



Test Monitoring Center

6555 Penn Avenue
Pittsburgh, PA 15206-4489
(412) 365-1000

MEMORANDUM: 08-040

DATE: May 29, 2008

TO: Becky Grinfield,
Chairman, Engine Oil Elastomer Compatibility Surveillance Panel

FROM: Scott Parke

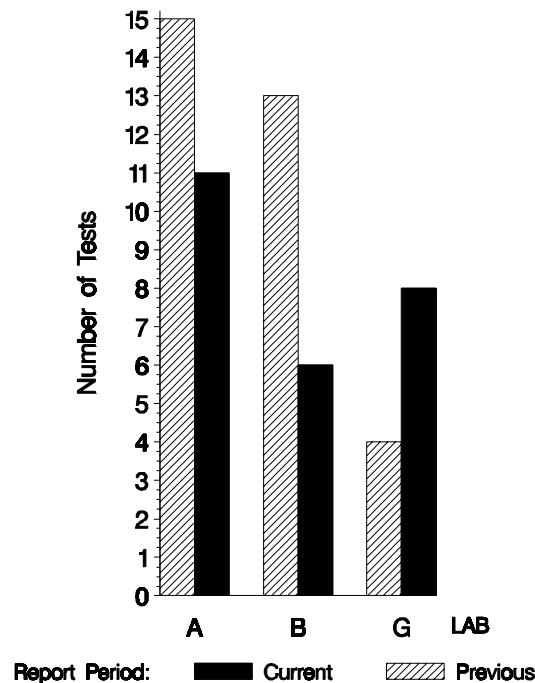
SUBJECT: EOEC Testing from October 1, 2007 through March 31, 2008

A total of 131 EOEC tests were reported to the Test Monitoring Center during the period from October 1, 2007 through March 31, 2008. The data from these tests is shown beginning on page 8. Following is a summary of testing activity this period.

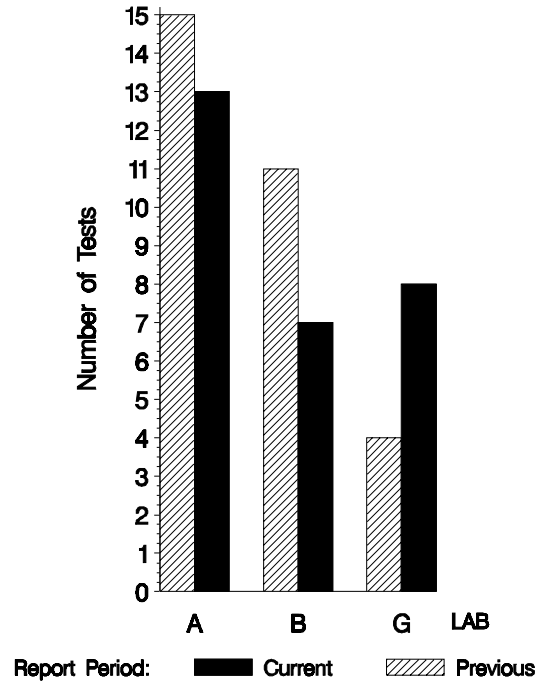
	Reporting Data
Number of Labs	3

Tests reported this period were distributed as shown below:

