

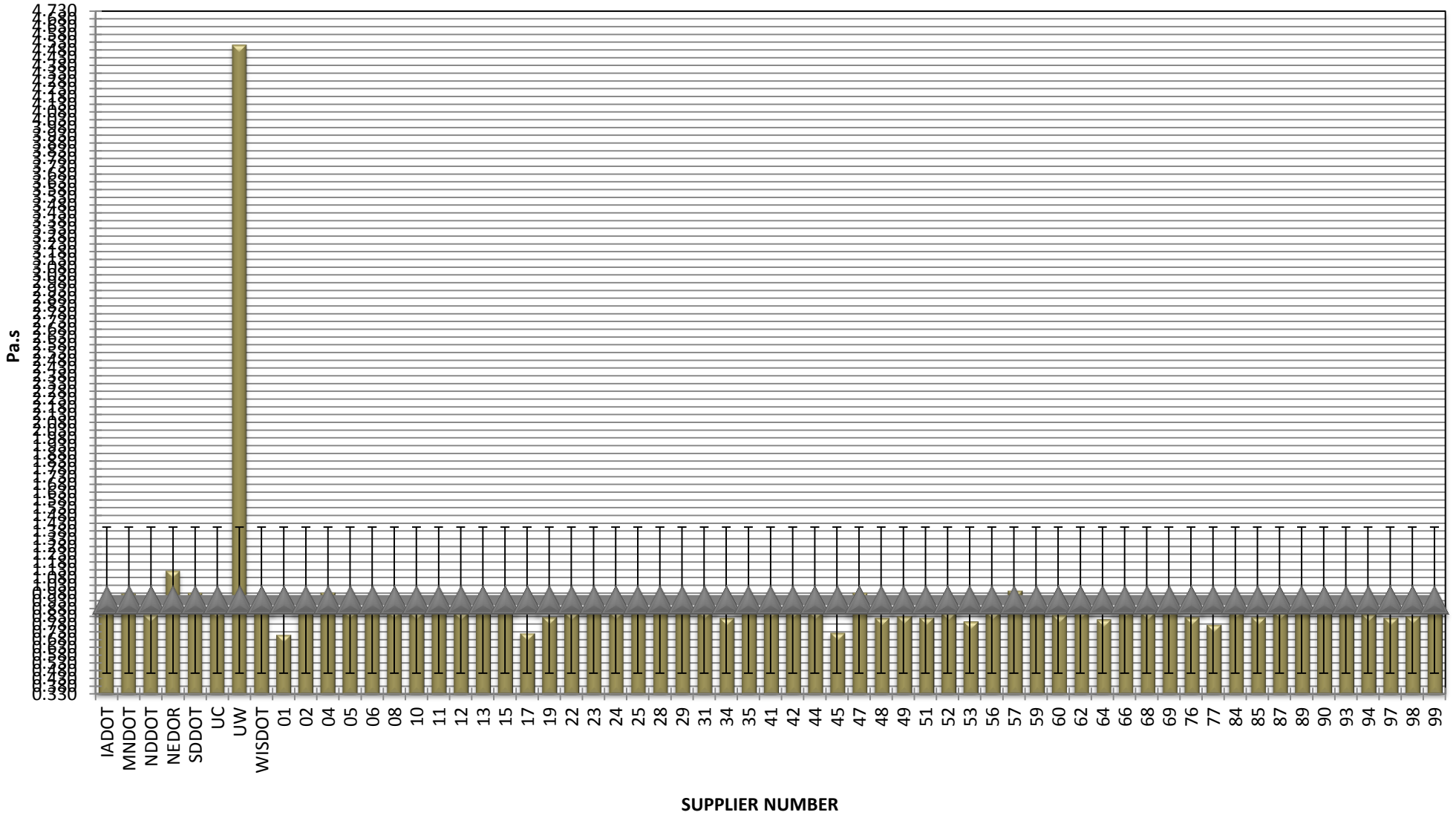
COMBINED STATE BINDER GROUP ROUND ROBIN SUMMARY A 2015-2

PG 64-34

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				
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				
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
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
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	0.934	1.41	3.483	1,856	0.676	266	0.322	0.247	74.79	0.279	70.62
Std. Dev.	0.470	0.05	0.330	260	0.179	15	0.007	0.076	3.96	0.078	3.33

