



Test Monitoring Center

@ Carnegie Mellon University
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<http://astmtmc.cmu.edu>
412-365-1000

MEMORANDUM: 18-046

DATE: November 20, 2018

TO: Mike Birke,
Chairman, Engine Oil Elastomer Compatibility Surveillance Panel

FROM: Michael T. Kasimirsky *Michael T. Kasimirsky*

SUBJECT: EOEC Testing from April 1, 2018 through September 30, 2018

A total of 249 EOEC tests were reported from 6 labs to the Test Monitoring Center during the period from April 1, 2018 through September 30, 2018.

Please find attached a summary of testing activity this period.

MTK/mtk/mem18-046.mtk.doc

cc: Frank Farber

Jeff Clark

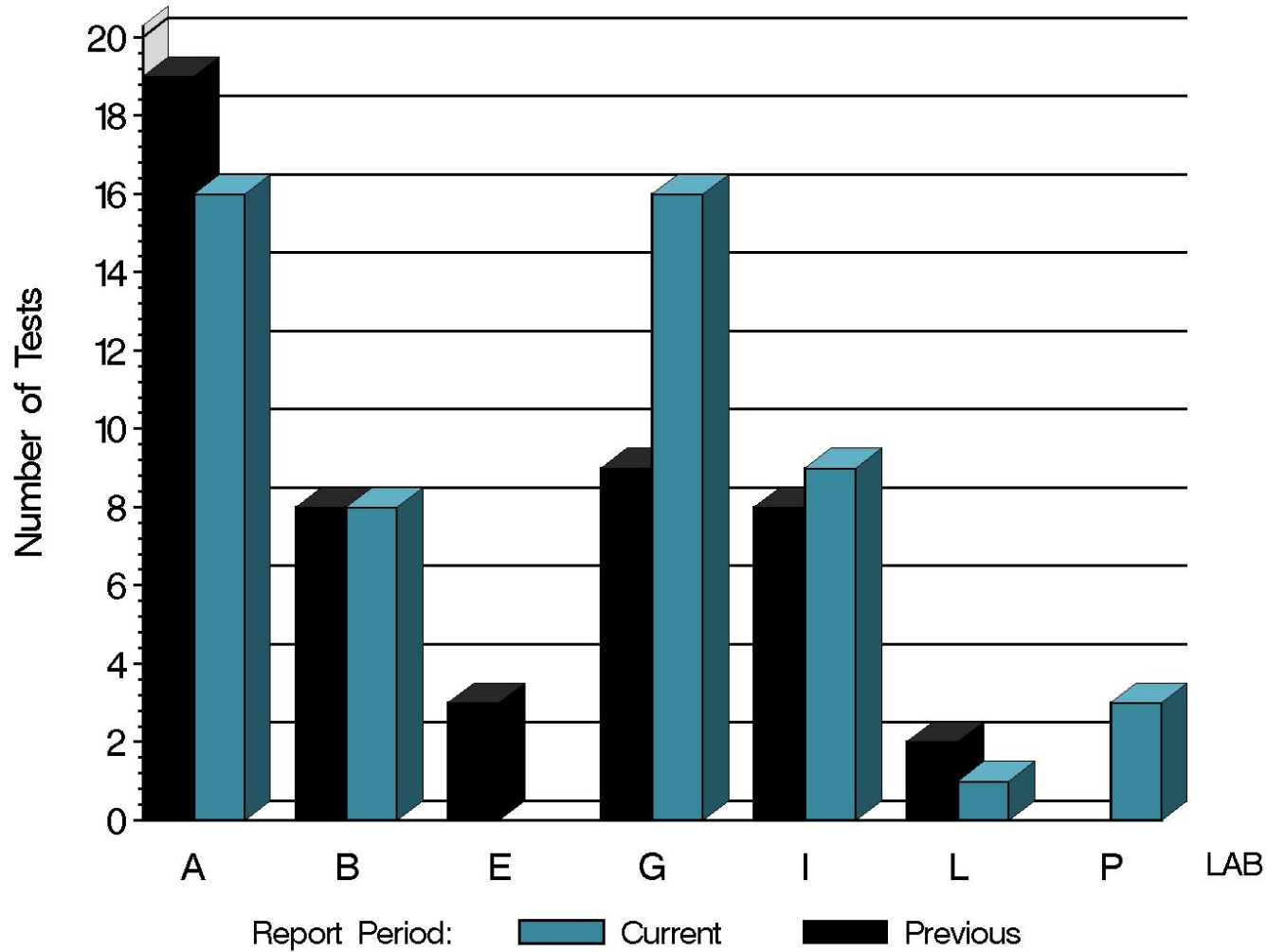
EOEC Surveillance Panel

<http://www.astmtmc.cmu.edu/docs/bench/eoec/semiannualreports/eoec-10-2018.pdf>

Distribution: email

EOEC (D 7216)

