

COMBINED STATE BINDER GROUP ROUND ROBIN SUMMARY B 2019-1

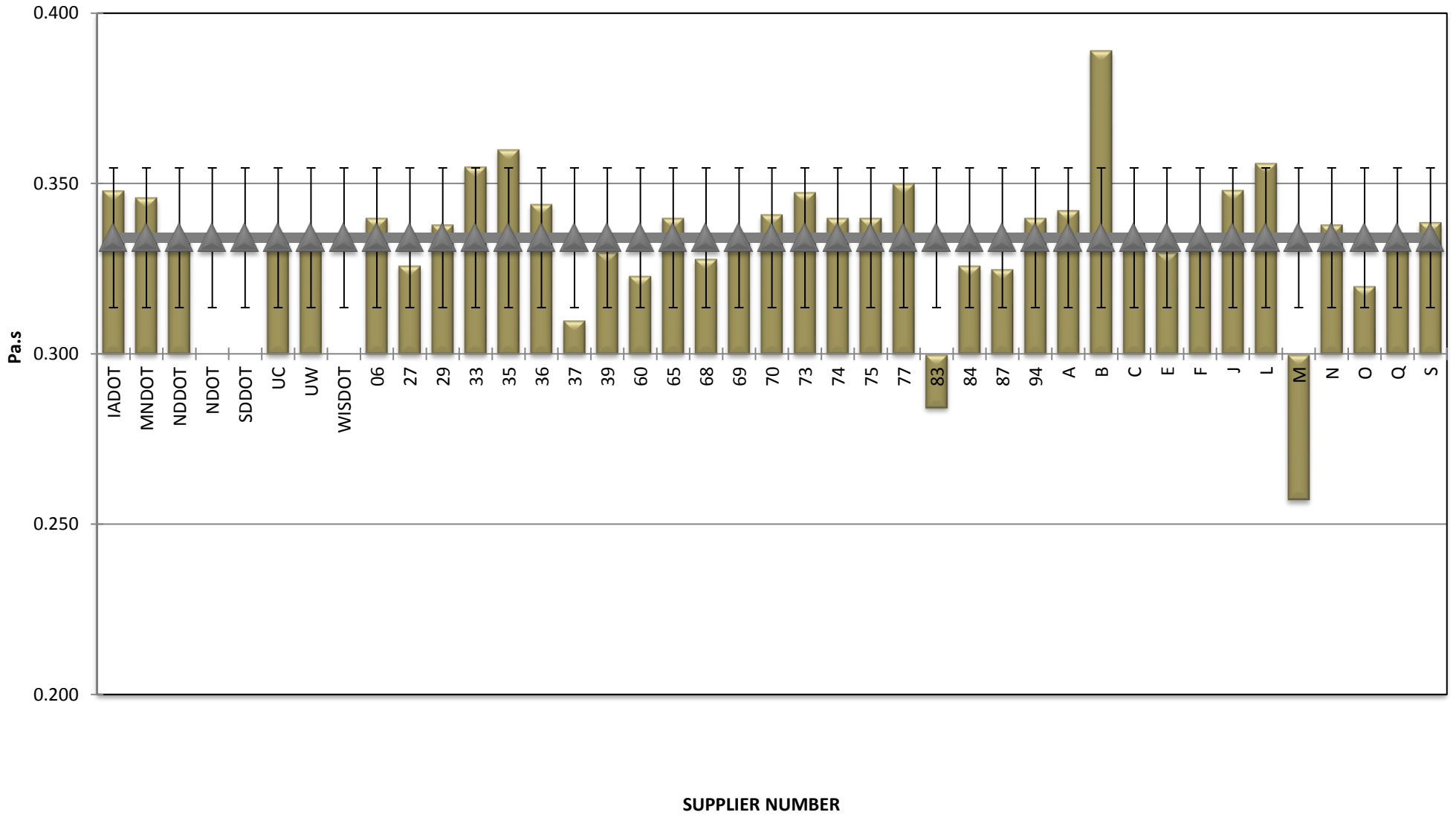
Supplier Number	Rotational Viscosity (Pa.s) @135°C	DSR Original (kPa)	DSR RTFO (kPa)	DSR PAV (kPa)	Mass Loss (%) @163°C	BBR S-value (MPa)	BBR m-value	Jnr @ 100 Pa	% Recov. @ 100 Pa	Jnr @ 3200 Pa	% Recov. @ 3200 Pa
IADOT	0.348	1.82		4,890	0.439	251	0.324	2.030	5.37	2.180	1.85
MNDOT	0.346	1.76		4,690	0.460	256	0.323	1.833	5.22	2.023	1.43
NDDOT	0.335	1.80		4,723	0.518	249	0.334	1.943	5.80	2.145	1.80
NDOT	1.76	1.76		4,669	0.337	231	0.325	1.990	4.70	2.240	1.40
SDDOT	0.300	1.77		3,020	0.352	228	0.338	2,028	4.93	2.314	0.18
UC	0.333	1.77		4,181	0.432	240	0.336	2,056	5.60	2.260	1.60
UW	0.334	1.81		4,574	0.650	250	0.325	1.819	4.84	2.057	0.67
WISDOT	1.70	1.70		2,910	0.395	244	0.337	2,010	8.01	2.300	1.07
06	0.340	1.74		4,190	0.568	228	0.339	2,260	3.42	2.460	0.72
27	0.326	1.77		4,580	0.448	236	0.343	2,044	5.04	2.212	1.15
29	0.338	1.74		4,190	0.500	225	0.331	1,830	6.72	2.030	2.15
33	0.355	1.82		4,810	0.420	239	0.329	1,958	4.49	2.137	1.13
35	0.360	1.80		4,320	0.469	256	0.330				
36	0.344	1.81		3,815	0.481	236	0.332	1,864	4.85	2.102	1.18
37	0.310	1.77		5,230	0.481	240	0.326	2,100	4.20	2.300	1.60
39	0.330	1.74		4,340	0.459	198	0.329	2,080	4.72	2.290	0.95
60	0.323	1.84		4,860	0.506	221	0.324	2,264	3.49	2.476	0.58
65	0.340	1.64		4,690	0.484	231	0.330	2,280	4.40	2.500	1.62
68	0.328	1.73		4,584		256	0.330	1,943	6.39	2.108	2.09
69	0.334	1.76		4,121	0.421	243	0.332	2,039	5.70	2.243	1.60
70	0.341	1.80		4,860	0.424	243	0.329	1,850	5.56	2.030	2.03
73	0.348	1.68		3,950	0.427	205	0.339	2,250	3.89	2.460	0.90
74	0.340	1.82		5,839	0.529	250	0.331	2,019	5.38	2.169	2.00
75	0.340	1.80		4,742	0.459	246	0.324	1,810	6.34	2.040	1.17
77	0.350	1.81		4,811	0.469	265	0.321	1,665	5.24	1.821	1.76
83	0.284	1.78		4,470	0.421	262	0.326	1,900	7.85	2.150	1.95
84	0.326	1.76		5,077	0.470	254	0.320	1,980	4.81	2.169	1.11
87	0.325	1.72		4,720	0.468	248	0.316	2,000	4.31	2.180	1.23
94	0.340	1.83		3,561	0.542	202	0.335	1,680	6.14	1.850	2.43
A	0.342	1.78		4,698	0.451	228	0.333	1,939	5.85	2.133	2.00
B	0.389	1.73		4,387	0.433	243	0.321	2,017	2.82	2.210	1.70
C	0.334	1.83		4,999	0.404	233	0.329	1,913	5.04	2.085	1.93
E	0.330	1.76		4,420	0.501	200	0.329	1,975	4.85	2.157	1.10
F	0.333	1.80		4,743	0.490	252	0.324	1,883	4.86	2.063	1.56
J	0.348	1.71		4,256	0.505	237	0.327	2,059	4.52	2.282	1.42
L	0.356	1.78		4,738	0.542	214	0.369	1,770	5.51	1.925	5.59
M	0.257	1.81		4,008	0.335	241	0.335	2,047	4.10	2.289	1.17
N	0.338	1.79		4,790	0.453	245	0.330	1,995	4.20	2.181	1.21
O	0.320	1.78		4,411	0.375	239	0.332	2,062	3.88	2.159	0.74
Q	0.333	1.80		4,363	0.515	240	0.341	2,024	5.03	2.204	1.77
S	0.339	1.76		4,035	0.486	236	0.334	1,967	4.66	2.236	0.31
U	0.330	1.79		4,345	0.421	242	0.340	1,954	4.44	2.133	1.18
V	0.330	1.78		4,788	0.487	239	0.329	1,942	4.47	2.119	1.13
Average	0.334	1.77		4,474	0.463	238	0.331	1,978	5.04	2.177	1.48
Std. Dev.	0.021	0.04		524	0.061	16	0.009	0.138	1.04	0.148	0.83
Coef. of Var.	6.139	2.37		12	13.132	7	2.570	6.966	20.73	6.814	55.83