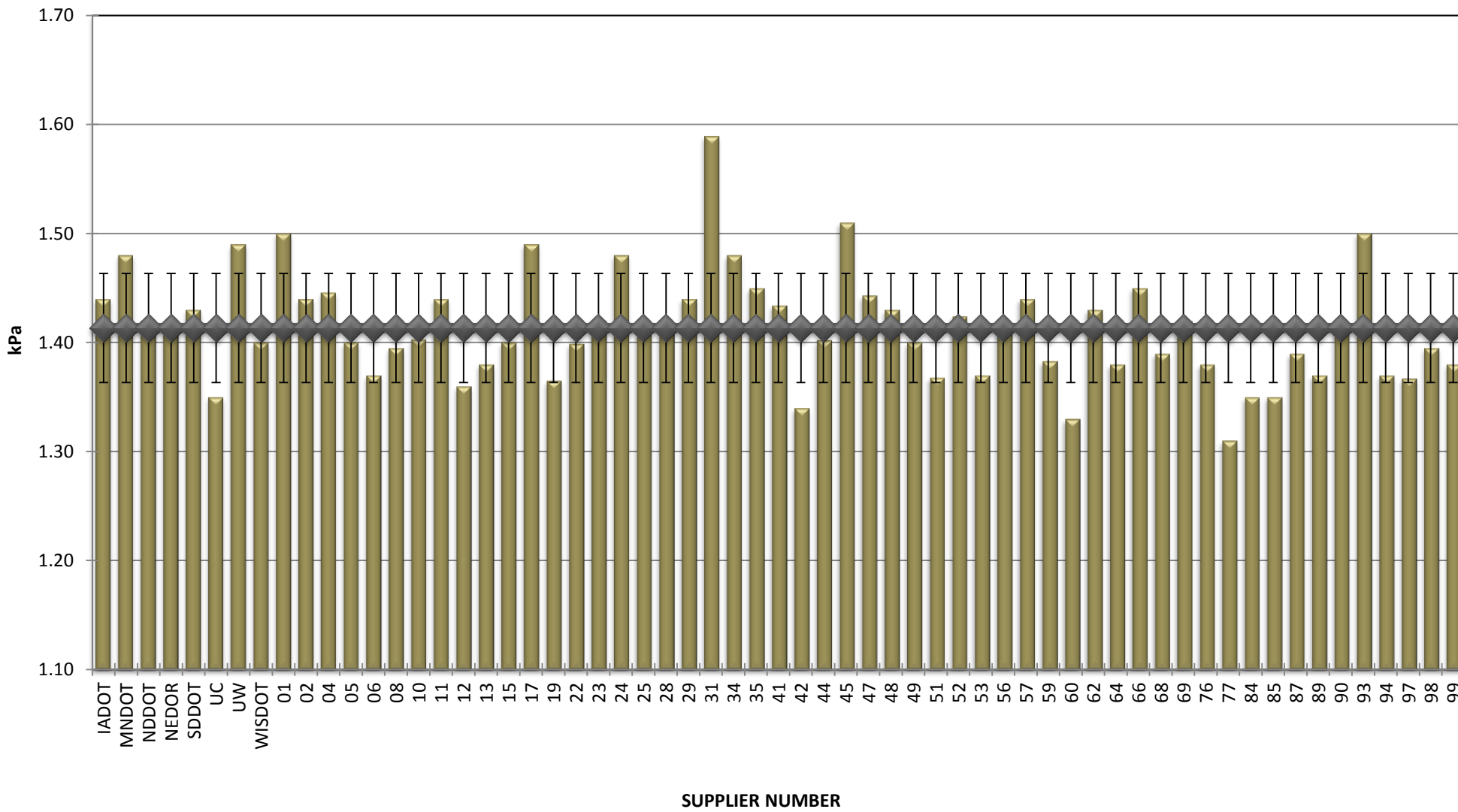
COMBINED STATE BINDER GROUP ROUND ROBIN  
 SUMMARY A 2015-2  
 PG 64-34

ROTATIONAL VISCOSITY



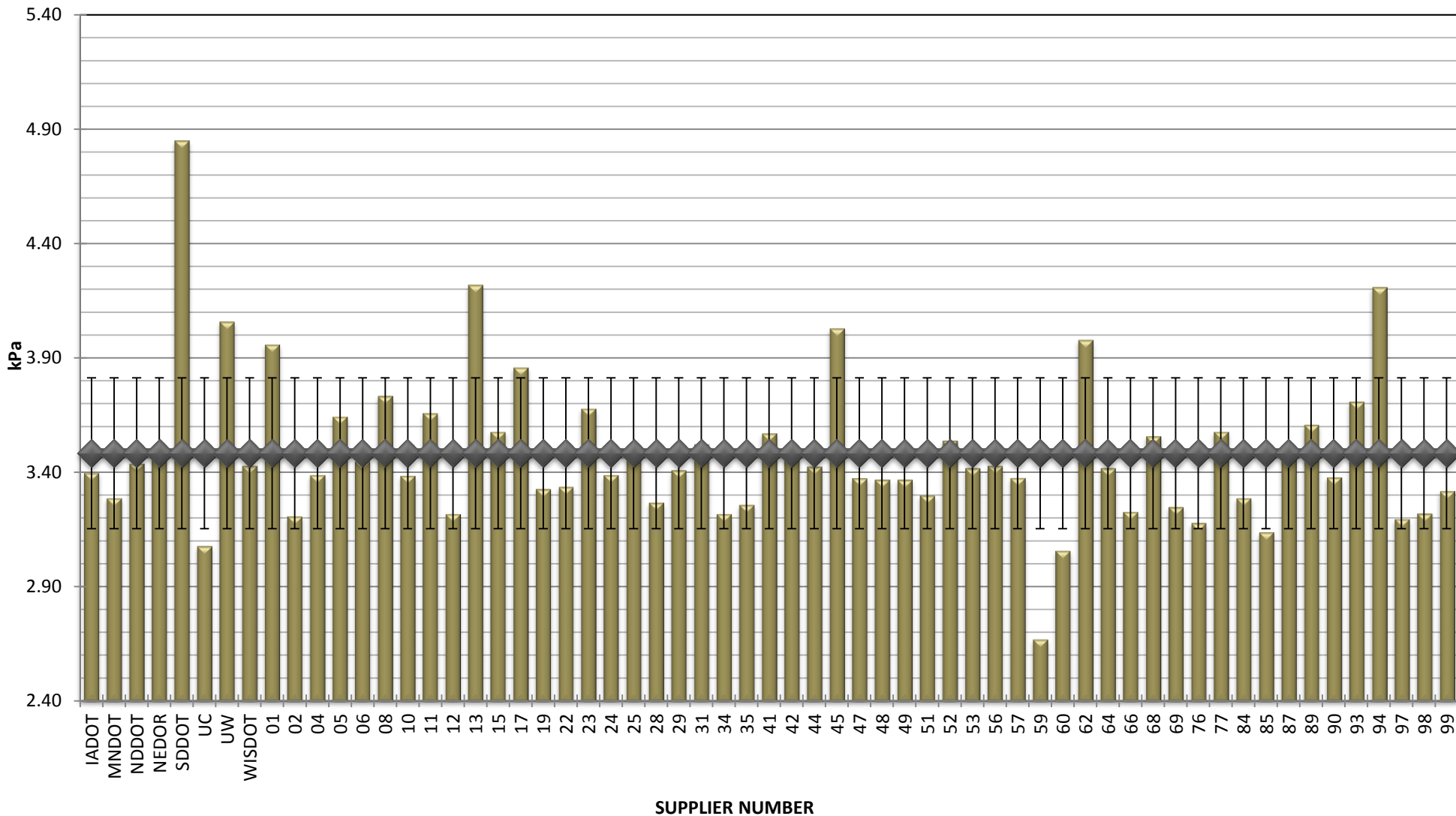
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY A 2015-2  
PG 64-34**