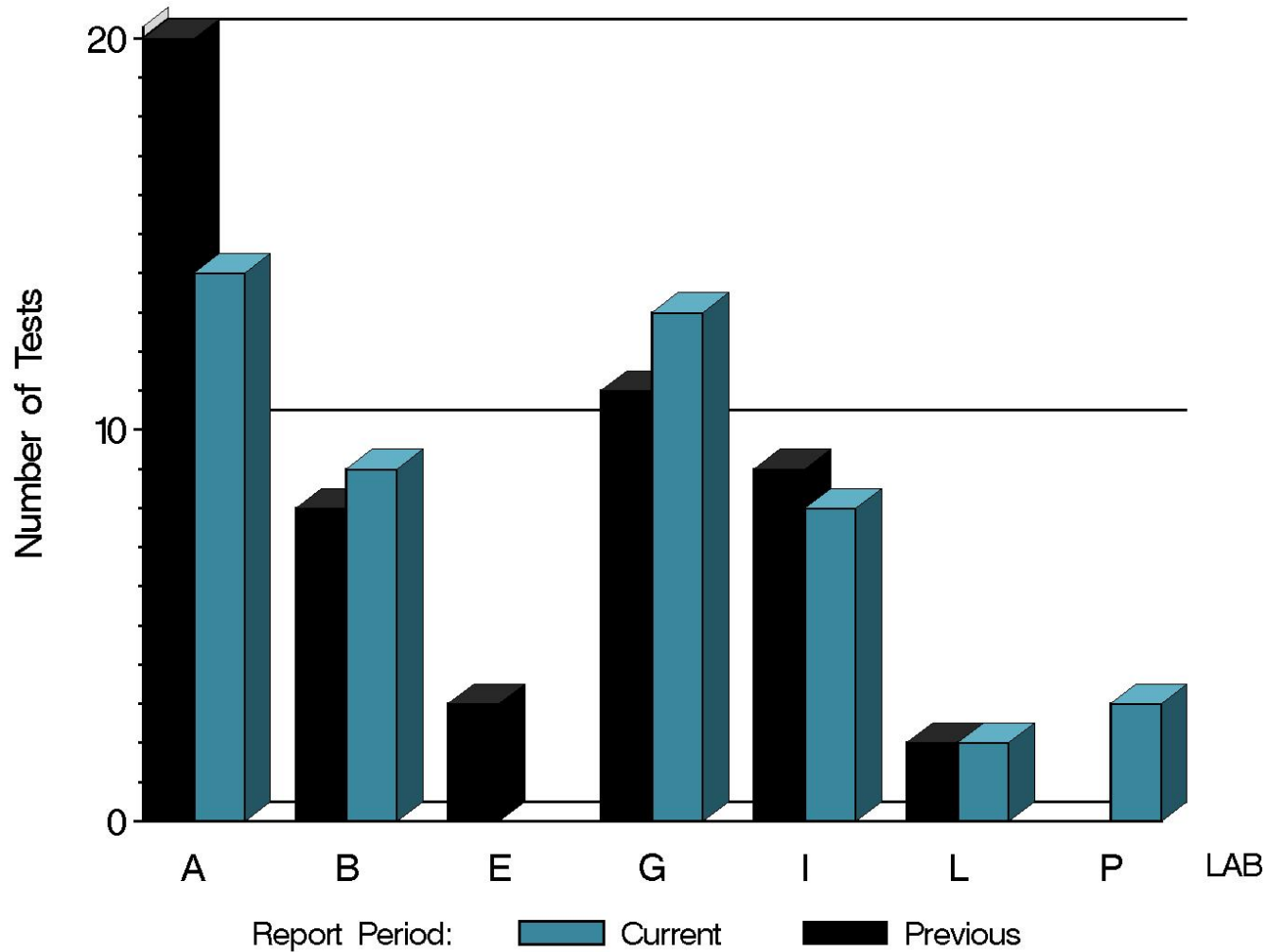
NUMBER OF FLUOROELASTOMER TESTS
REPORTED BY LAB AND REPORT PERIOD



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EOEC (D 7216)