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	Rot. Visc.	ODSR	RTFO DSR	PAVDSR	Mass Loss	S-value	m-value	Jnr @ 100 Pa	% Rec. 100 Pa	Jnr @ 3200 Pa	% Rec. @ 3200 Pa
<b>A</b>											
19	0.343	1.76		4,517	0.449	227	0.332	1.918	5.20	2.096	2.10
51	0.341	1.82		4,666	0.441	225	0.338	1.985	4.80	2.150	1.90
97	0.342	1.77		4,741	0.452	228	0.333	1.975	5.00	2.158	1.90
98	0.343	1.76		4,866	0.462	231	0.327	1.878	8.40	2.126	2.10
AVERAGE	0.342	1.78		4,698	0.451	228	0.333	1.939	5.85	2.133	2.00
<b>B</b>											
01	0.375	1.70		3,910	0.452	241	0.320	2.150	2.18	2.280	1.61
17	0.390	1.76		4,490	0.437	241	0.320	1.880	1.43	2.130	1.79
45	0.402	1.73		4,760	0.411	247	0.322	2.020	4.86	2.220	1.69
AVERAGE	0.389	1.73		4,387	0.433	243	0.321	2.017	2.82	2.210	1.70
<b>C</b>											
28	0.330	1.85		5,232	0.394	231	0.331	1.820	5.46	1.990	2.10
66	0.333	1.80		5,004	0.409	237	0.333	2.030	4.43	2.190	1.69
90	0.337	1.85		4,742	0.408	224	0.326	1.920	5.22	2.110	1.87
99	0.337	1.82		5,018	0.403	239	0.325	1.880	5.05	2.050	2.04
AVERAGE	0.334	1.83		4,999	0.404	232.75	0.329	1.913	5.04	2.085	1.93
<b>E</b>											
15	0.330	1.78		4,560	0.505	193	0.328	1.989	4.46	2.163	1.09
89	0.330	1.74		4,280	0.496	206	0.330	1.960	5.23	2.150	1.11
AVERAGE	0.330	1.76		4,420	0.501	200	0.329	1.975	4.85	2.157	1.10
<b>F</b>											
02	0.333	1.88		4,189	0.572	240	0.319	2.040	4.56	2.240	1.73
11	0.333	1.78		5,183	0.43	257	0.319	1.900	4.49	2.080	0.94
34	0.333	1.82		4,716	0.429	253	0.321	1.820	4.71	2.000	1.14
48	0.334	1.73		4,800	0.451	258	0.322	1.880	5.66	2.050	1.97
56	0.335	1.76		4,730	0.461	258	0.330	1.920	4.43	2.100	1.87
62	0.330	1.83		4,841	0.595	245	0.330	1.740	5.28	1.910	1.69
AVERAGE	0.333	1.80		4,743	0.490	251.8333	0.324	1.883	4.86	2.063	1.56
<b>J</b>											
05	0.345	1.64		3,870	0.482	231	0.330	2.260	4.37	2.490	1.57
08	0.350	1.71		4,520	0.490	235	0.329	2.260	4.70	2.470	1.54
10	0.361	1.76		4,233	0.474	246	0.323	1.856	4.44	2.077	1.43
22	0.344	1.81		4,464	0.535	240	0.325	1.861	4.29	2.084	0.99
31	0.345	1.61		4,080	0.473	230	0.321	2.430	4.04	2.660	1.49
41	0.344	1.59		4,630	0.487	234	0.328	2.040	5.58	2.260	1.87
44	0.354	1.80		3,955	0.540	235	0.331	1.877	4.18	2.107	1.16
52	0.342	1.76		4,295	0.555	242	0.326	1.884	4.54	2.109	1.30
AVERAGE	0.348	1.71		4,256	0.505	236.625	0.327	2.059	4.52	2.282	1.42
<b>L</b>											
25	0.337	1.79		4,480	0.470	214	0.369	1.680	5.66	1.830	2.27
59	0.375	1.77		4,996	0.614			1.860	5.35	2.020	8.90
AVERAGE	0.356	1.78		4,738	0.542	214	0.369	1.770	5.51	1.925	5.59
<b>M</b>											
04	0.253	1.78		3,977	0.368	244	0.335	2.009	4.60	2.239	1.30
47	0.285	1.82		4,080	0.374	243	0.331	2.020	4.00	2.260	1.20
57	0.233	1.82		3,966	0.264	236	0.340	2.112	3.70	2.368	1.00
AVERAGE	0.257	1.81		4,008	0.335	241	0.335	2.047	4.10	2.289	1.17
<b>N</b>											
07	0.338	1.80		4,740	0.495	239	0.331	1.918	4.70	2.163	1.20
43	0.339	1.78		4,850	0.428	258	0.324	2.006	4.31	2.189	1.14
95	0.337	1.78		4,780	0.436	237	0.334	2.062	3.60	2.191	1.30
AVERAGE	0.338	1.79		4,790	0.453	244.6667	0.330	1.995	4.20	2.181	1.21
<b>O</b>											
76	0.320	1.79		4,340	0.379	239	0.333	2.021	4.00	2.025	0.78
85	0.320	1.76		4,481	0.371	238	0.330	2.102	3.75	2.293	0.69
AVERAGE	0.320	1.78		4,411	0.375	239	0.332	2.062	3.88	2.159	0.74
<b>Q</b>											
23	0.335	1.81		4,536	0.522	237	0.340	2.077	4.91	2.268	1.69
93	0.331	1.79		4,190	0.507	242	0.341	1.970	5.15	2.140	1.84
AVERAGE	0.333	1.80		4,363	0.51455	240	0.341	2.024	5.03	2.204	1.77
<b>S</b>											
53	0.340	1.74		4,000	0.460	239	0.335	1.964	4.27	2.219	0.32
64	0.338	1.77		4,070	0.512	233	0.332	1.970	5.04	2.253	0.29
AVERAGE	0.339	1.76		4,035	0.486	236	0.334	1.967	4.66	2.236	0.31
<b>U</b>											
13	0.330	1.80		4,310	0.404	244	0.339	1.990	4.33	2.170	1.14
24	0.330	1.77		4,380	0.438	239	0.340	1.918	4.54	2.096	1.21
AVERAGE	0.330	1.79		4,345	0.421	241.5	0.340	1.954	4.44	2.133	1.18
<b>V</b>											
58	0.331	1.78		4,835	0.499	236	0.328	1.914	4.59	2.091	1.20
78	0.330	1.77		4,695	0.459	235	0.328	1.911	4.55	2.085	1.05
81	0.330	1.79		4,835	0.504	246	0.331	2.002	4.27	2.180	1.13
AVERAGE	0.330	1.78		4,788	0.487	239	0.329	1.942	4.47	2.119	1.13