**DSR - ORIGINAL**



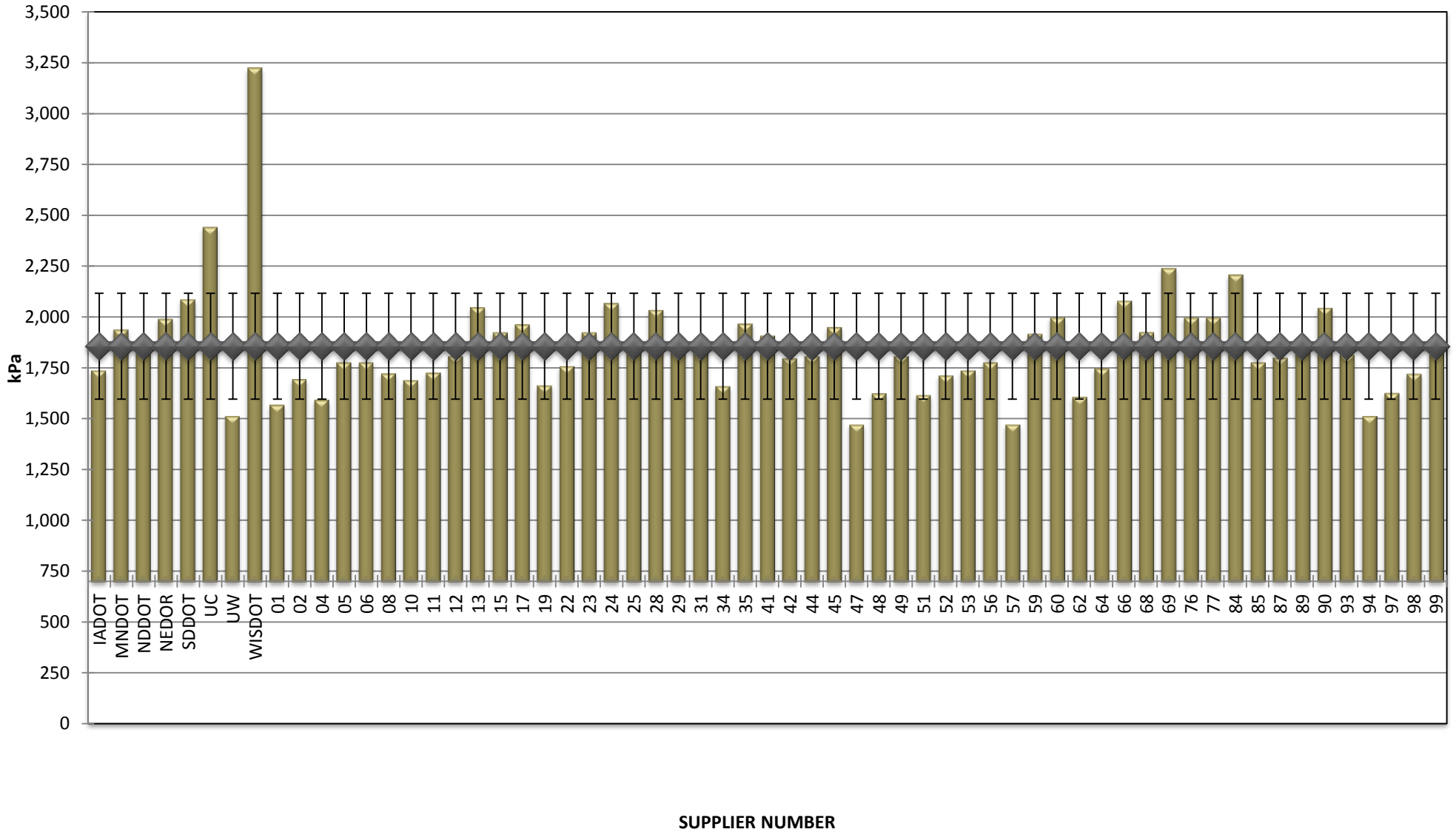
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY A 2015-2  
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**DSR - RTFO**



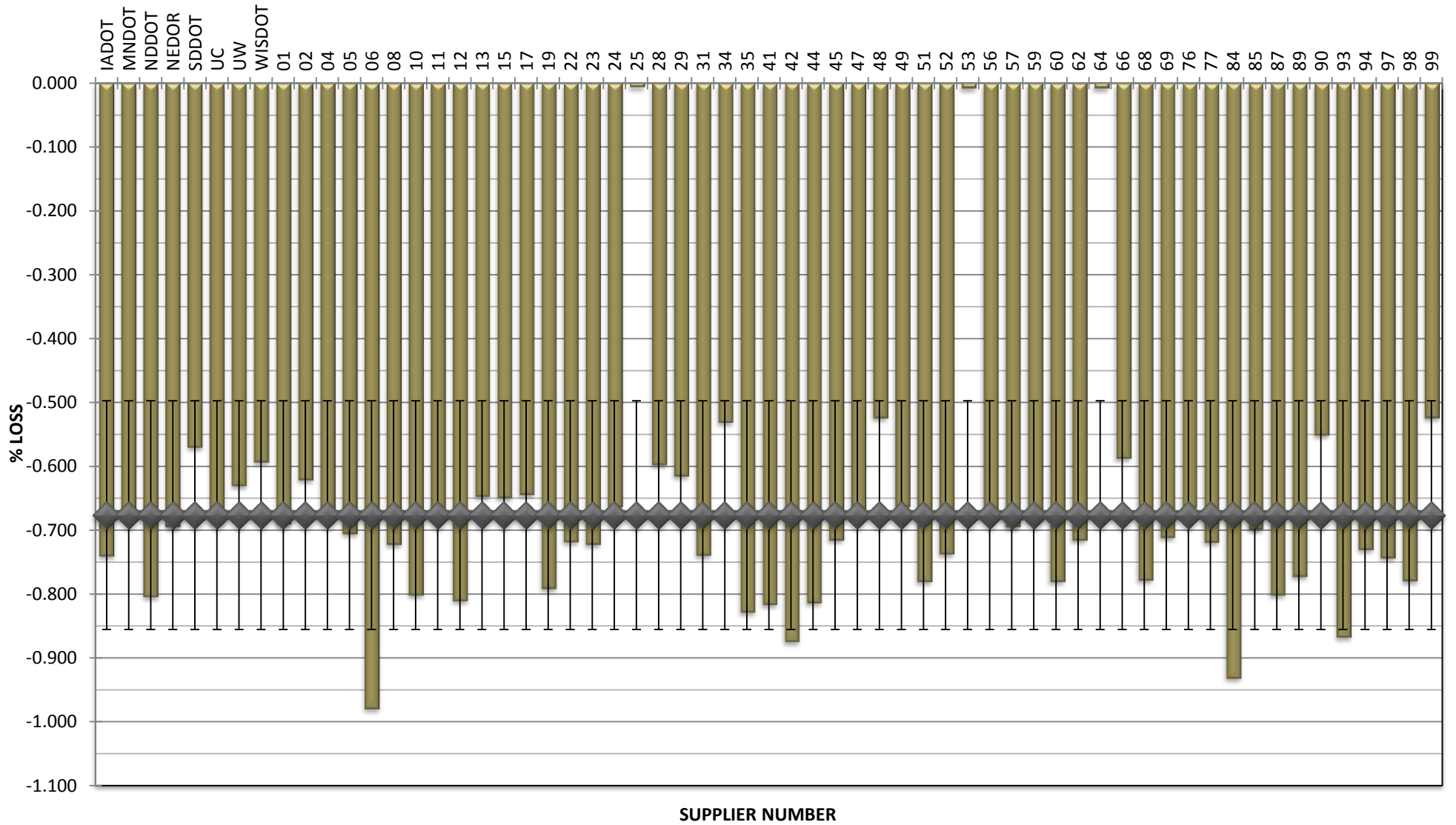
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY A 2015-2  
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**DSR - PAV**