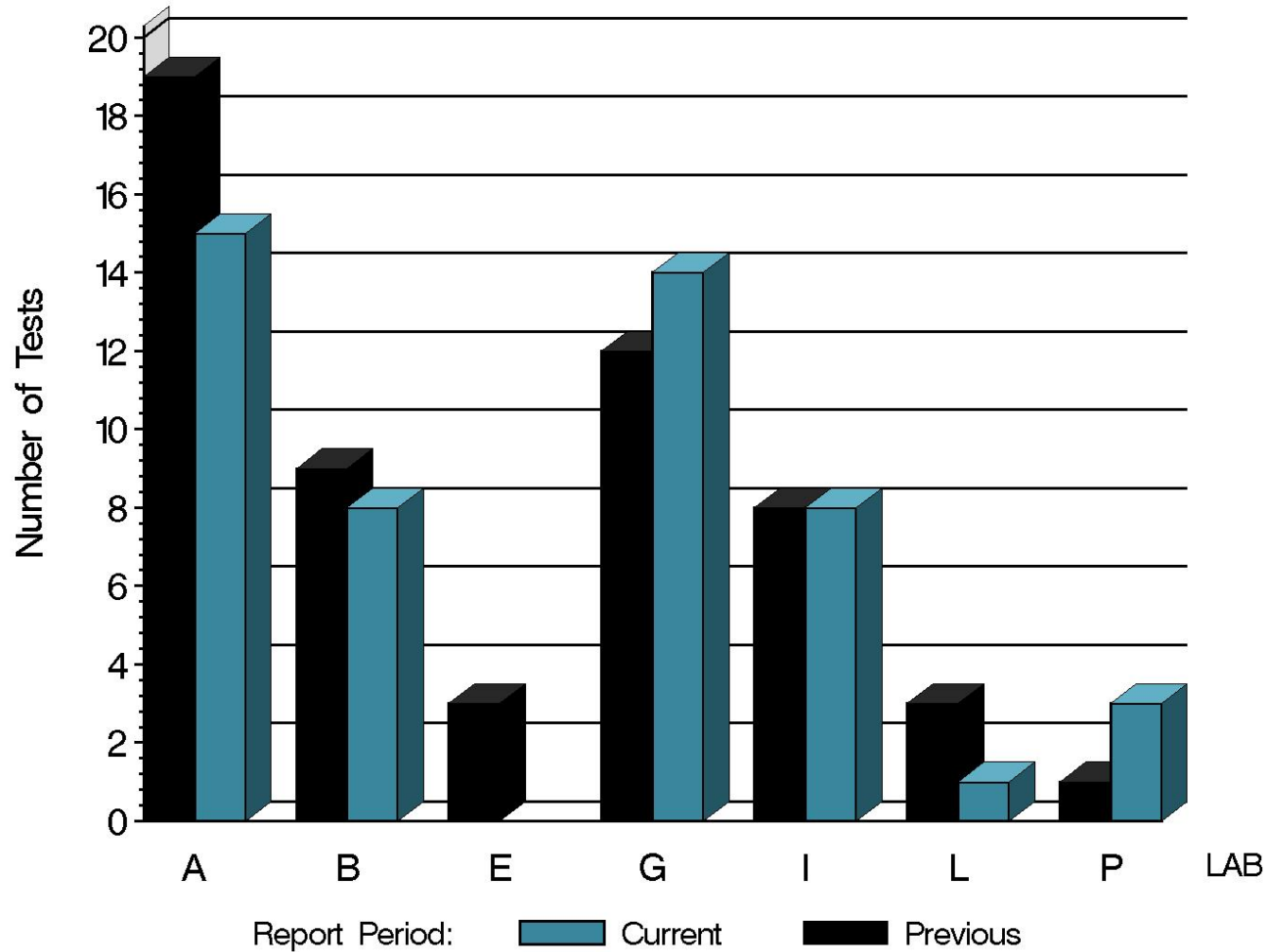
NUMBER OF NITRILE TESTS REPORTED BY LAB AND REPORT PERIOD



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EOEC (D 7216)

