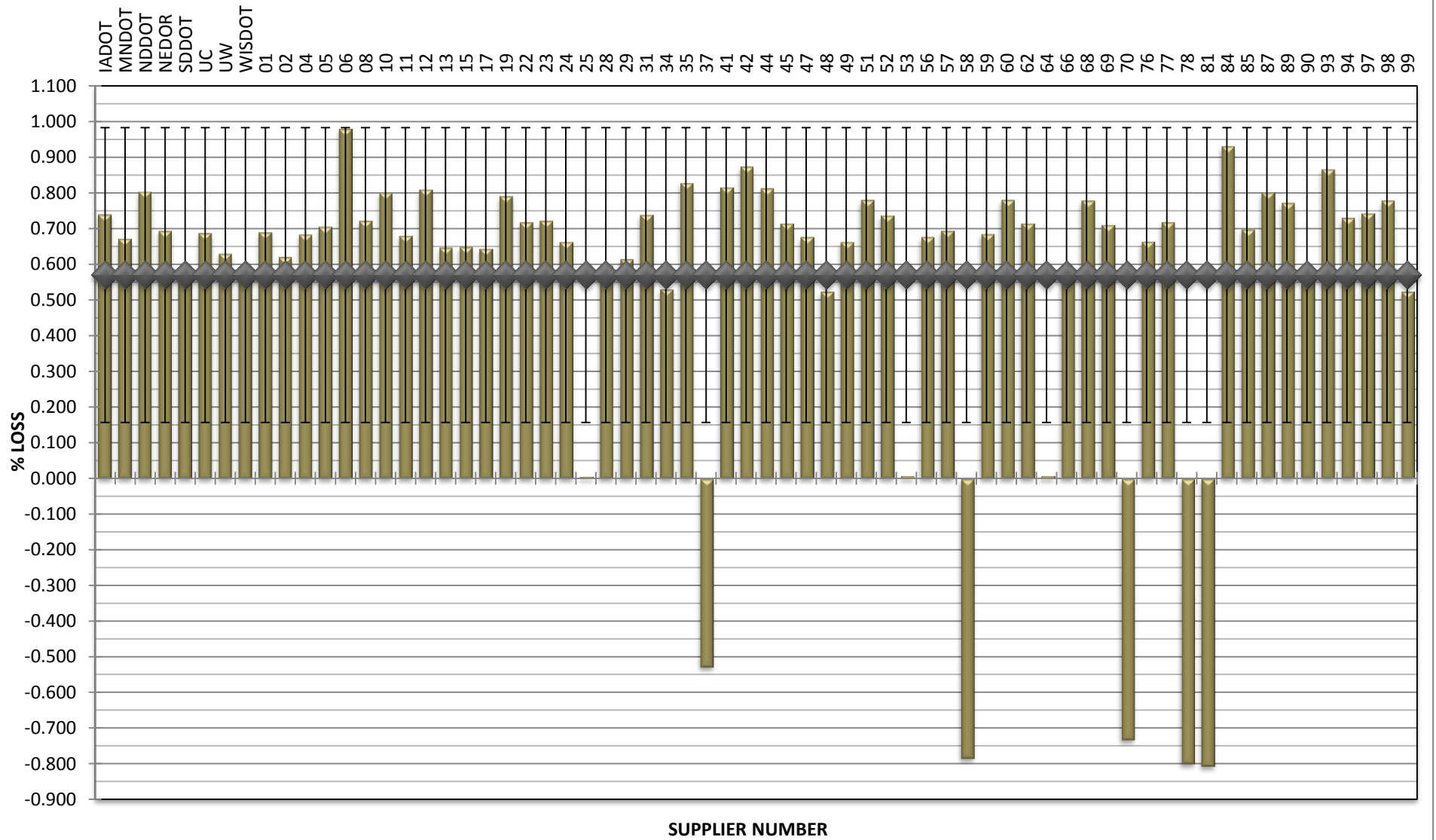
**COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2**