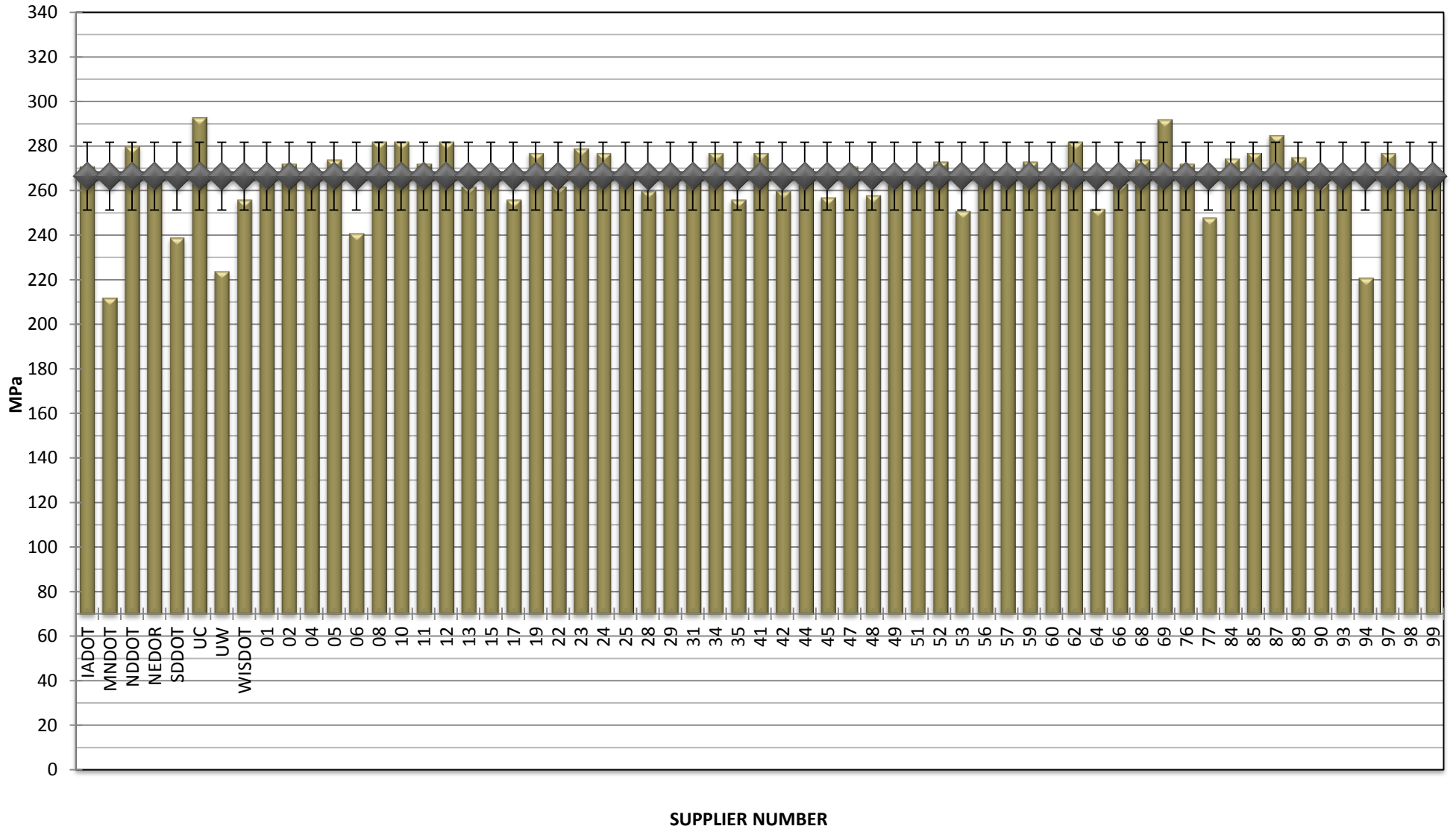
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY A 2015-2  
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**RTFO MASS LOSS**