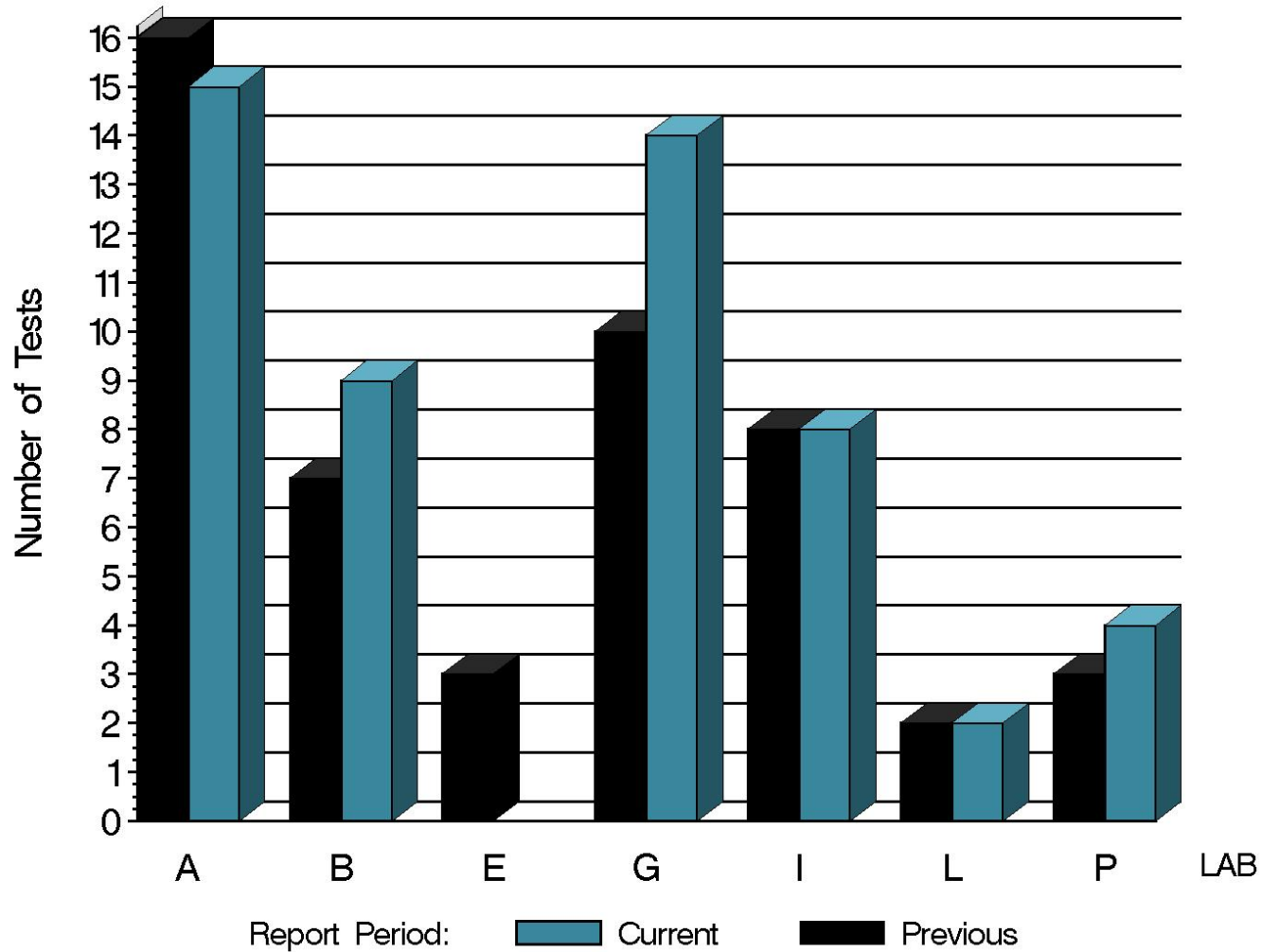
NUMBER OF POLYACRYLATE TESTS
REPORTED BY LAB AND REPORT PERIOD



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EOEC (D 7216)