DSR - PAV



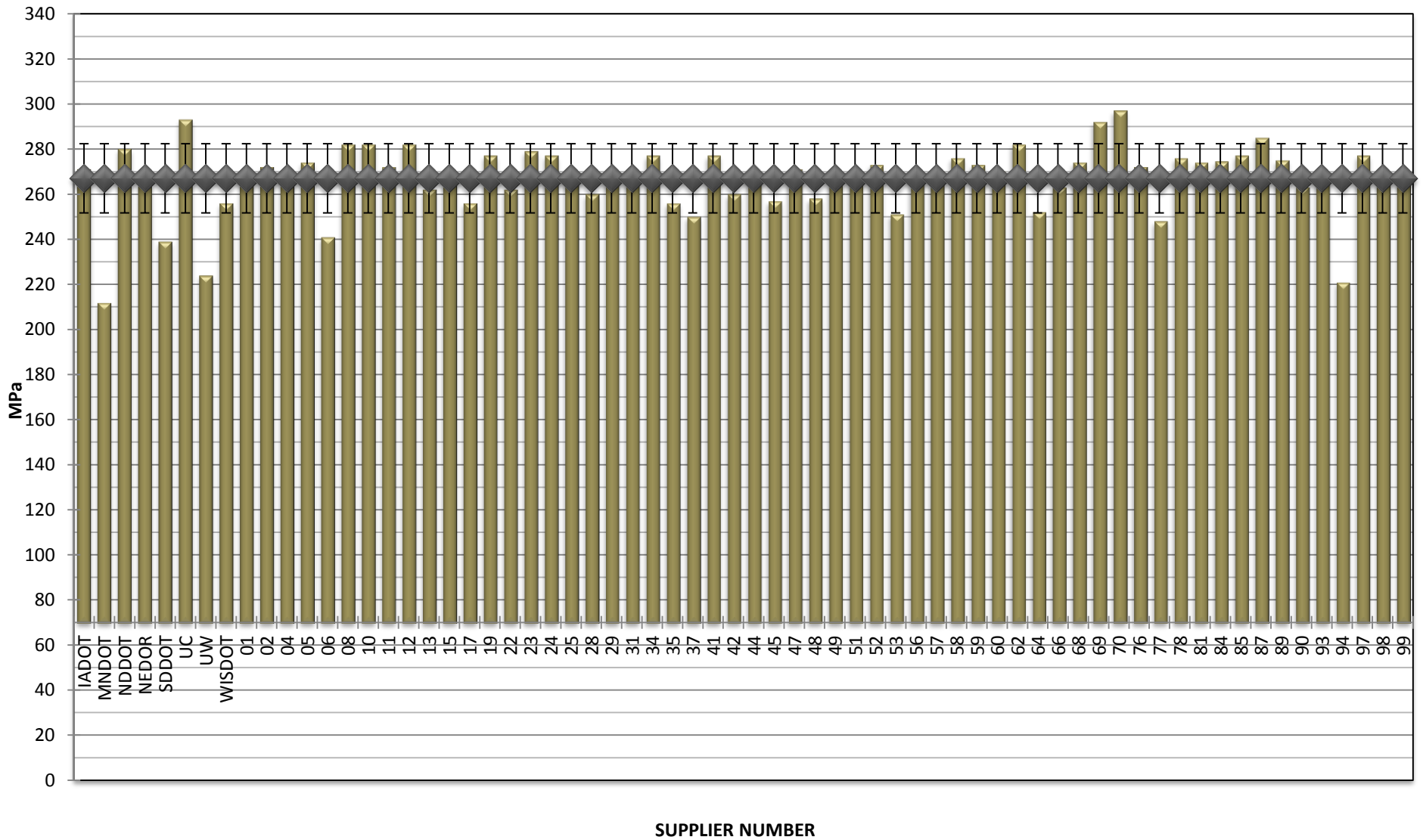
**COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2**