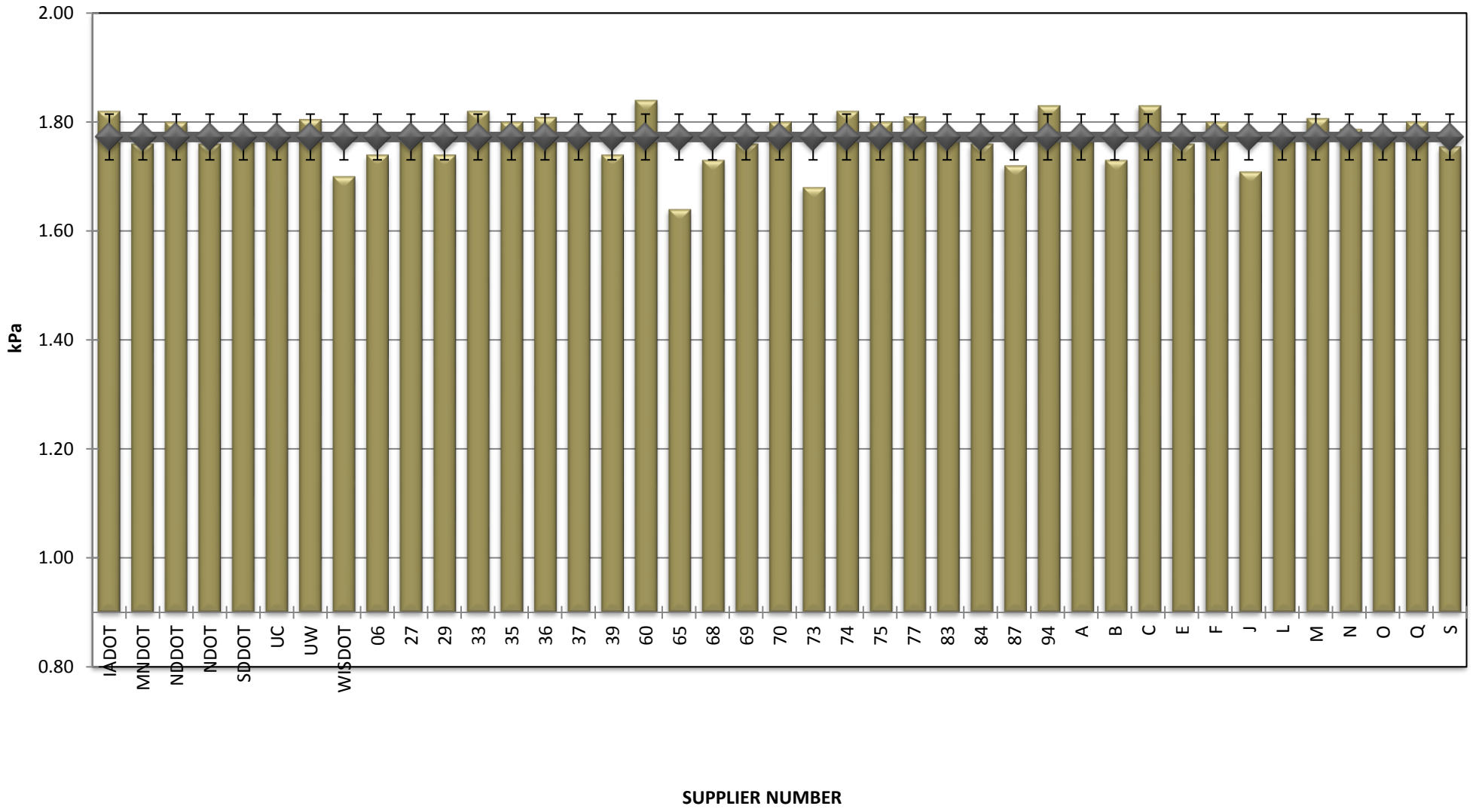
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY B 2019-1**