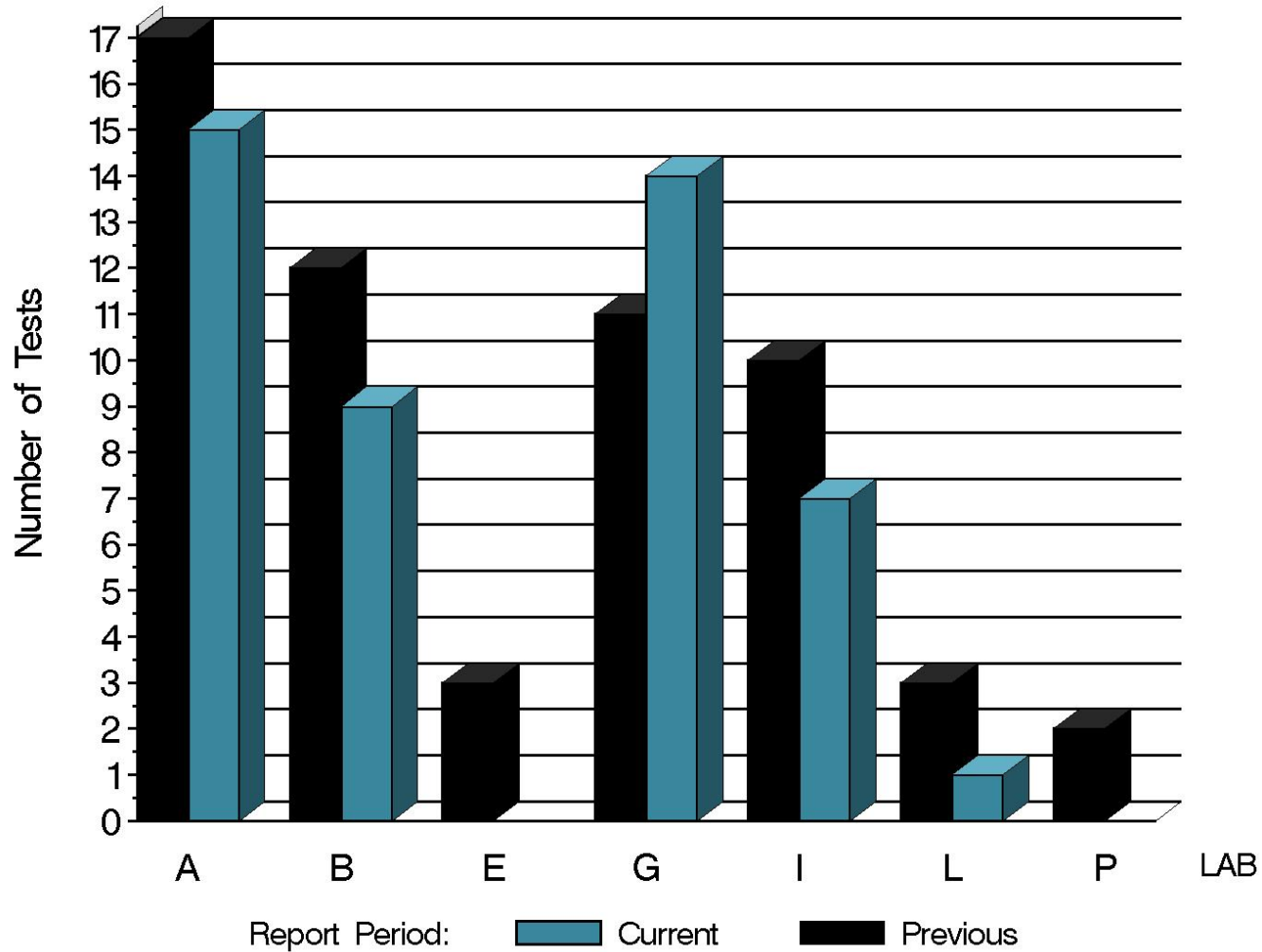
NUMBER OF SILICONE TESTS
REPORTED BY LAB AND REPORT PERIOD



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EOEC (D 7216)