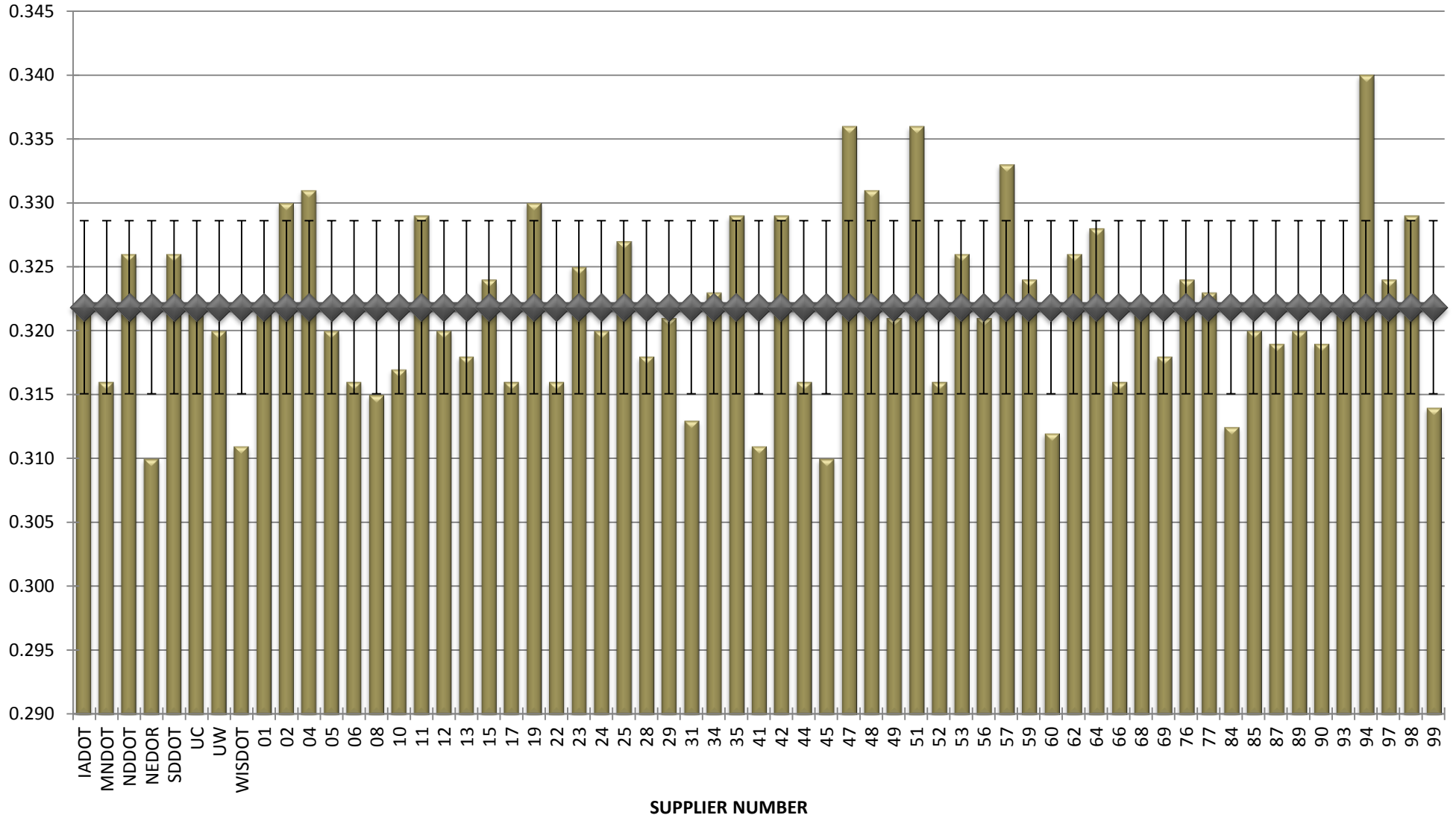
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY A 2015-2  
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**BBR STIFFNESS**



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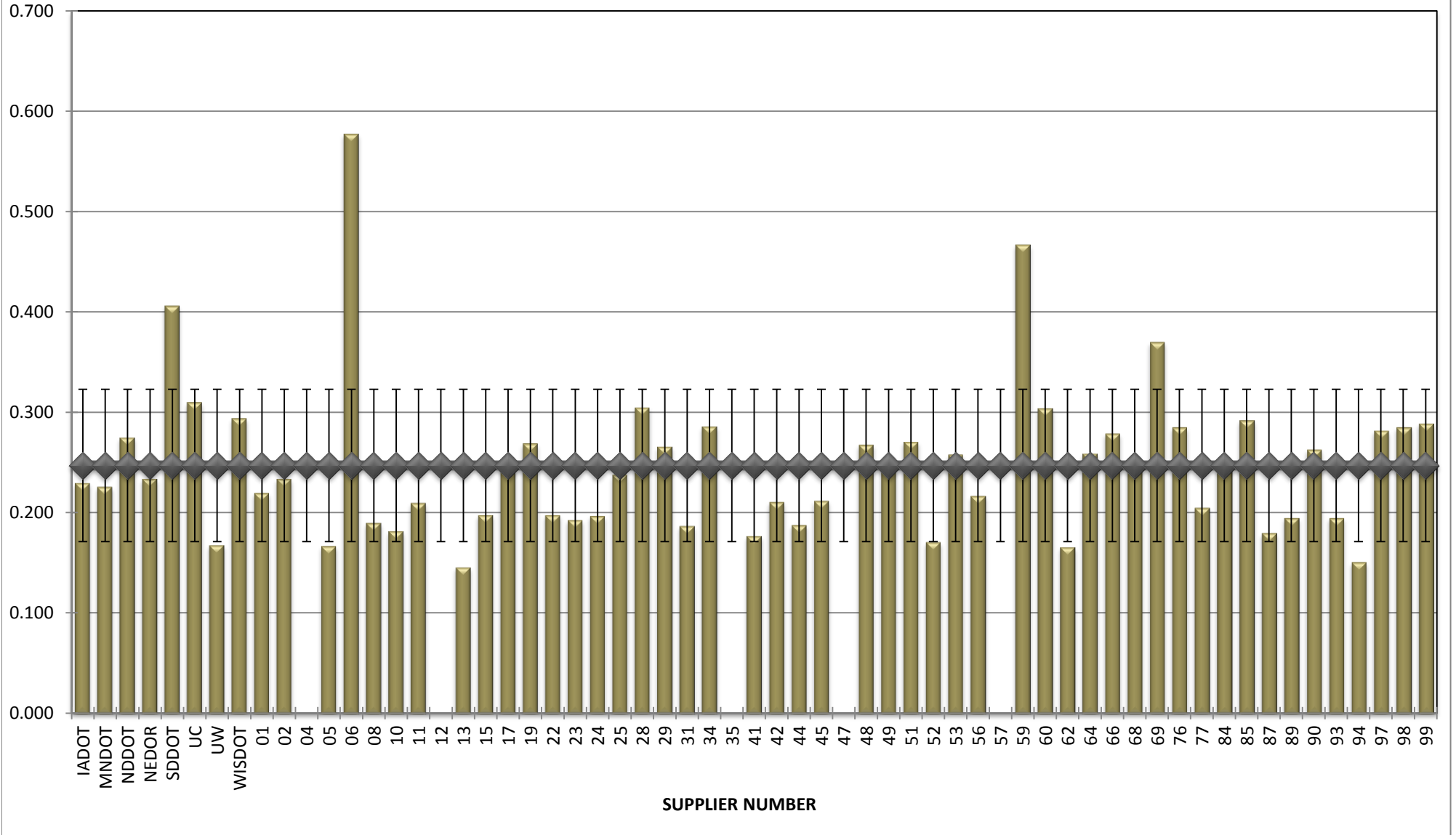
**BBR m-VALUE**