**ROTATIONAL VISCOSITY**



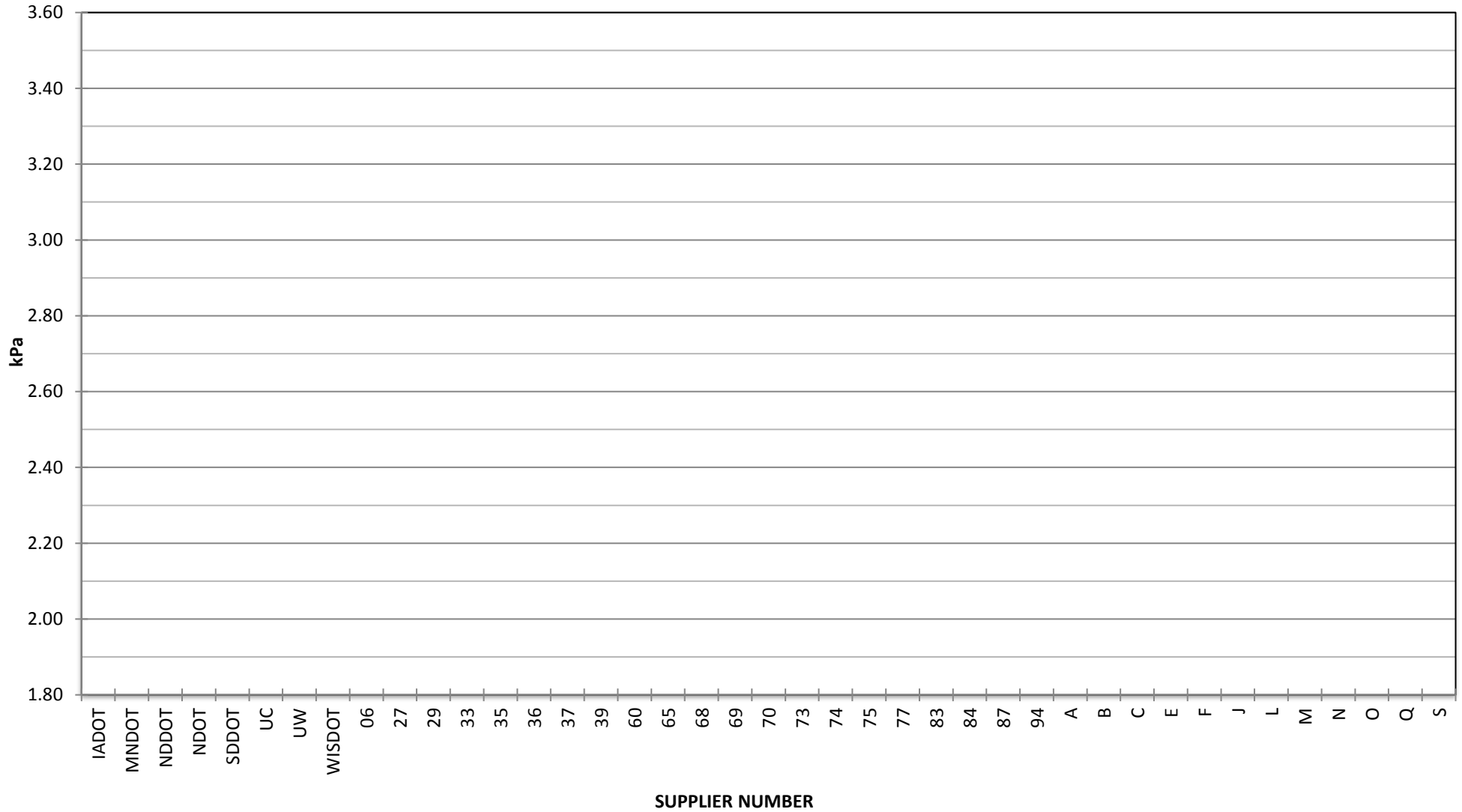
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SUMMARY B 2019-1**

**DSR - ORIGINAL**



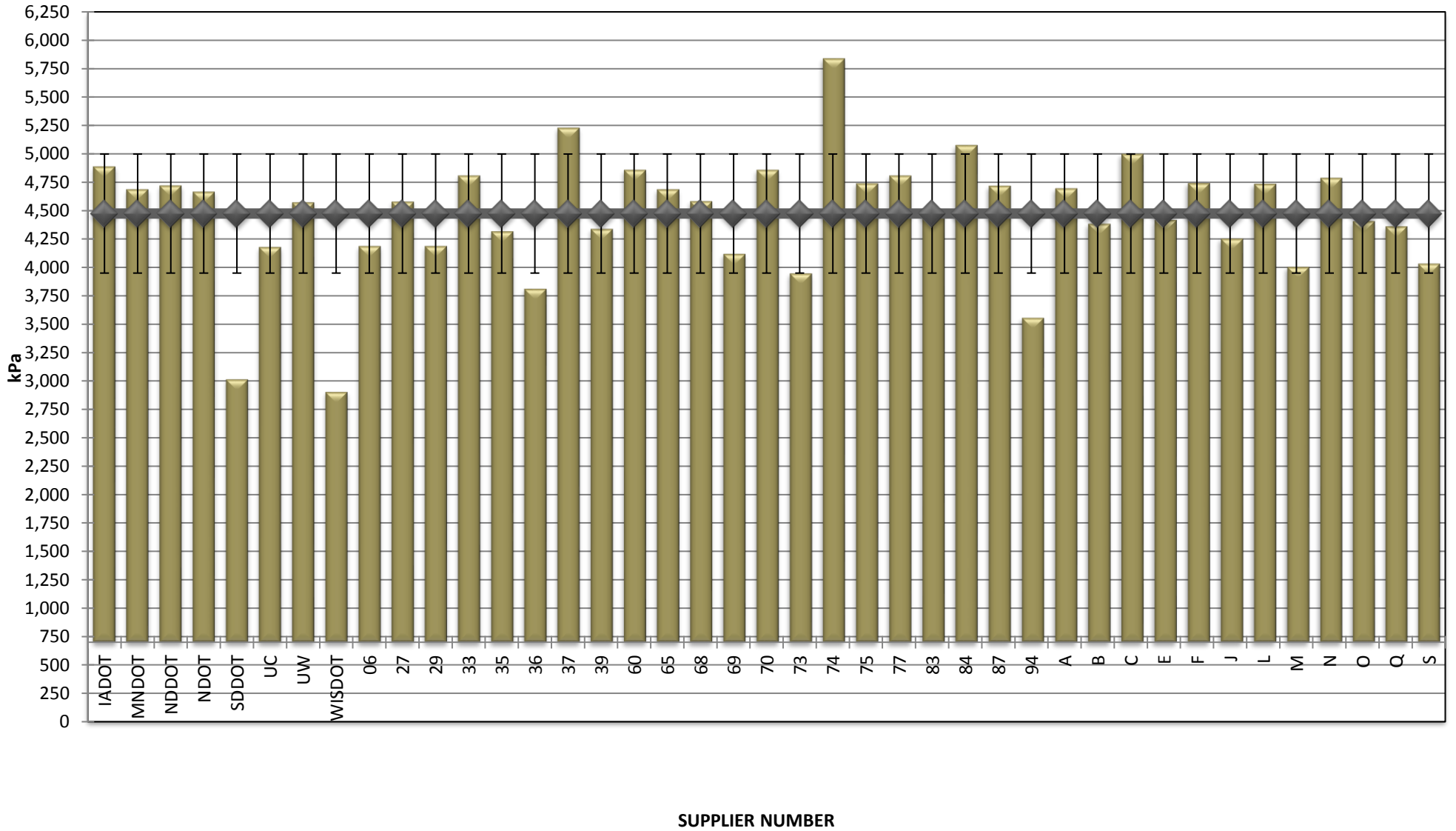
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SUMMARY B 2019-1