NUMBER OF VAMAC TESTS REPORTED BY LAB AND REPORT PERIOD



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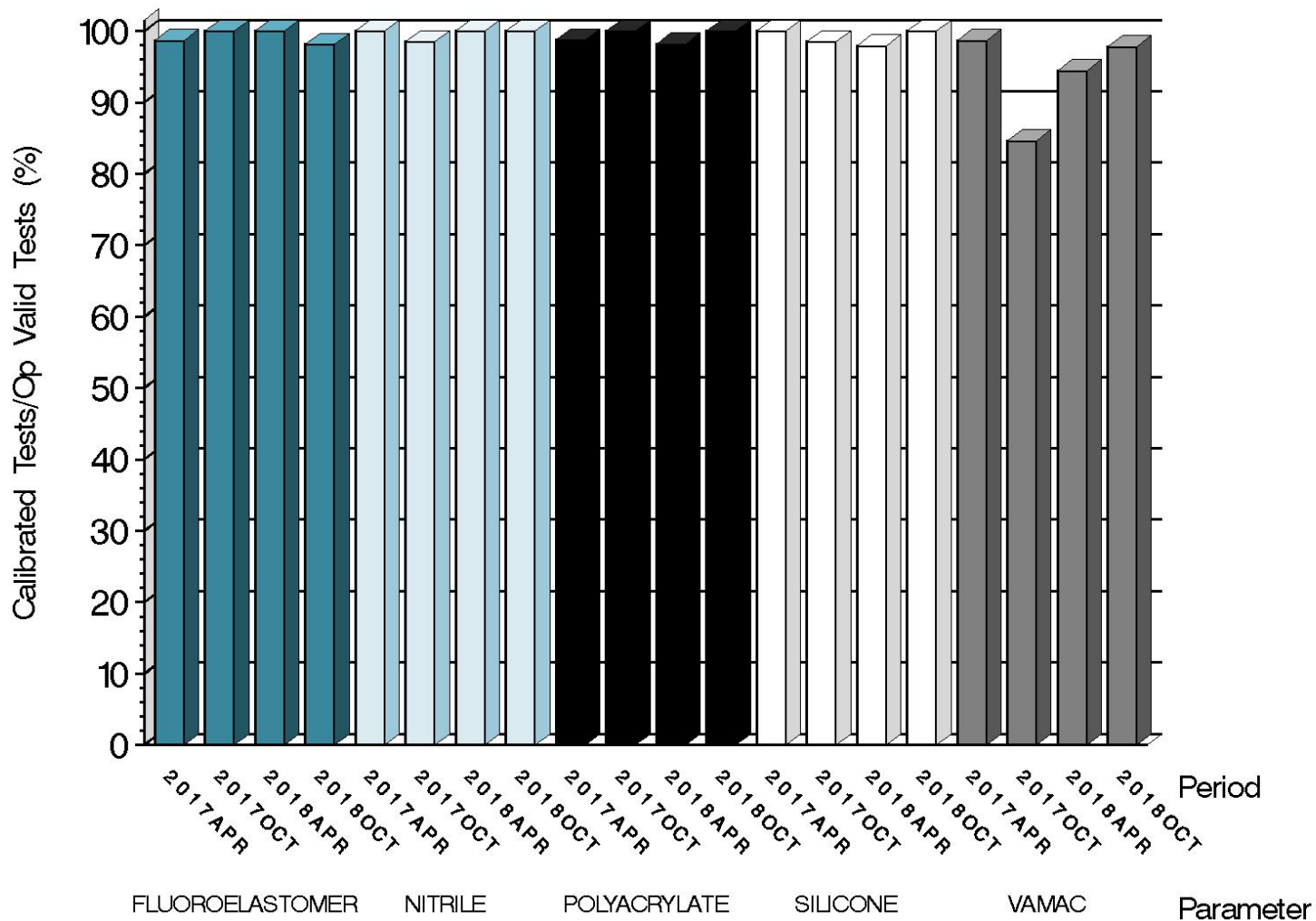
EOEC (D 7216)