RTFO MASS LOSS



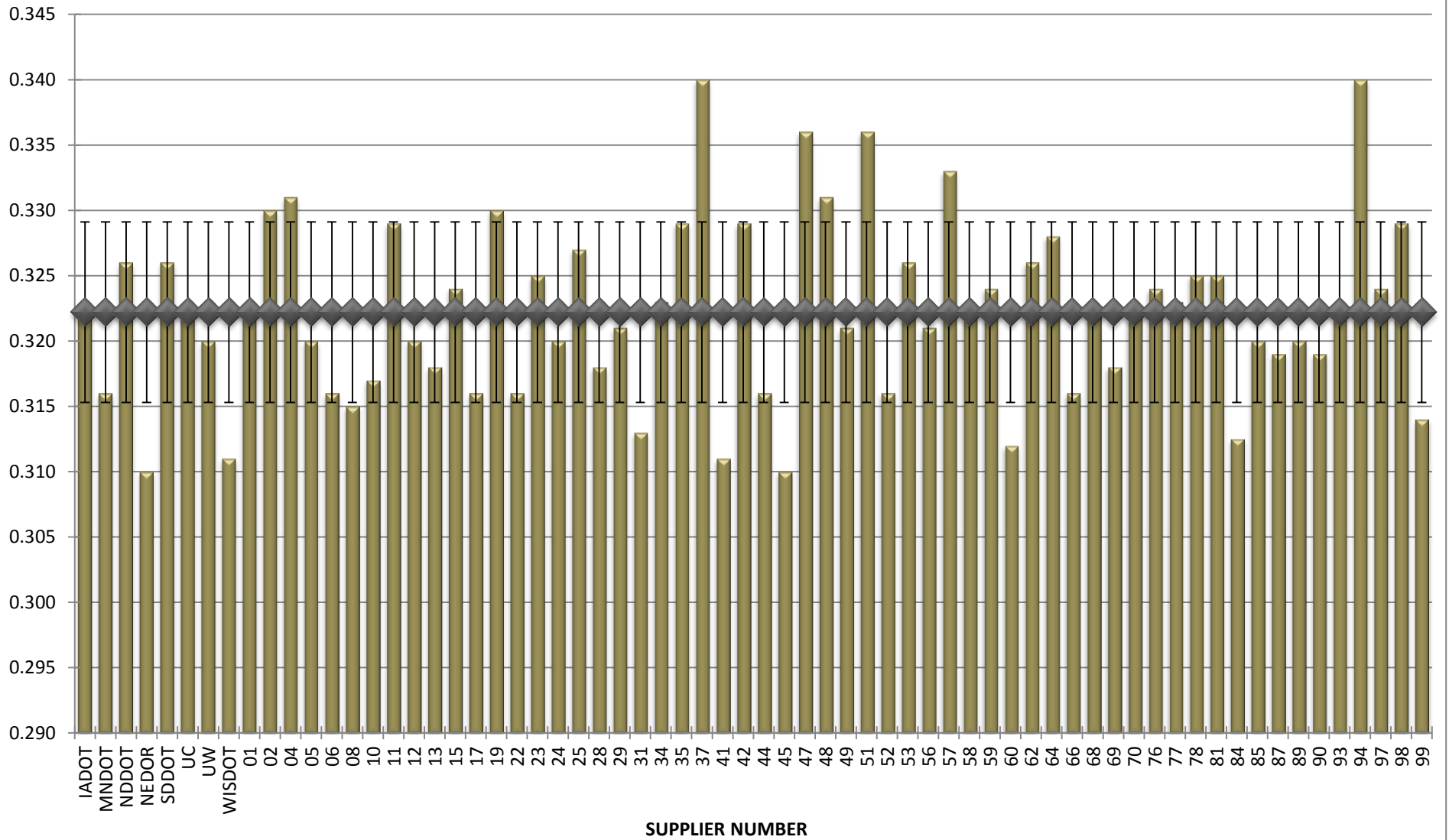
COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2