DSR - RTFO



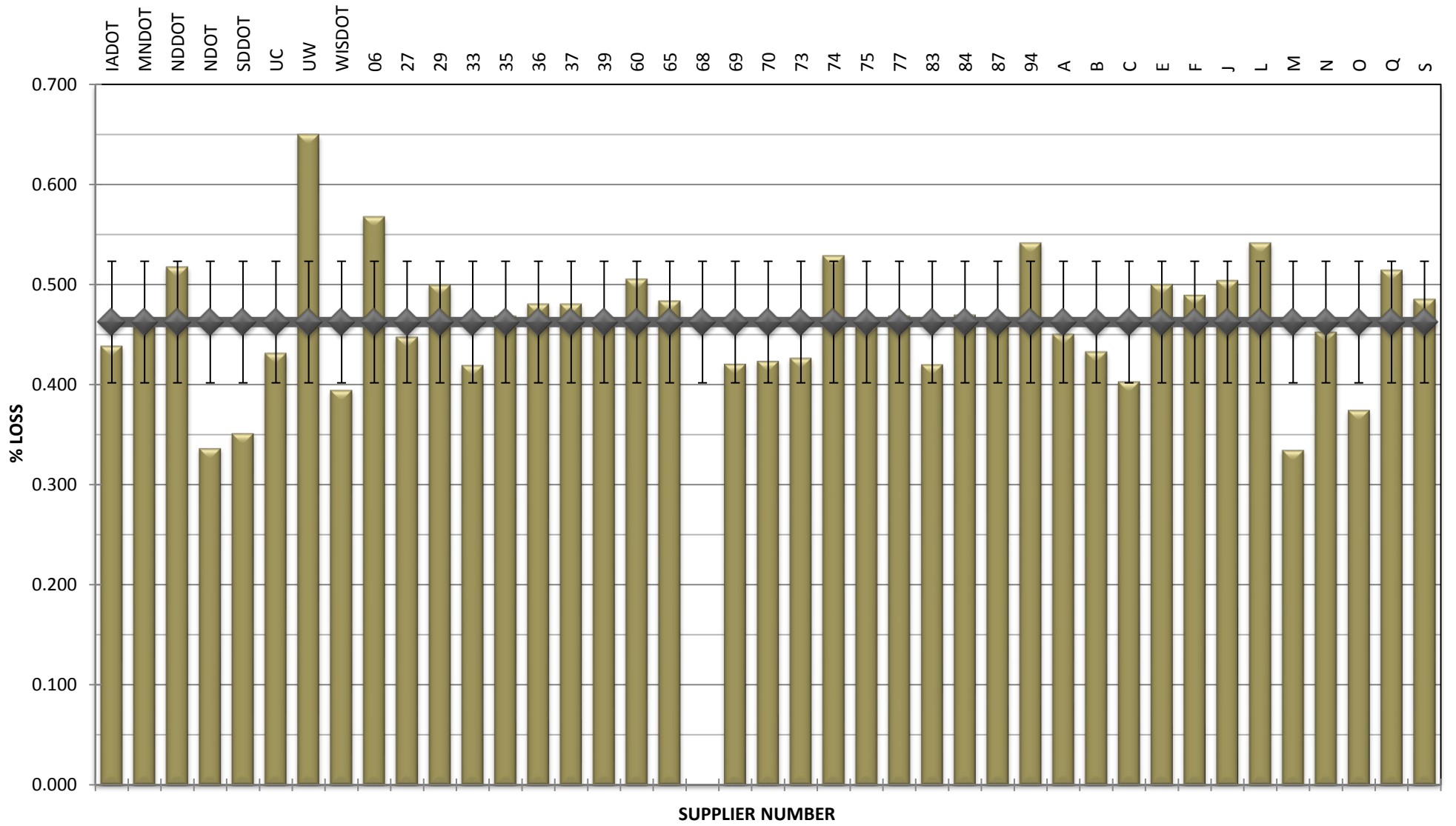
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SUMMARY B 2019-1**