Test Distribution by Oil and Validity

		Fluoroelastomer	Nitrile	Polyacrylate	Silicone	Vamac	This Period	Last Period
Accepted for Calibration	AC	52	49	48	52	45	246	252
Rejected	OC	1	0	0	0	1	2	5
Information Run	NI	0	0	0	0	0	0	0
Invalid Information Run	LI	0	0	0	0	0	0	0
Operationally Invalid (lab)	LC	0	0	0	0	0	0	5
Operationally Invalid (lab/TMC)	RC	0	0	0	0	0	0	0
Aborted Calibration	XC	0	0	1	0	0	1	1
Total		53	49	49	52	46	249	263

EOEC (D 7216)

OPERATIONALLY VALID TESTS
MEETING ACCEPTANCE CRITERIA



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Test Monitoring Center

<http://astmtmc.cmu.edu>



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LOST TESTS PER START BY LAB AND ELASTOMER TYPE

Lab	Fluoroelastomer			Nitrile			Polyacrylate			Silicone			Vamac			Total		
	Lost	Starts	%	Lost	Starts	%	Lost	Starts	%	Lost	Starts	%	Lost	Starts	%	Lost	Starts	%
A	0	16	0	0	14	0	1	15	6.7	0	15	0	0	15	0	1	75	1.3
B	0	8	0	0	9	0	0	8	0	0	9	0	0	9	0	0	43	0
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G	0	16	0	0	13	0	0	14	0	0	14	0	0	14	0	0	71	0
I	0	9	0	0	8	0	0	8	0	0	8	0	0	7	0	0	40	0
L	0	1	0	0	2	0	0	1	0	0	2	0	0	1	0	0	7	0
P	0	3	0	0	3	0	0	3	0	0	4	0	0	0	0	0	13	0
V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	53	0	0	49	0	1	49	2.0	0	52	0	0	46	0	1	249	0.4

EOEC (D 7216)

CAUSES FOR LOST TESTS

Lab	Cause	Elastomer					Validity			Loss Rate		
		Fluoroelastomer	Nitrile	Polyacrylate	Silicone	VAMAC	LC	RC	XC	Lost	Starts	%
		A	Temperature Control	0	0	1	0	0	0	1	1	75
	Lost	0	0	1	0	0	0	1				
	Starts	53	49	49	52	46	249	249	249			
	%	0	0	2.0	0	0	0	0	0.4			

Lost tests are calibration attempts that were either aborted or operationally invalid

EOEC (D 7216)