BBR STIFFNESS



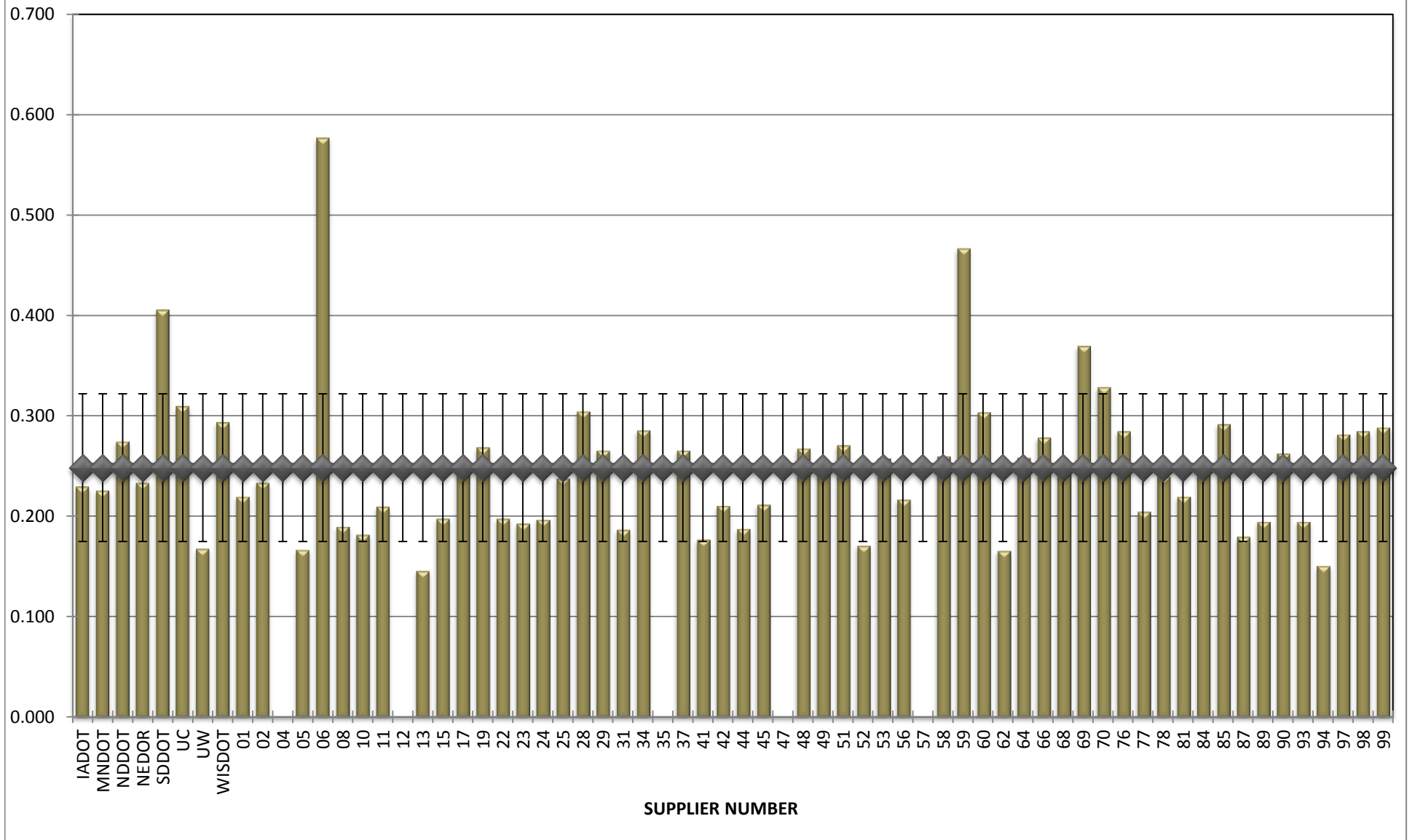
COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2