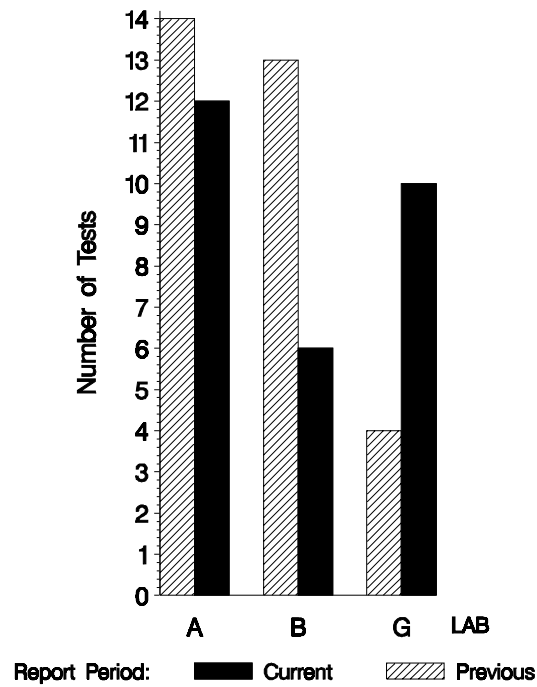
NUMBER OF FLUROELASTOMER TESTS REPORTED BY LAB AND REPORT PERIOD



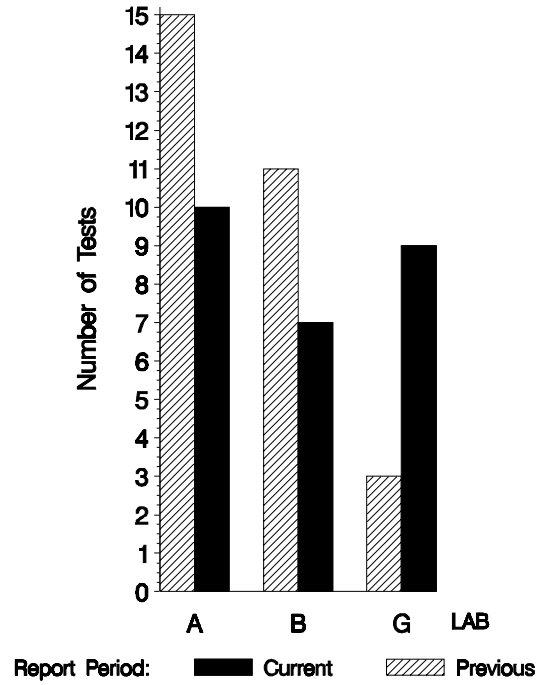
NUMBER OF NITRILE TESTS REPORTED BY LAB AND REPORT PERIOD



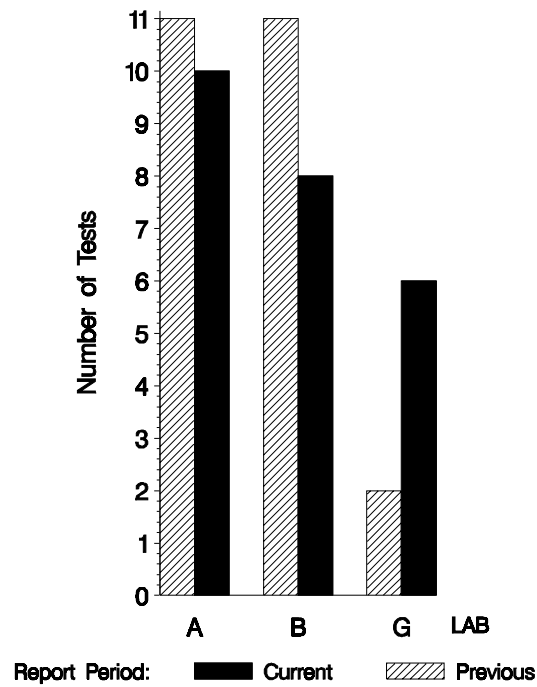
NUMBER OF POLYACRYLATE TESTS REPORTED BY LAB AND REPORT PERIOD



NUMBER OF SILICONE TESTS REPORTED BY LAB AND REPORT PERIOD



NUMBER OF VAMAC TESTS REPORTED BY LAB AND REPORT PERIOD

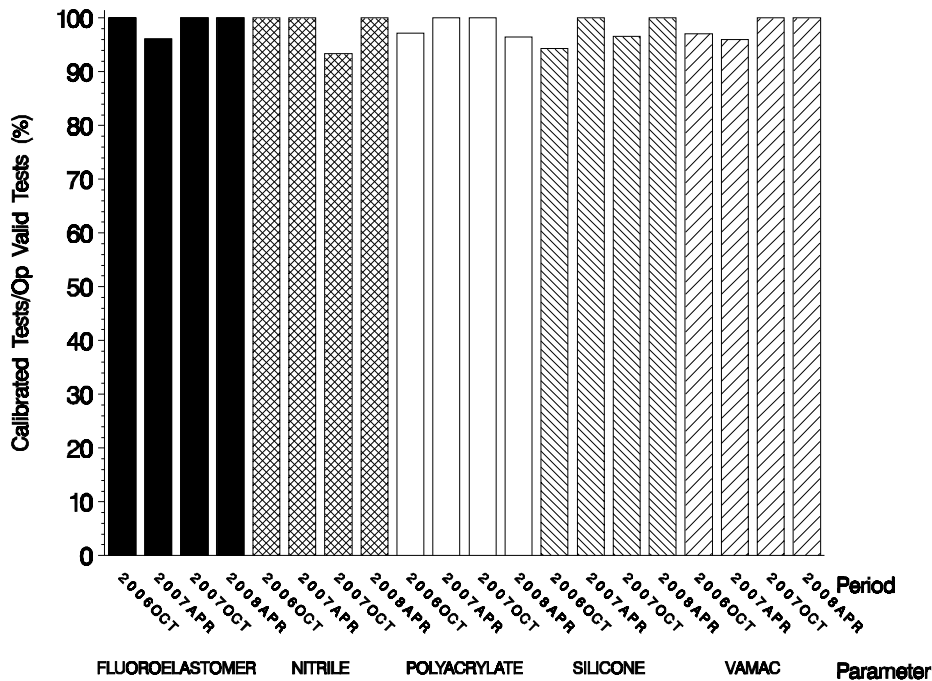


Test Distribution by Oil and Validity

Totals

		Fluoroelastomer	Nitrile	Polyacrylate	Silicone	Vamac	Last Period	This Period
Accepted for Calibration	AC	25	28	27	26	24	143	130
Rejected Mild	OC	0	0	0	0	0	2	0
Rejected Severe	OC	0	0	1	0	0	1	1
Information Run (not for calibration)	NI	0	0	0	0	0	0	0
Operationally Invalid (lab)	LC	0	0	0	0	0	0	0
Operationally Invalid (lab/TMC)	RC	0	0	0	0	0	0	0
Aborted Calibration	XC	0	0	0	0	0	0	0
Total		25	28	28	26	24	146	131