**DSR - PAV**



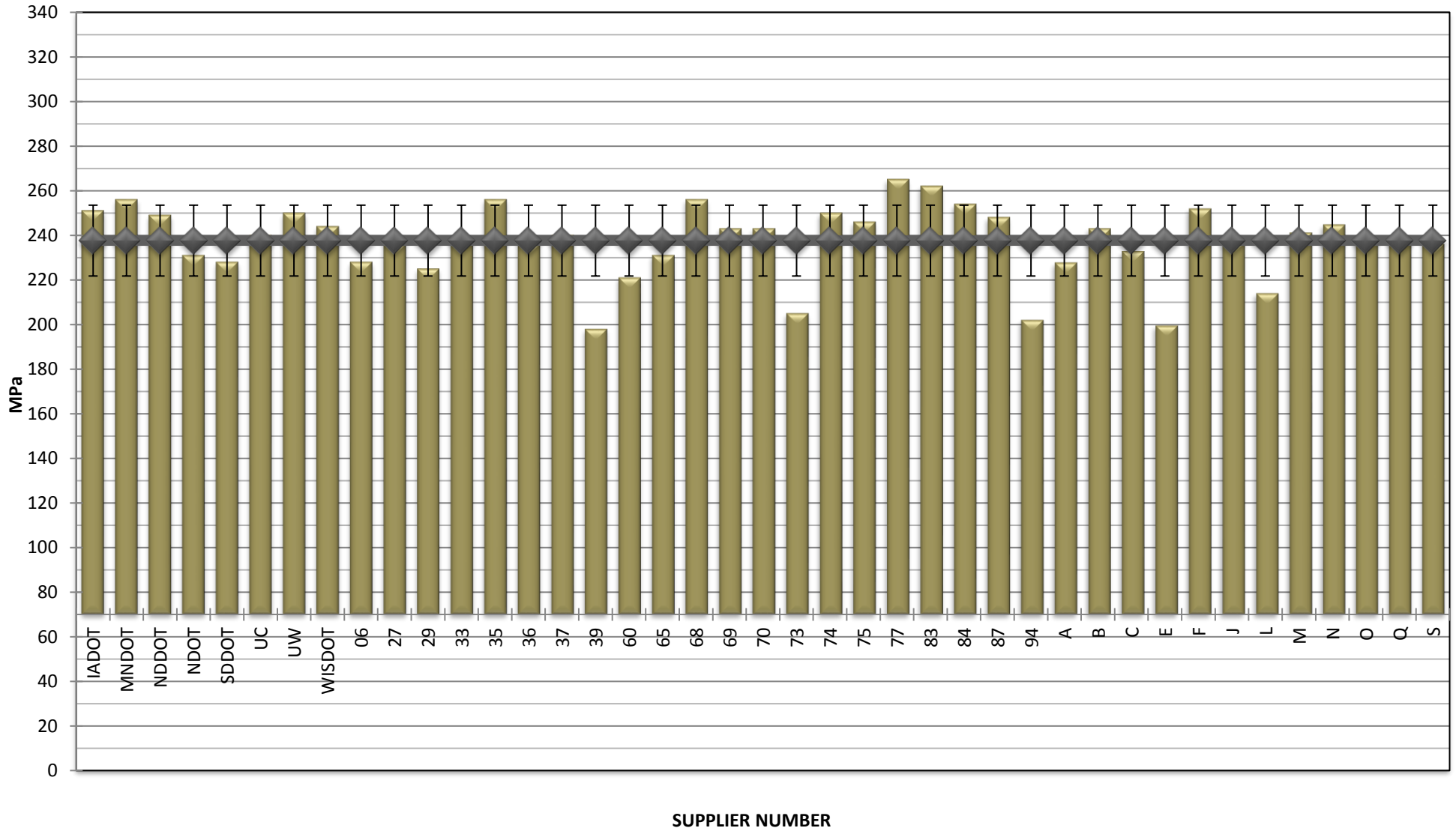
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SUMMARY B 2019-1**

**RTFO MASS LOSS**



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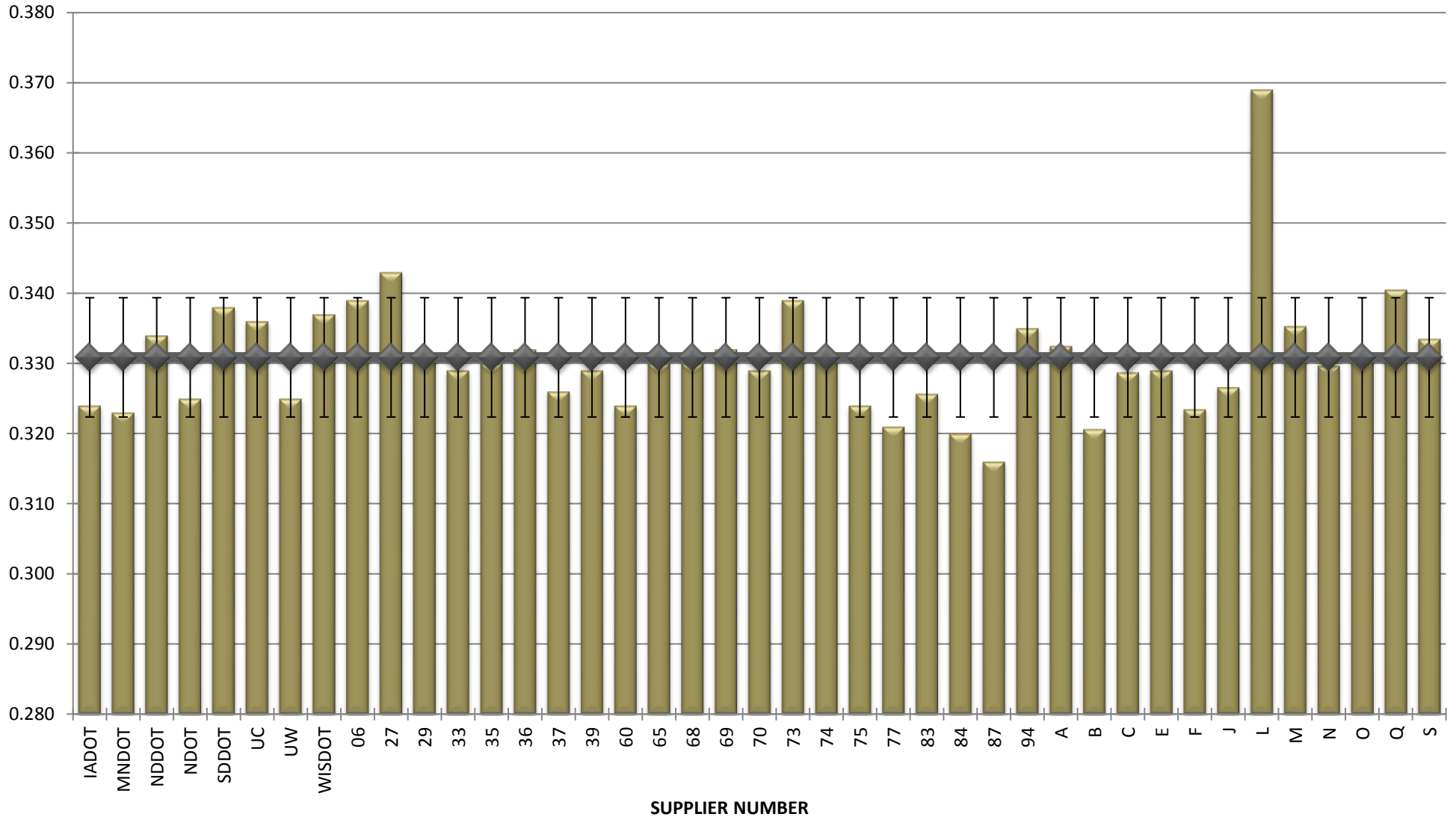
**BBR STIFFNESS**