BBR m-VALUE



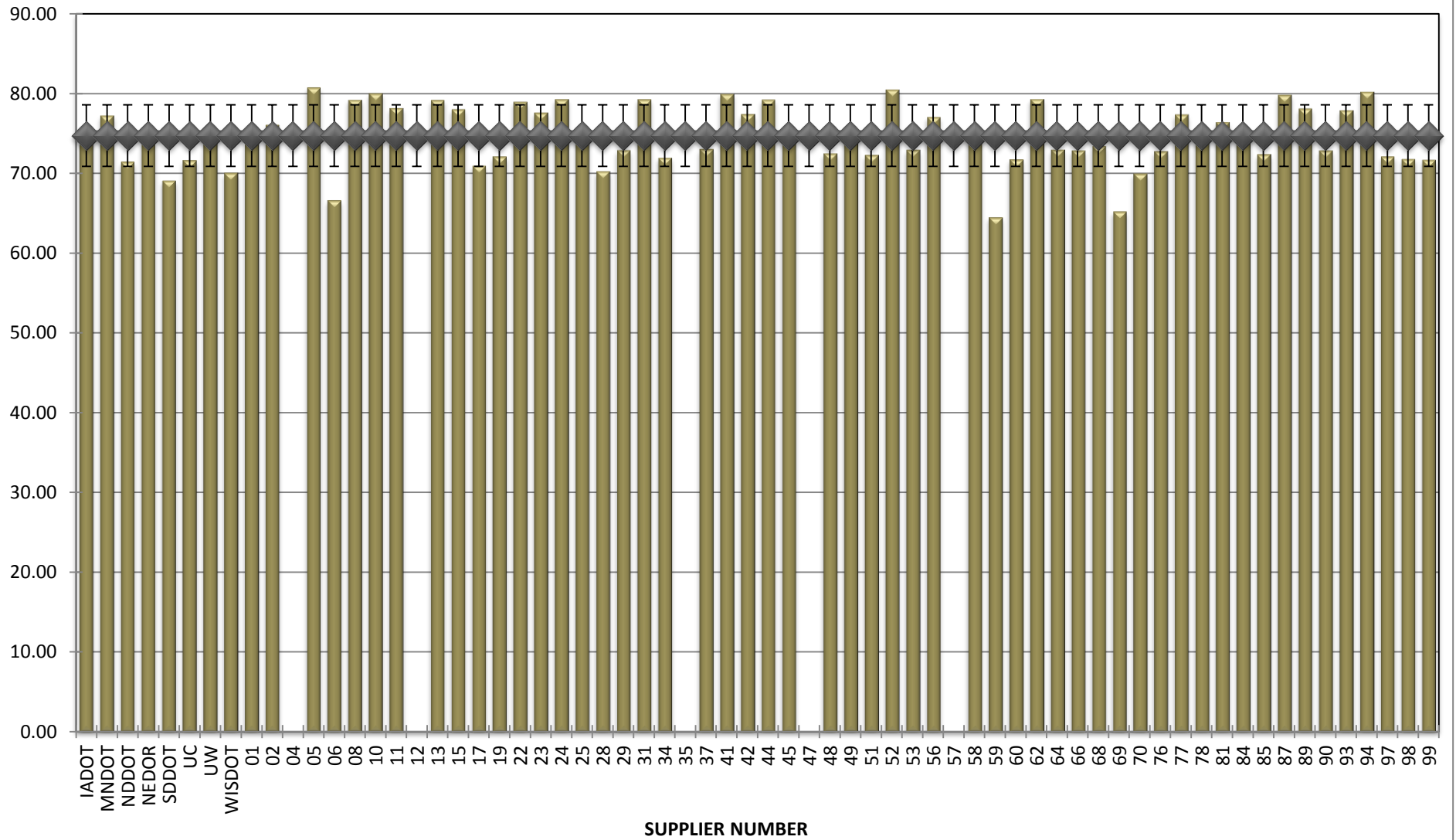
**COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2**