**OPERATIONALLY VALID TESTS
MEETING ACCEPTANCE CRITERIA**



The above chart shows the percentage of accepted operationally valid tests. This period one polyacrylate test failed to meet the acceptance criteria.

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	11	0	0	13	0	0	12	0	0	10	0	0	10	0	0	56	0
B	0	6	0	0	7	0	0	6	0	0	7	0	0	8	0	0	34	0
G	0	8	0	0	8	0	0	10	0	0	9	0	0	6	0	0	41	0
Total	0	25	0	0	28	0	0	28	0	0	26	0	0	24	0	0	131	0

Lost tests are those that were either aborted, rejected by lab, or operationally invalid.

Causes for Lost Tests

Lab	Cause	Elastomer					Validity			Loss Rate		
		Fluoroelastomer	Nitrile	Polyacrylate	Silicone	Vamac	LC	RC	XC	Lost	Starts	%
	No tests were lost this period.											
	Lost	0	0	0	0	0	0	0	0	0	131	0%
	Starts	25	28	28	26	24	131	131	131			
	%	0%	0%	0%	0%	0%	0%	0%	0%			

Average Δ /s by Lab						
Elastomer	Lab	n	VOLCYI	HARDYI	TENSYI	ELONYI
Fluoroelastomer	A	11	-0.117	0.029	-0.841	-0.684
	B	6	0.957	0.848	-0.365	-1.075
	G	8	1.090	-1.216	1.134	1.577
	Industry	25	0.527	-0.173	-0.095	-0.054
Nitrile	A	13	1.354	0.534	-1.662	-0.737
	B	7	1.879	1.155	-1.078	-0.372
	G	8	1.677	-0.379	-0.221	-0.834
	Industry	28	1.578	0.429	-1.104	-0.673
Polyacrylate	A	12	1.091	0.376	0.277	0.032
	B	6	2.132	-0.087	0.046	-0.078
	G	10	1.688	0.283	0.883	1.056
	Industry	28	1.527	0.244	0.444	0.374
Silicone	A	10	0.368	-0.271	-0.424	0.673
	B	7	1.410	-0.009	-1.117	0.383
	G	9	0.849	0.970	-0.960	-0.007
	Industry	26	0.815	0.229	-0.796	0.360
VAMAC	A	10	1.109	-0.326	1.348	0.095
	B	8	1.635	-1.089	1.437	-0.073
	G	6	1.972	-0.958	-0.242	1.296
	Industry	24	1.500	-0.739	0.980	0.340

DATA FROM ALL OPERATIONALLY VALID TESTS REPORTED THIS PERIOD:

FLUROELASTOMER									
LTMS DATE	LAB	VOLC	HARD	TENS	ELON	VOLCYI	HARDYI	TENSYI	ELONYI
20071009	G	0.44	7	-61.5	-42.1	-1.149	-0.136	1.454	1.845
20071010	A	0.72	8	-73.3	-67.5	0.743	0.318	-0.751	-0.980
20071011	B	0.62	10	-69.3	-69.4	0.068	1.227	-0.004	-1.191
20071021	G	0.83	4	-69.8	-42.3	1.486	-1.500	-0.097	1.823
20071030	A	0.64	6	-72.0	-65.8	0.203	-0.591	-0.508	-0.791
20071109	G	0.83	5	-59.7	-45.6	1.486	-1.045	1.791	1.456
20071112	A	0.59	7	-73.7	-63.5	-0.135	-0.136	-0.826	-0.535
20071115	G	0.74	5	-66.8	-45.2	0.878	-1.045	0.464	1.501
20071123	A	0.52	8	-75.6	-66.8	-0.608	0.318	-1.181	-0.902
20071201	G	0.69	5	-64.2	-46.1	0.541	-1.045	0.950	1.400
20071203	A	0.50	7	-73.9	-63.5	-0.743	-0.136	-0.864	-0.535
20071212	A	0.47	8	-73.5	-62.2	-0.946	0.318	-0.789	-0.390
20071219	A	0.65	7	-75.0	-61.4	0.270	-0.136	-1.069	-0.301
20071227	G	0.89	3	-59.2	-41.5	1.892	-1.955	1.884	1.912
20080116	B	0.71	10	-71.3	-71.2	0.676	1.227	-0.378	-1.392
20080123	A	0.66	8	-74.0	-61.9	0.338	0.318	-0.882	-0.357
20080204	G	0.86	4	-65.0	-46.6	1.689	-1.500	0.800	1.345
20080205	A	0.56	7	-73.3	-66.8	-0.338	-0.136	-0.751	-0.902
20080214	G	0.89	4	-59.5	-46.7	1.892	-1.500	1.828	1.334
20080221	B	0.76	9	-72.3	-69.4	1.014	0.773	-0.564	-1.191
20080227	A	0.54	7	-72.9	-73.2	-0.473	-0.136	-0.677	-1.614
20080311	B	1.03	9	-71.3	-62.4	2.838	0.773	-0.378	-0.413
20080317	B	0.75	9	-72.0	-71.9	0.946	0.773	-0.508	-1.469
20080326	B	0.64	8	-71.2	-65.8	0.203	0.318	-0.359	-0.791
20080326	A	0.67	8	-74.4	-60.6	0.405	0.318	-0.957	-0.212