Average Δ 's by Lab						
Elastomer	Lab	n	VOLCYI	HARDYI	TENSYI	ELONYI
Fluoroelastomer	A	16	-0.114	0.290	-0.105	-1.161
	B	8	-0.963	0.432	-0.050	-0.760
	E	-	-	-	-	-
	G	16	-1.719	0.261	0.271	-0.580
	I	9	-0.811	-0.035	0.567	-0.353
	L	1	-0.473	0.318	-0.662	-1.515
	P	3	-1.194	1.227	-0.234	-0.264
	Industry	53	-0.913	0.301	0.113	-0.744
Nitrile	A	14	1.783	0.792	0.707	-0.554
	B	9	2.033	1.254	-0.059	-0.884
	E	-	-	-	-	-
	G	13	1.810	0.882	-0.319	-1.034
	I	8	2.244	0.751	-0.207	-0.763
	L	2	1.661	0.186	-1.619	0.534
	P	3	1.694	1.316	-1.045	-0.294
	Industry	49	1.901	0.901	-0.057	-0.716
Polyacrylate	A	14	1.733	-0.590	-0.157	0.981
	B	8	1.947	-0.481	0.155	0.775
	E	-	-	-	-	-
	G	14	1.591	0.680	0.069	0.396
	I	8	1.970	-0.481	-0.160	-0.382
	L	1	1.329	0.283	-0.461	0.351
	P	3	1.004	0.283	-0.179	1.223
	Industry	48	1.713	-0.110	-0.047	0.551

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Average Δ 's by Lab						
Elastomer	Lab	n	VOLCYI	HARDYI	TENSYI	ELONYI
Silicone	A	15	0.360	-0.931	1.182	0.330
	B	9	0.332	-1.280	-0.047	-0.386
	E	-	-	-	-	-
	G	14	1.294	-0.630	-0.049	-1.105
	I	8	-0.594	-0.429	-1.048	-0.087
	L	2	-0.900	1.471	1.627	1.313
	P	4	0.385	-0.613	-2.159	-0.521
	V	-	-	-	-	-
	Industry	52	0.413	-0.716	0.055	-0.272
VAMAC	A	15	-0.064	-2.189	0.692	0.565
	B	9	0.150	-2.236	0.177	-0.496
	E	-	-	-	-	-
	G	14	0.805	-1.242	0.144	-0.378
	I	7	-0.147	-1.618	0.128	-1.026
	L	1	0.201	0.337	-0.529	0.903
	P	-	-	-	-	-
	V	-	-	-	-	-
	Industry	46	0.236	-1.768	0.312	-0.164

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Individual test results can be viewed at the links shown in the following table:

<i>Links to Individual Test Result Data</i>	
Elastomer Type	Web Link to Data
Fluoroelastomer	http://www.astmtmc.cmu.edu/refdata/bench/eoecf/data/
Nitrile	http://www.astmtmc.cmu.edu/refdata/bench/eoecn/data/
Polyacrylate	http://www.astmtmc.cmu.edu/refdata/bench/eoecp/data/
Silicone	http://www.astmtmc.cmu.edu/refdata/bench/eoecs/data/
VAMAC	http://www.astmtmc.cmu.edu/refdata/bench/eoecv/data/

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Severity & Precision Analysis

Due to statistically significant lab differences, a meaningful summary of industry level severity and precision cannot be provided.

A more detailed summary of this situation is available from the following link:

<http://www.astmtmc.cmu.edu/docs/bench/eoec/memos/EOEC%20Baseline%20Analysis.pdf>

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INFORMATION LETTERS

No Information Letters were issued this period.

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STATUS OF REFERENCE OIL SUPPLY

Oil	Samples @ Labs	@ TMC	
		Samples (750 mL)	Gallons
1006-1	54	0	0
1006-2	226	4,869	965
Total	280	4,869	965

The TMC inventory of oil 1006-1 is depleted.

Reference Oil 1006-2 has been approved for EOEC testing, using the existing test targets for reference oil 1006-1.