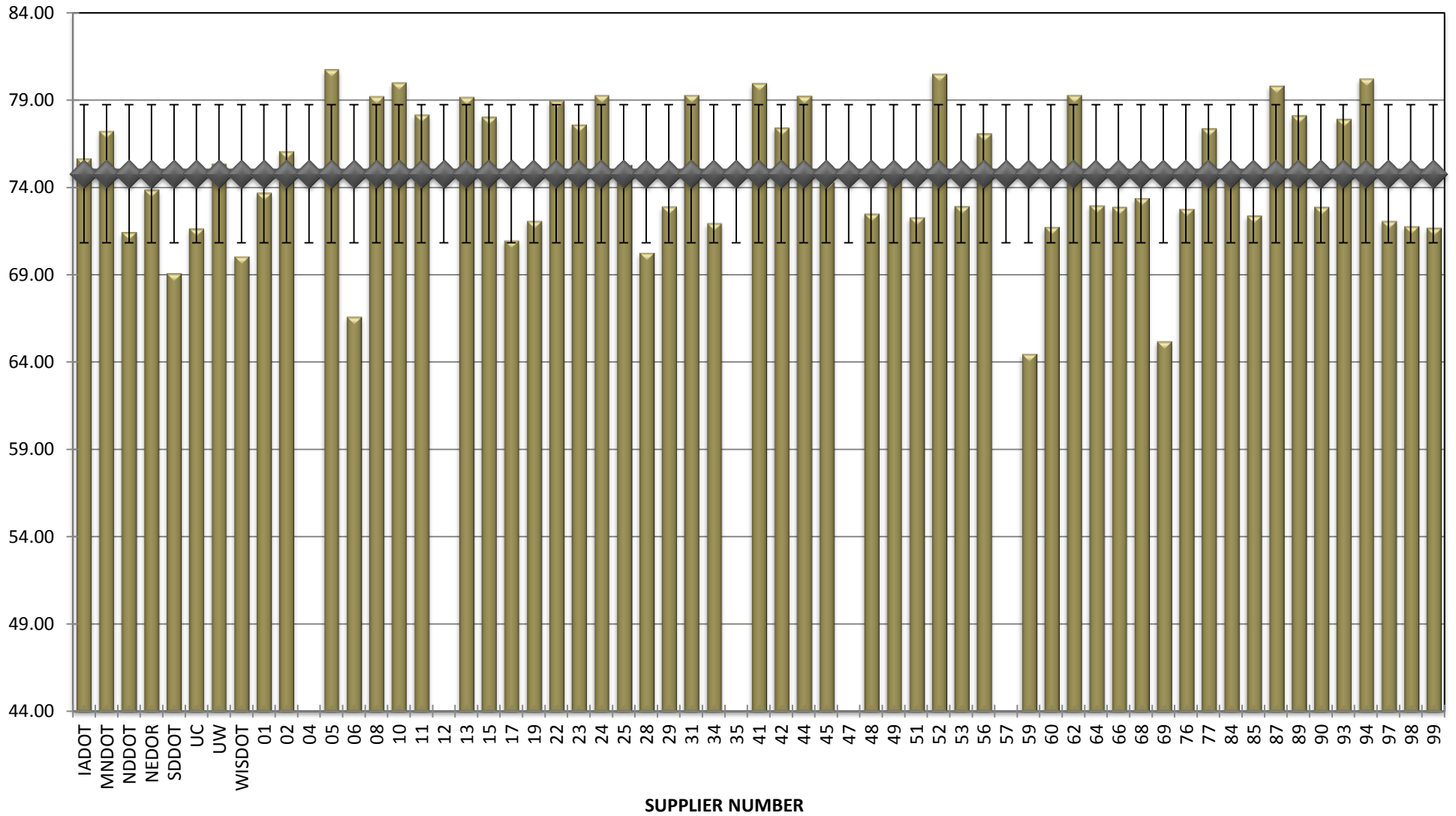
**COMBINED STATE BINDER GROUP ROUND ROBIN  
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**Jnr @ 100 Pa**