NITRILE									
LTMS DATE	LAB	VOLC	HARD	TENS	ELON	VOLCYI	HARDYI	TENSYI	ELONYI
20071002	B	2.27	5	-42.0	-58.1	1.845	1.881	-1.982	-1.077
20071008	A	1.94	2	-41.2	-56.7	1.452	0.186	-1.873	-0.869
20071009	G	1.81	3	-31.3	-54.1	1.298	0.751	-0.523	-0.482
20071016	A	1.70	4	-39.3	-55.8	1.167	1.316	-1.614	-0.735
20071022	G	2.31	0	-35.4	-59.3	1.893	-0.944	-1.082	-1.256
20071026	A	1.68	4	-35.3	-56.1	1.143	1.316	-1.068	-0.780
20071108	A	2.14	3	-39.2	-57.7	1.690	0.751	-1.600	-1.018
20071109	G	2.07	2	-30.9	-56.8	1.607	0.186	-0.468	-0.884
20071115	G	2.09	2	-27.7	-58.8	1.631	0.186	-0.031	-1.182
20071118	A	2.08	3	-42.5	-55.8	1.619	0.751	-2.050	-0.735
20071127	A	1.04	3	-35.2	-45.4	0.381	0.751	-1.055	0.813
20071201	G	2.04	1	-20.5	-50.3	1.571	-0.379	0.951	0.083
20071214	A	1.74	2	-38.5	-53.4	1.214	0.186	-1.505	-0.378
20071217	B	1.97	5	-38.3	-53.1	1.488	1.881	-1.477	-0.333
20071217	A	1.94	3	-42.5	-54.8	1.452	0.751	-2.050	-0.586
20071226	G	2.17	0	-22.2	-51.4	1.726	-0.944	0.719	-0.080
20080117	B	2.66	4	-30.2	-54.1	2.310	1.316	-0.372	-0.482
20080121	A	2.13	2	-41.1	-57.2	1.679	0.186	-1.859	-0.943
20080203	G	2.30	0	-26.9	-58.5	1.881	-0.944	0.078	-1.137
20080204	A	1.93	3	-39.8	-58.2	1.440	0.751	-1.682	-1.092
20080212	G	2.24	0	-37.8	-62.5	1.810	-0.944	-1.409	-1.732
20080222	B	2.22	3	-38.3	-52.7	1.786	0.751	-1.477	-0.274
20080225	A	1.76	2	-39.0	-60.4	1.238	0.186	-1.573	-1.420
20080303	A	2.32	3	-41.1	-57.8	1.905	0.751	-1.859	-1.033
20080312	B	2.55	3	-27.4	-49.8	2.179	0.751	0.010	0.158
20080314	B	2.22	3	-34.1	-52.3	1.786	0.751	-0.905	-0.214
20080324	A	1.75	0	-40.8	-56.3	1.226	-0.944	-1.819	-0.810
20080328	B	2.20	3	-37.3	-53.4	1.762	0.751	-1.341	-0.378