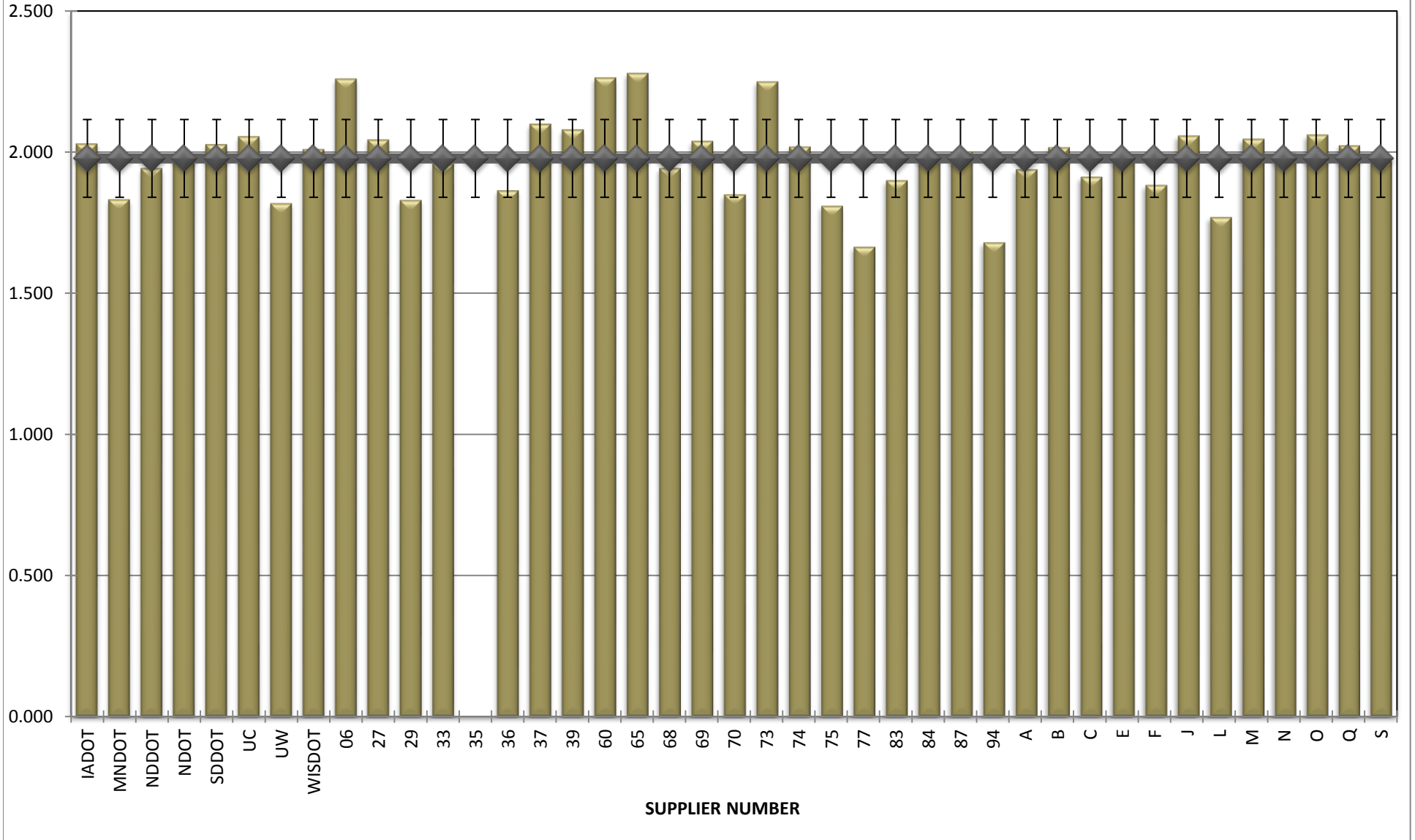
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SUMMARY B 2019-1**