Jnr @ 100 Pa



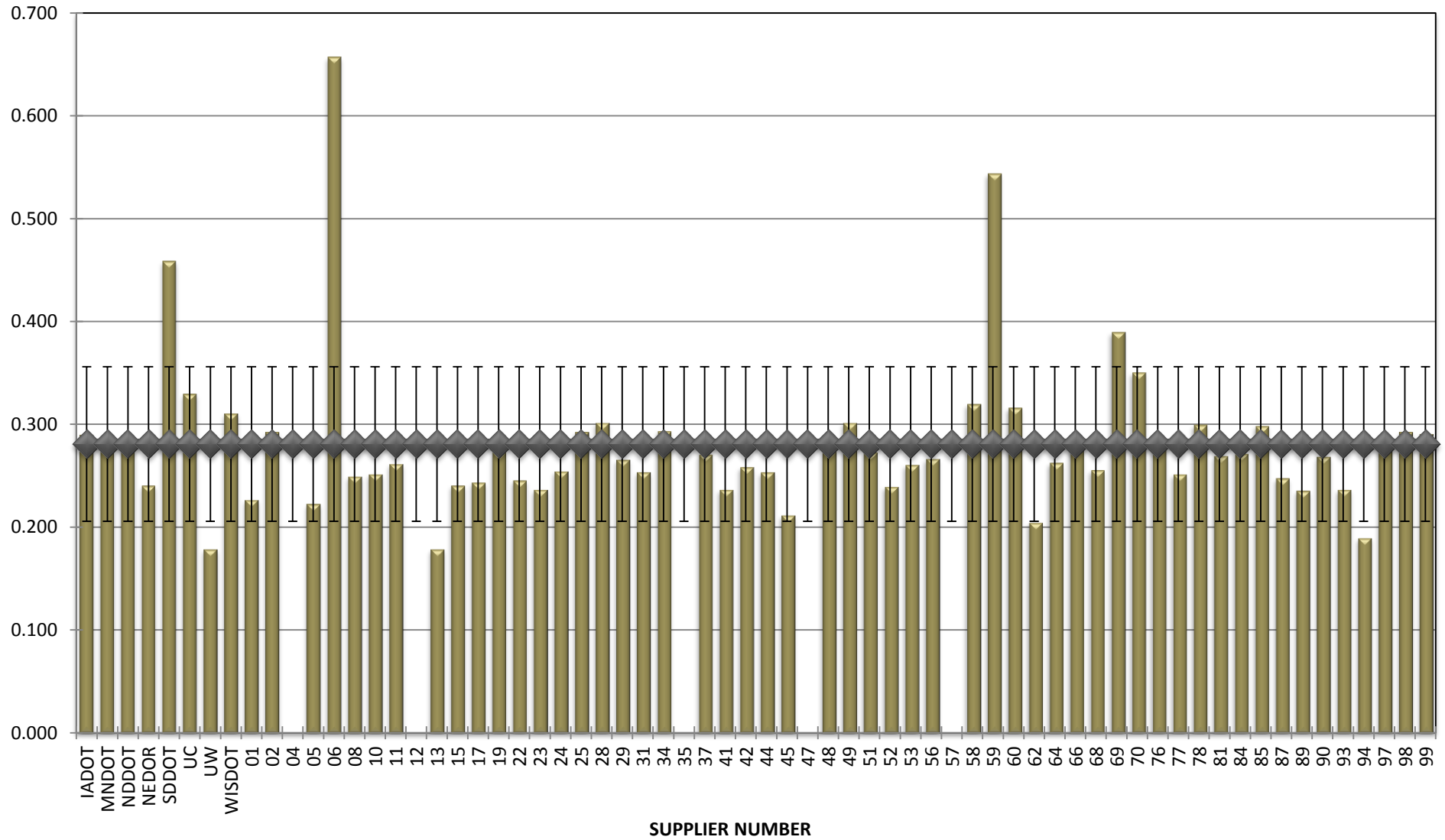
COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2

% Recovery @ 100 Pa



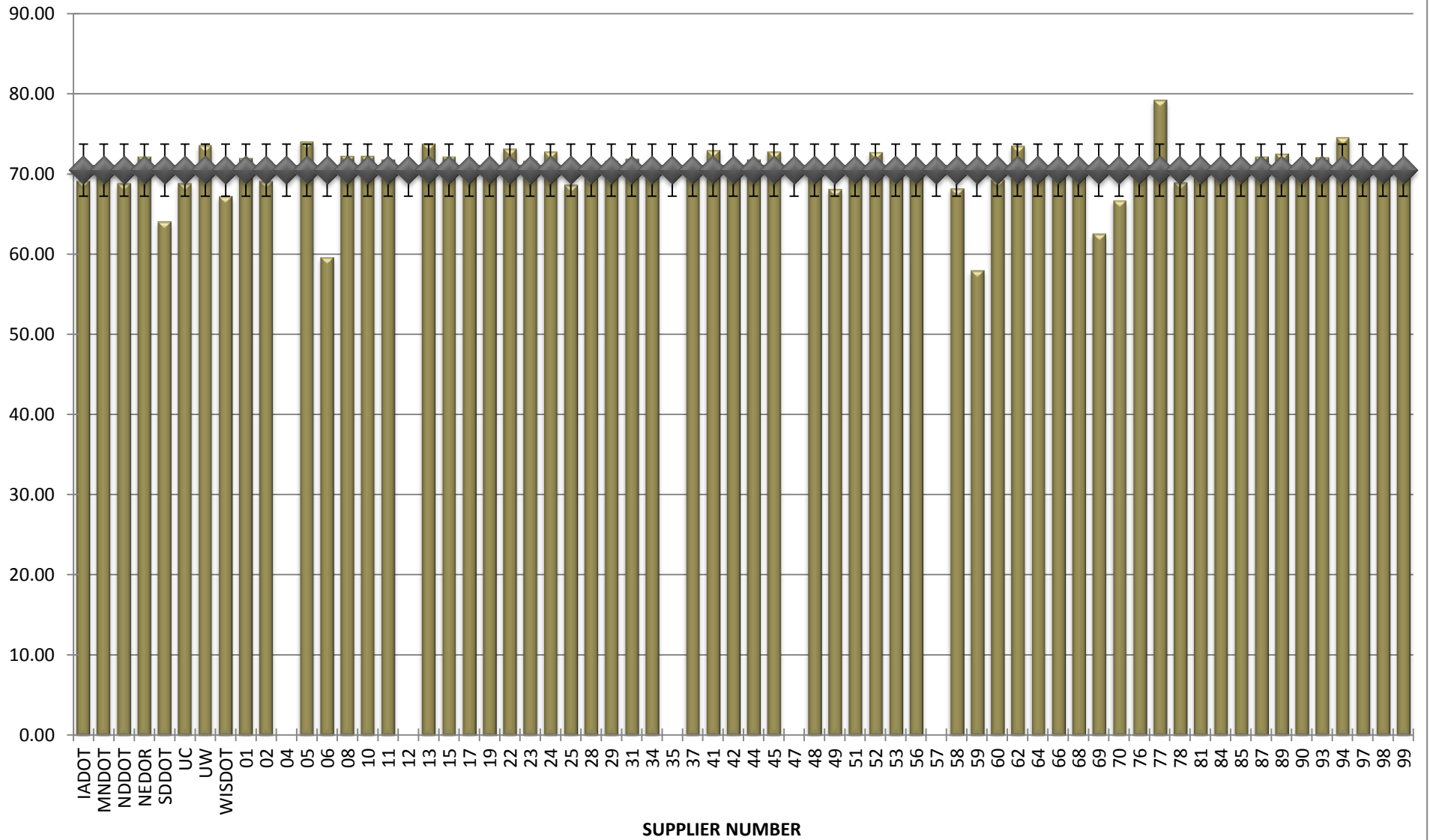
COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2