POLYACRYLATE									
LTMS DATE	LAB	VOLC	HARD	TENS	ELON	VOLCYI	HARDYI	TENSYI	ELONYI
20071008	G	1.21	1	8.6	-8.8	0.487	1.394	0.965	1.037
20071009	A	1.96	-2	0.1	-11.5	1.474	-0.272	-0.092	0.735
20071022	G	1.98	-2	11.4	-13.8	1.500	-0.272	1.313	0.478
20071029	A	1.76	-1	6.4	-21.9	1.211	0.283	0.692	-0.428
20071109	A	0.96	-1	2.9	-16.7	0.158	0.283	0.256	0.153
20071112	G	2.32	-1	2.2	-4.7	1.947	0.283	0.169	1.496
20071112	G	2.23	0	1.8	-6.7	1.829	0.839	0.119	1.272
20071115	G	2.21	0	13.6	-5.4	1.803	0.839	1.587	1.417
20071121	A	1.74	0	2.1	-22.4	1.184	0.839	0.157	-0.484
20071128	A	1.71	0	1.4	-16.0	1.145	0.839	0.070	0.232
20071201	G	2.26	-2	7.5	-10.7	1.868	-0.272	0.828	0.824
20071211	A	1.55	-2	0.0	-10.7	0.934	-0.272	-0.104	0.824
20071214	B	2.26	0	3.7	-16.4	1.868	0.839	0.359	0.192
20071218	A	1.67	0	-0.3	-11.1	1.092	0.839	-0.142	0.780
20071227	G	2.23	0	34.4	-20.6	1.829	0.839	4.174	-0.283
20080114	G	2.31	-1	-1.8	-2.4	1.934	0.283	-0.328	1.753
20080118	B	2.13	-1	-2.8	-16.3	1.697	0.283	-0.451	0.204
20080122	A	1.93	-2	0.3	-21.6	1.434	-0.272	-0.067	-0.395
20080204	G	2.13	-3	-3.0	-6.6	1.697	-0.828	-0.478	1.283
20080204	A	1.60	1	6.7	-22.4	1.000	1.394	0.729	-0.484
20080214	G	2.35	-2	4.7	-6.6	1.987	-0.272	0.480	1.283
20080221	B	3.12	-2	-0.9	-28.7	3.000	-0.272	-0.221	-1.194
20080226	A	1.52	-1	3.1	-18.9	0.895	0.283	0.281	-0.093
20080305	A	1.85	0	0.1	-19.0	1.329	0.839	-0.092	-0.104
20080310	B	2.08	-3	0.0	-21.3	1.632	-0.828	-0.100	-0.361
20080318	B	3.03	-2	4.0	-15.1	2.882	-0.272	0.389	0.338
20080325	A	1.78	-2	14.0	-21.2	1.237	-0.272	1.637	-0.350
20080326	B	2.14	-2	3.2	-14.9	1.711	-0.272	0.297	0.352

SILICONE

LTMS DATE	LAB	VOLC	HARD	TENS	ELON	VOLCYI	HARDYI	TENSYI	ELONYI
20071001	B	29.66	-18	-14.4	-19.1	1.445	0.229	-0.187	0.597
20071008	G	28.58	-17	-18.7	-17.6	0.969	0.646	-1.194	0.813
20071011	A	25.70	-18	-15.4	-5.8	-0.300	0.229	-0.422	2.511
20071019	G	28.72	-17	-21.0	-27.8	1.031	0.646	-1.733	-0.655
20071022	G	27.69	-16	-17.4	-21.5	0.577	1.063	-0.890	0.252
20071031	A	27.67	-19	-17.1	-25.7	0.568	-0.187	-0.820	-0.353
20071112	G	28.53	-16	-20.4	-23.7	0.947	1.063	-1.593	-0.065
20071120	G	28.05	-14	-19.0	-24.7	0.736	1.896	-1.265	-0.209
20071123	A	29.97	-19	-20.6	-20.0	1.581	-0.187	-1.639	0.468
20071201	G	27.81	-16	-14.3	-19.4	0.630	1.063	-0.164	0.554
20071209	A	29.14	-18	-17.1	-20.0	1.216	0.229	-0.820	0.468
20071213	A	26.09	-18	-17.9	-21.1	-0.128	0.229	-1.007	0.309
20071218	B	30.07	-18	-25.4	-18.5	1.626	0.229	-2.763	0.683
20071220	A	26.98	-20	-18.7	-20.4	0.264	-0.604	-1.194	0.410
20071226	G	29.49	-17	-17.3	-20.9	1.370	0.646	-0.867	0.338
20080122	B	28.79	-17	-18.7	-20.2	1.062	0.646	-1.194	0.439
20080124	A	27.36	-20	-14.0	-17.0	0.432	-0.604	-0.094	0.899
20080204	G	29.16	-17	-19.6	-27.9	1.225	0.646	-1.405	-0.669
20080205	A	27.88	-20	-9.6	-25.2	0.661	-0.604	0.937	-0.281
20080219	G	26.73	-16	-11.6	-26.2	0.154	1.063	0.468	-0.424
20080219	B	28.20	-19	-16.3	-14.9	0.802	-0.187	-0.632	1.201
20080228	A	26.63	-20	-14.1	-15.5	0.110	-0.604	-0.117	1.115
20080313	B	31.05	-19	-17.1	-28.9	2.057	-0.187	-0.820	-0.813
20080319	B	29.63	-20	-19.8	-27.4	1.432	-0.604	-1.452	-0.597
20080327	A	24.74	-20	-9.6	-15.0	-0.722	-0.604	0.937	1.187
20080328	B	29.67	-19	-16.9	-15.1	1.449	-0.187	-0.773	1.173