**BBR m-VALUE**



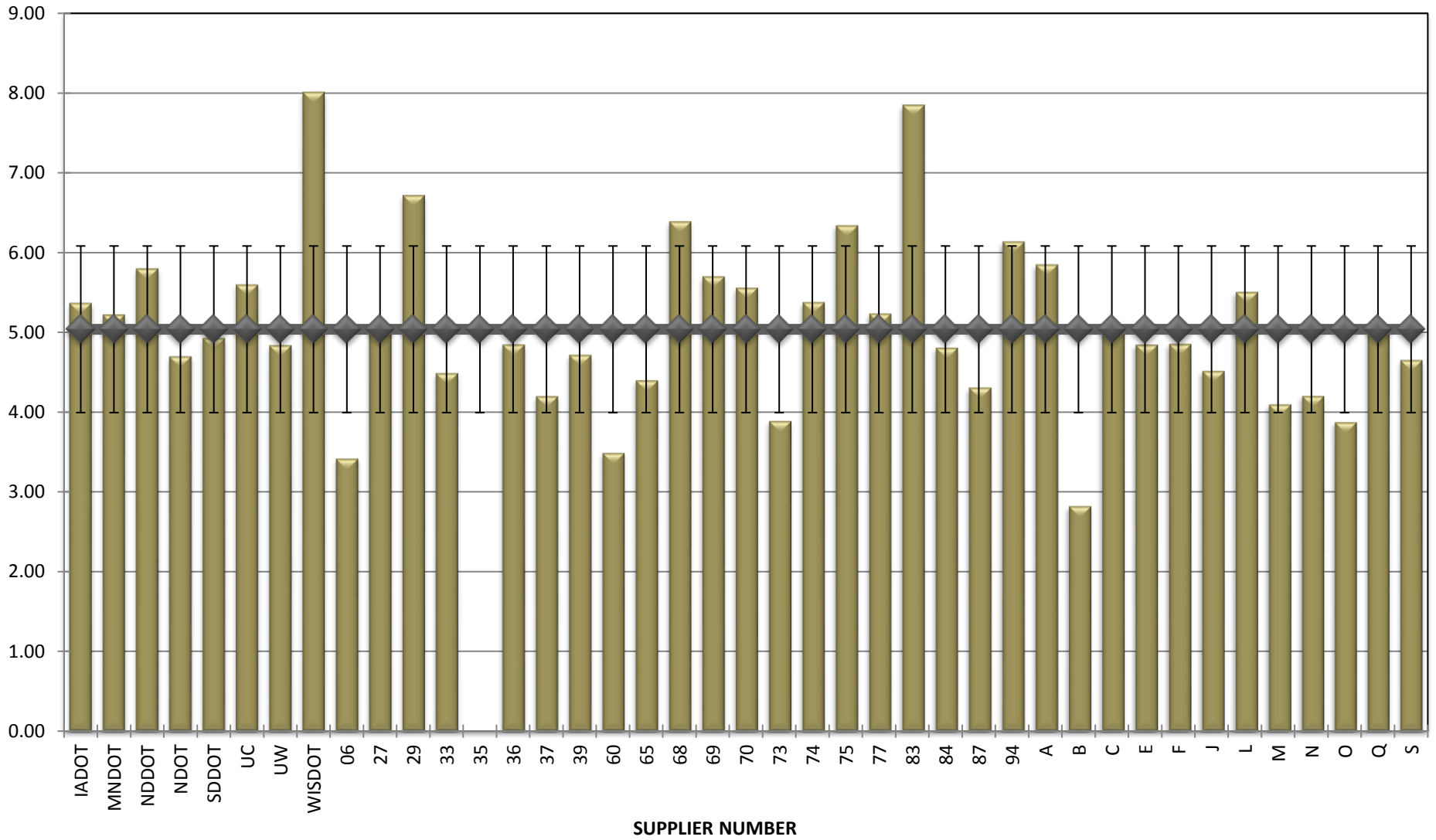
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SUMMARY B 2019-1**

**Jnr @ 100 Pa**



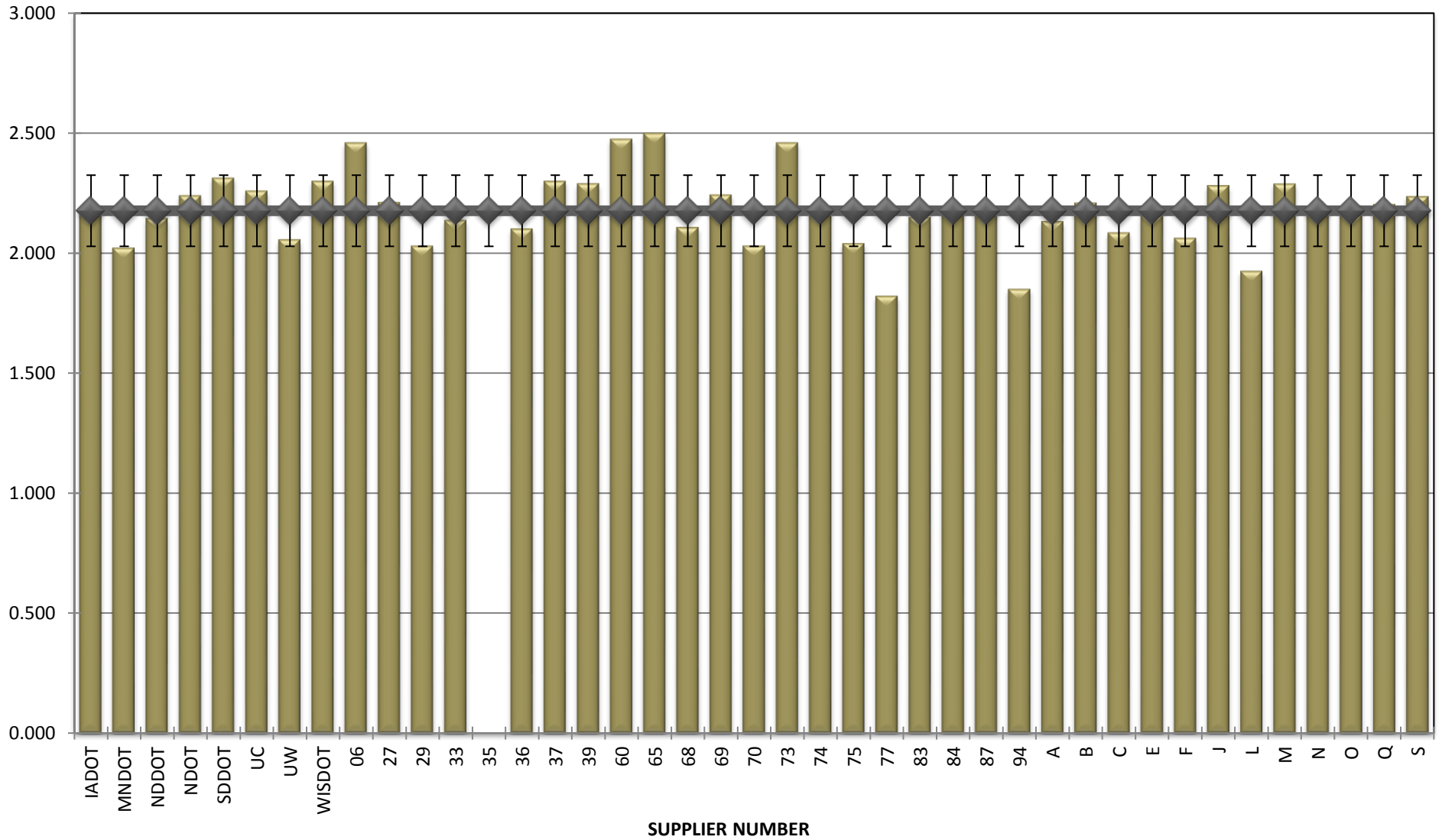
**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY B 2019-1**

**% Recovery @ 100 Pa**



**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY B 2019-1**

**Jnr @ 3200 Pa**



**COMBINED STATE BINDER GROUP ROUND ROBIN  
SUMMARY B 2019-1**

**% Recovery @ 3200 Pa**