Jnr @ 3200 Pa



COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A 2015-2

% Recovery @ 3200 Pa



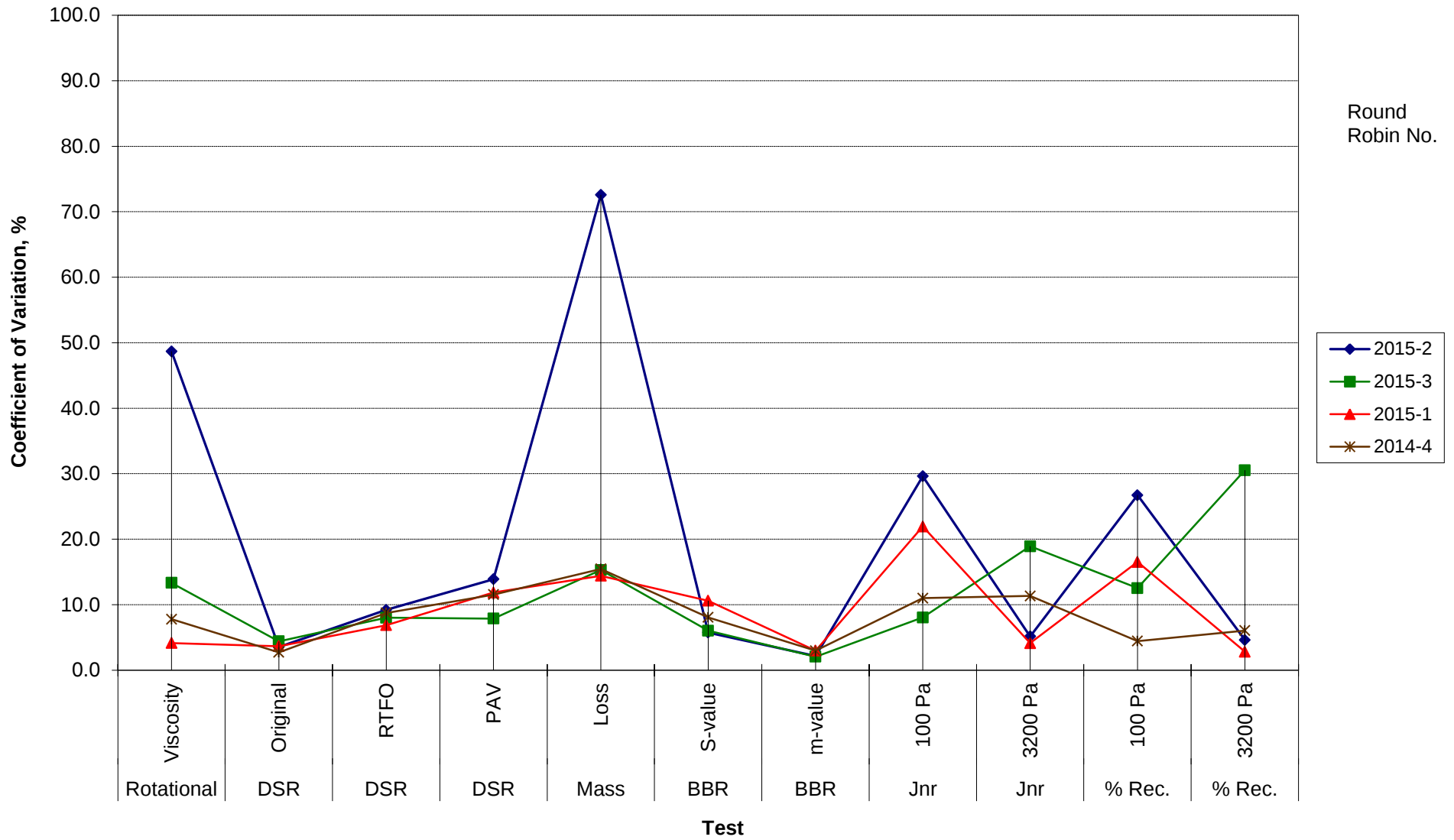
**COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A**