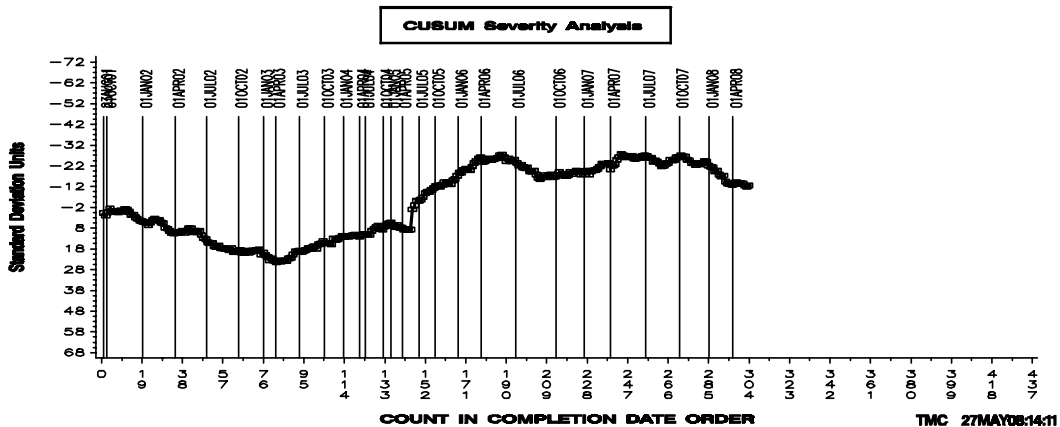
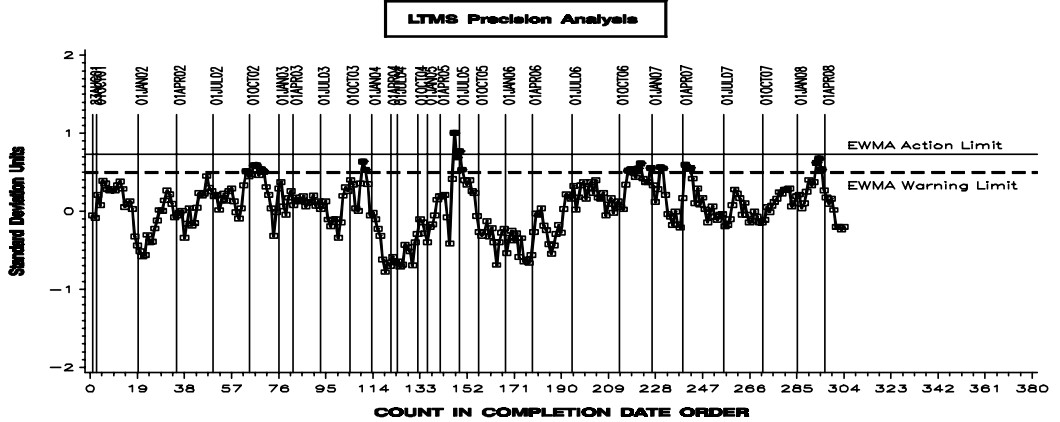
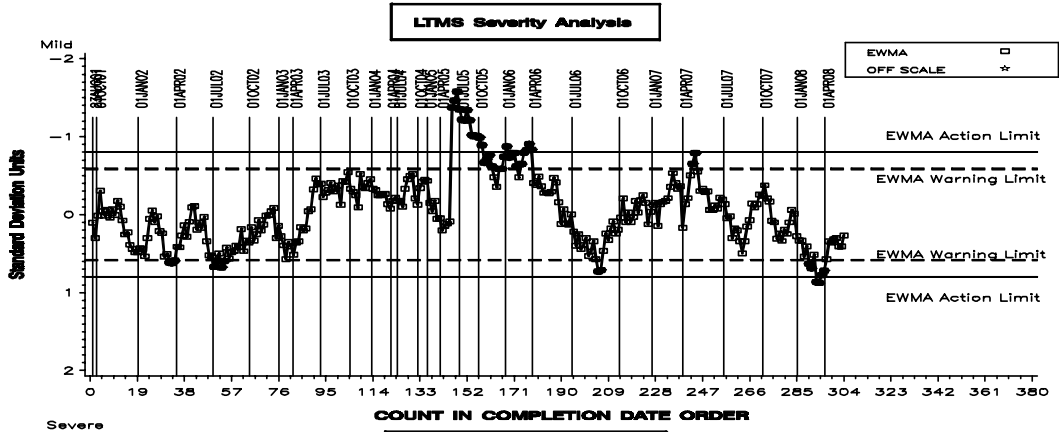
VAMAC