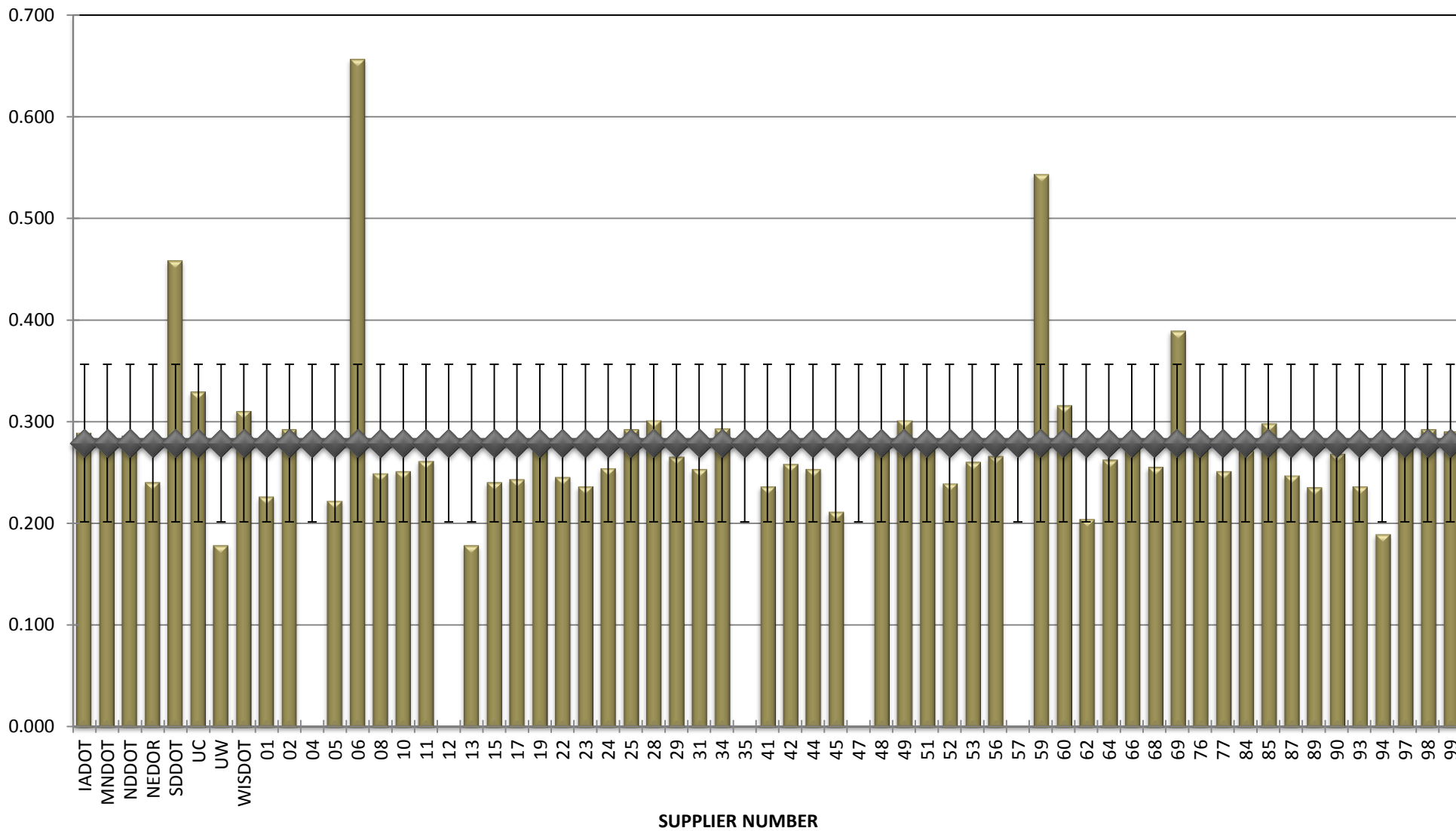
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY A 2015-2  
PG 64-34**

**% Recovery @ 100 Pa**



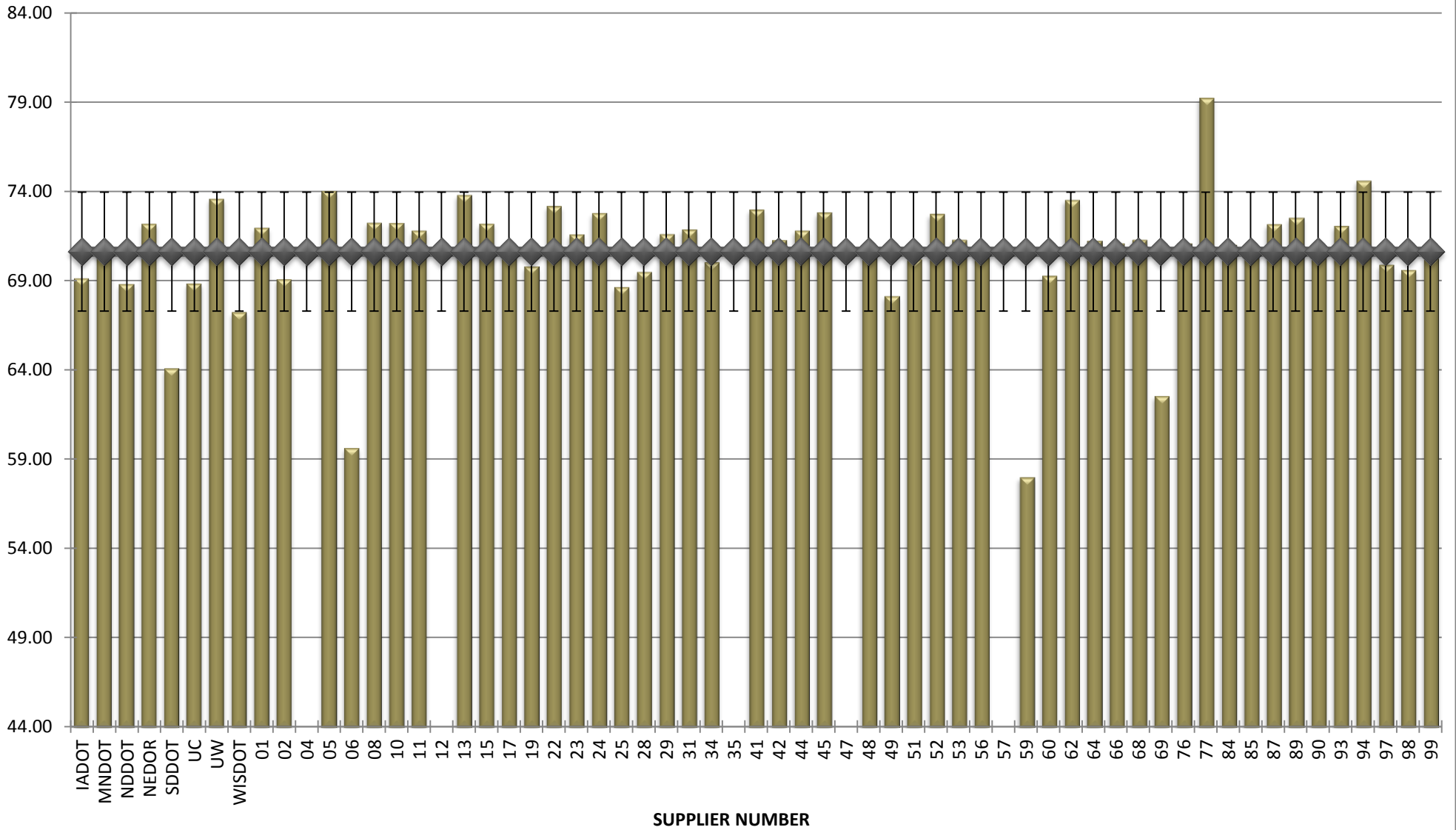
**COMBINED STATE BINDER GROUP ROUND ROBIN  
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**Jnr @ 3200 Pa**