COEFFICIENT OF VARIATION

		Coefficient of Variation, %											
R R No.	Number of Participants	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
2015-2	66	48.681	3.526	9.208	13.885	72.575	5.751	2.143	29.617	5.155	26.721	4.610	36.643
2015-3	69	13.336	4.415	8.017	7.886	15.285	6.039	2.054	8.054	18.907	12.535	30.539	50.366
2015-1	72	4.150	3.659	6.878	11.854	14.423	10.602	2.986	21.946	4.132	16.523	2.826	18.552
2014-4	69	7.780	2.733	8.730	11.549	15.452	8.069	2.975	11.001	11.328	4.454	6.044	20.593

**COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A
PG**

COEFFICIENT OF VARIATION



**COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A
PG**

STATISTICS WITH OUTLIERS REMOVED:

	Rotational Viscosity (Pa.s) @135°C	DSR Original (kPa)	DSR RTFO (kPa)	DSR PAV (kPa)	Mass Loss (%) @163°C	BBR S-value (MPa)	BBR m-value	Jnr @ 100Pa	% RECOV. @ 100Pa	Jnr @ 3200Pa	% RECOV. @ 3200Pa
Average	0.874	1.41	3.45	1,845	0.570	269	0.322	0.243	74.73	0.270	70.89
Std. Dev.	0.0658	0.0494	0.3150	249.10	0.4220	14.25	0.0071	0.0989	20.7159	0.1040	19.0528
Coef. of Var.	7.525	3.500	9.122	13.499	74.059	5.306	2.209	40.741	27.720	38.499	26.878

**COMBINED STATE BINDER GROUP ROUND ROBIN
SUMMARY A**

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
2014-2	52	9.206	5.504	8.472	11.343	23.598	4.651	2.543	19.850	17.336	5.312	4.362	30.979
2014-3	73	6.670	4.095	5.347	15.777	23.221	6.408	2.506	8.817	5.915	7.950	5.335	37.884
2014-4	69	7.780	2.733	8.730	11.549	15.452	8.069	2.975	11.001	11.328	4.454	6.044	20.593
2015-1	72	4.15	3.659	6.878	11.854	14.423	10.602	2.986	21.946	4.132	16.523	2.826	18.552
2015-3	69	13.3356	4.4147	8.0174	7.8859	15.285329	6.038911	2.054348	8.053945	18.90702	12.53481	30.53914	50.36555
2015-2	66	48.6813	3.5255	9.2076	13.885	72.575464	5.750708	2.142825	29.61683	5.154988	26.72097	4.610388	36.64349