LTMS DATE	LAB	VOLC	HARD	TENS	ELON	VOLCYI	HARDYI	TENSYI	ELONYI
20071001	B	20.79	-9	-8.2	-25.5	1.269	-0.958	2.271	0.132
20071008	G	22.26	-9	-26.6	-12.4	1.897	-0.958	-0.451	1.199
20071011	B	22.99	-9	-17.3	-24.9	2.209	-0.958	0.925	0.181
20071012	A	21.45	-10	-16.5	-30.4	1.551	-2.011	1.043	-0.267
20071022	G	22.36	-9	-31.4	-12.8	1.940	-0.958	-1.161	1.166
20071101	A	20.56	-9	-16.2	-28.5	1.171	-0.958	1.087	-0.112
20071114	G	22.47	-9	-30.2	-5.7	1.987	-0.958	-0.984	1.744
20071115	A	20.34	-9	-14.3	-25.1	1.077	-0.958	1.368	0.164
20071203	A	19.82	-8	-11.9	-27.2	0.855	0.095	1.723	-0.007
20071210	A	19.86	-9	-9.8	-19.6	0.872	-0.958	2.034	0.612
20071219	B	22.75	-9	-17.4	-29.9	2.107	-0.958	0.910	-0.226
20071221	A	20.01	-8	-11.1	-20.8	0.936	0.095	1.842	0.515
20080121	B	21.04	-8	-11.0	-29.4	1.376	0.095	1.857	-0.186
20080125	A	20.49	-8	-18.3	-28.4	1.141	0.095	0.777	-0.104
20080206	A	20.28	-9	-19.3	-35.6	1.051	-0.958	0.629	-0.691
20080218	B	20.60	-9	-13.2	-28.4	1.188	-0.958	1.531	-0.104
20080219	G	22.43	-9	-14.5	-14.6	1.970	-0.958	1.339	1.020
20080220	G	22.08	-8	-29.4	-10.9	1.821	0.095	-0.865	1.321
20080229	A	20.10	-7	-15.8	-23.8	0.974	1.147	1.146	0.270
20080310	G	23.00	-10	-19.0	-10.8	2.214	-2.011	0.673	1.329
20080314	B	21.78	-10	-14.6	-30.3	1.692	-2.011	1.324	-0.259
20080320	B	21.59	-9	-15.2	-23.2	1.611	-0.958	1.235	0.319
20080328	B	21.63	-10	-13.8	-32.5	1.628	-2.011	1.442	-0.438
20080331	A	21.23	-7	-11.2	-20.1	1.457	1.147	1.827	0.572