**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY A 2015-2  
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**% Recovery @ 3200 Pa**



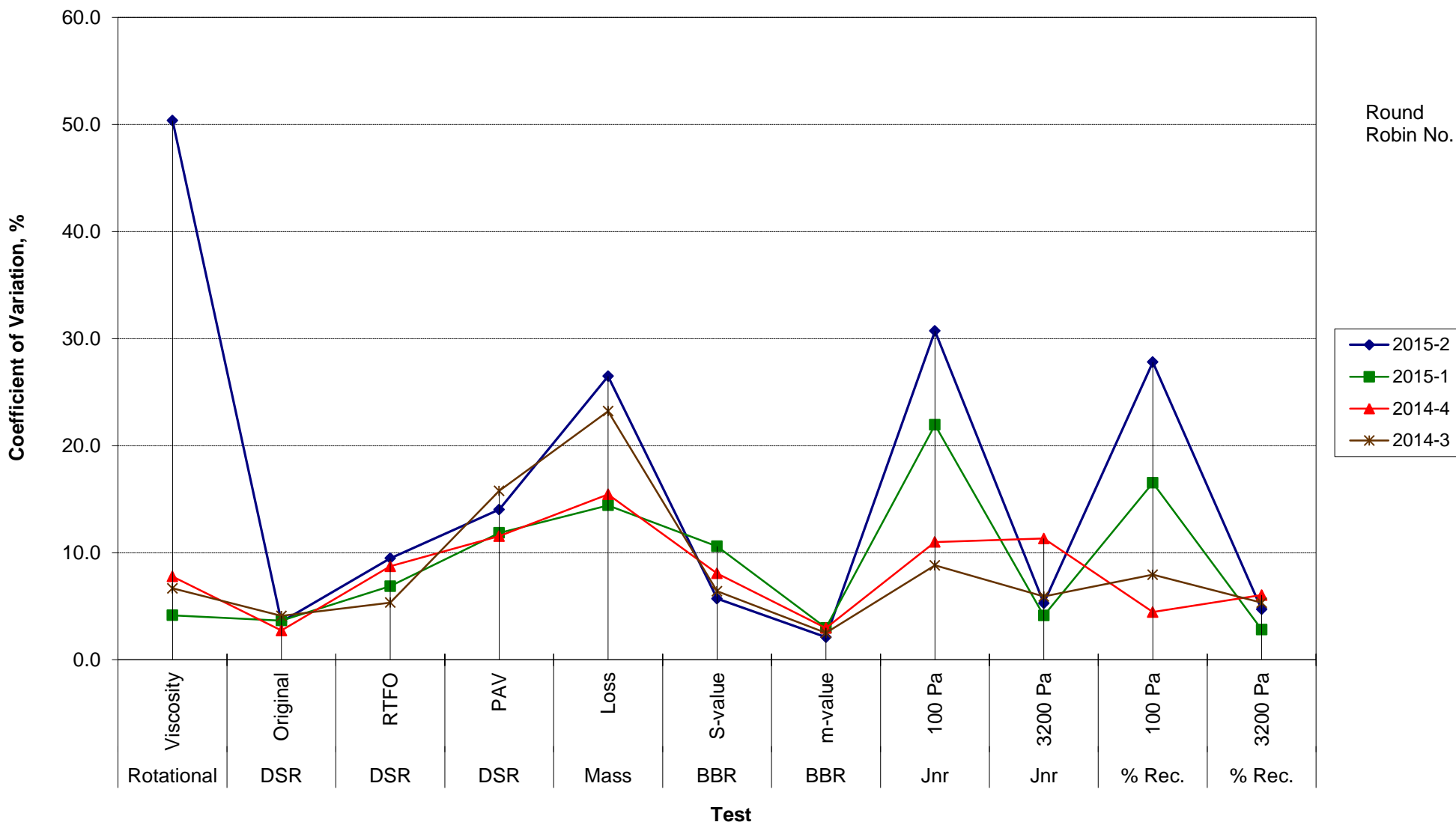
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY A**

**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
2015-2	61	50.358	3.541	9.476	14.032	26.479	5.715	2.106	30.716	5.290	27.799	4.715	38.134
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
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

**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:**

	<b>Rotational Viscosity (Pa.s) @135°C</b>	<b>DSR Original (kPa)</b>	<b>DSR RTFO (kPa)</b>	<b>DSR PAV (kPa)</b>	<b>Mass Loss (%) @163°C</b>	<b>BBR S-value (MPa)</b>	<b>BBR m-value</b>	<b>Jnr @ 100Pa</b>	<b>% RECOV. @ 100Pa</b>	<b>Jnr @ 3200Pa</b>	<b>% RECOV. @ 3200Pa</b>
<b>Average</b>	0.874	1.41	3.46	1,833	-0.676	267	0.322	0.241	74.79	0.267	71.06
<b>Std. Dev.</b>	0.0681	0.0495	0.3227	249.38	0.1828	14.02	0.0070	0.1021	21.5335	0.1071	19.7922
<b>Coef. of Var.</b>	7.788	3.512	9.326	13.606	-27.035	5.245	2.178	42.366	28.791	40.097	27.853

**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
2015-2	61	50.3579	3.5413	9.4764	14.032	26.479447	5.715476	2.106464	30.71585	5.29002	27.79887	4.714925	38.13423