LTMS CONTROL CHARTS

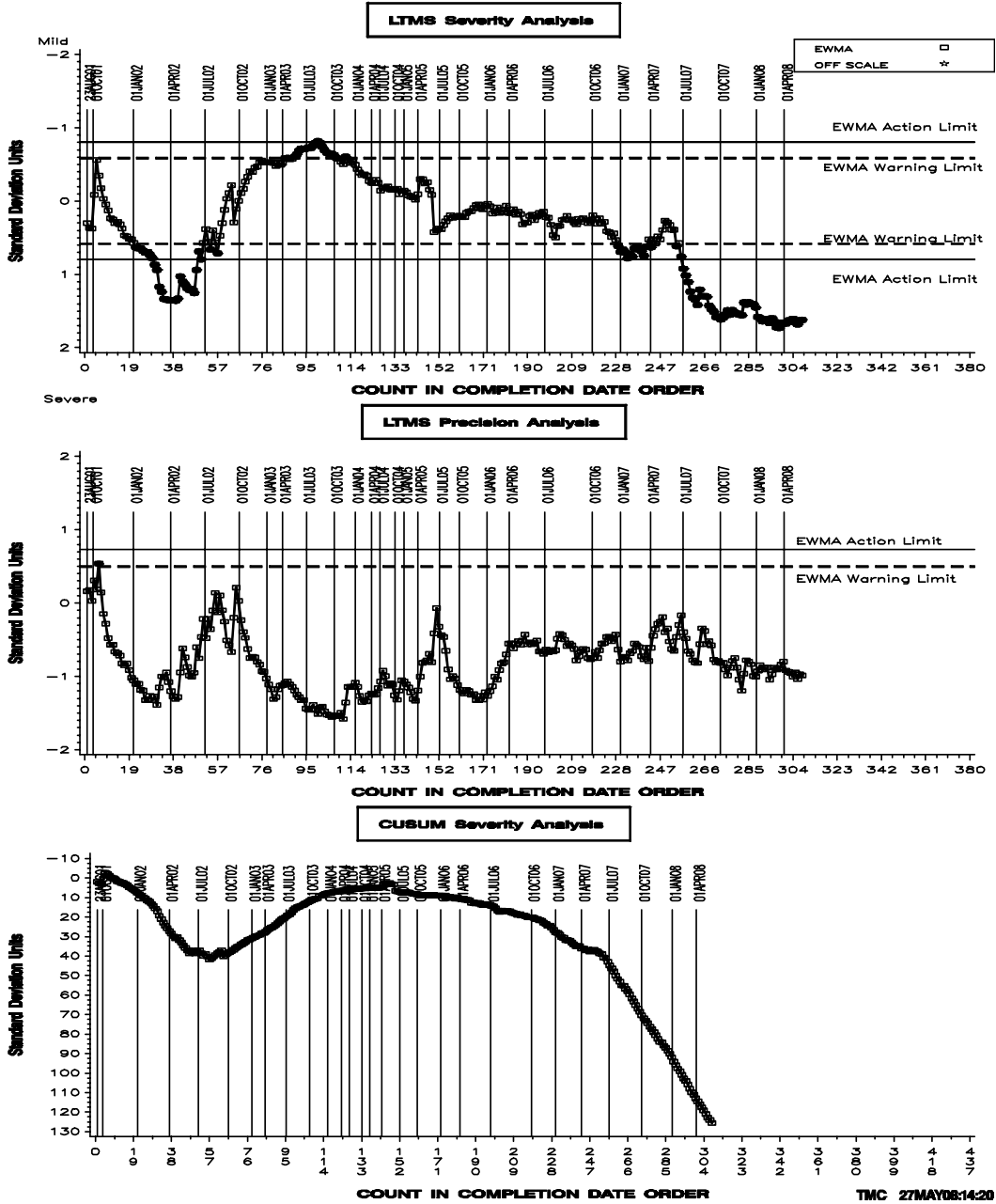
EOEC – FLUROELASTOMER INDUSTRY OPERATIONALLY VALID DATA

REFERENCE FLUROELASTOMER VOLUME CHANGE AVERAGE



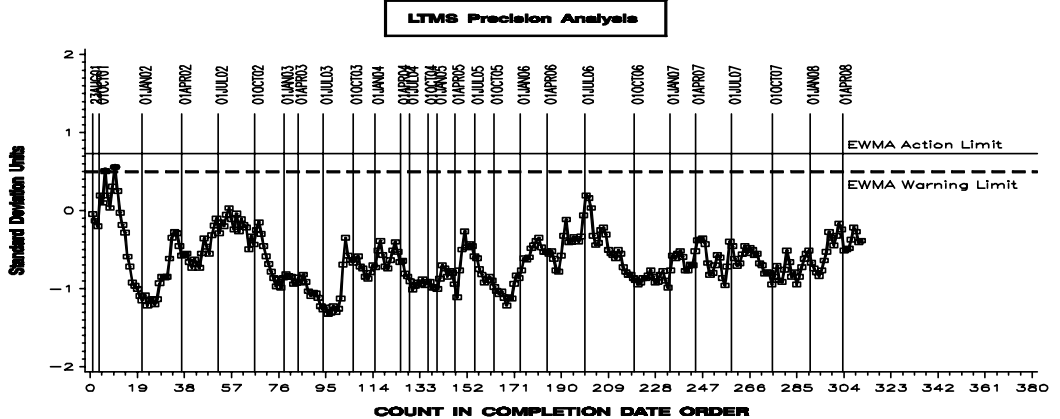
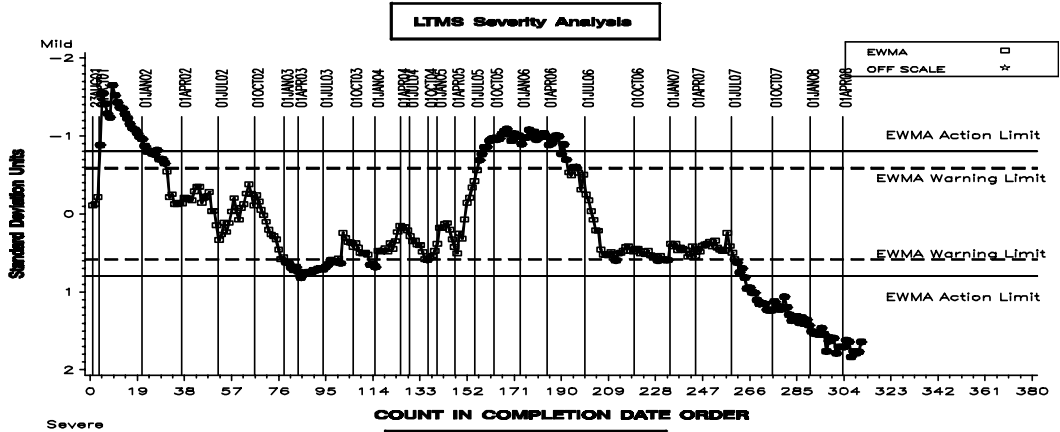
EOEC – NITRILE INDUSTRY OPERATIONALLY VALID DATA

REFERENCE NITRILE VOLUME CHANGE AVERAGE



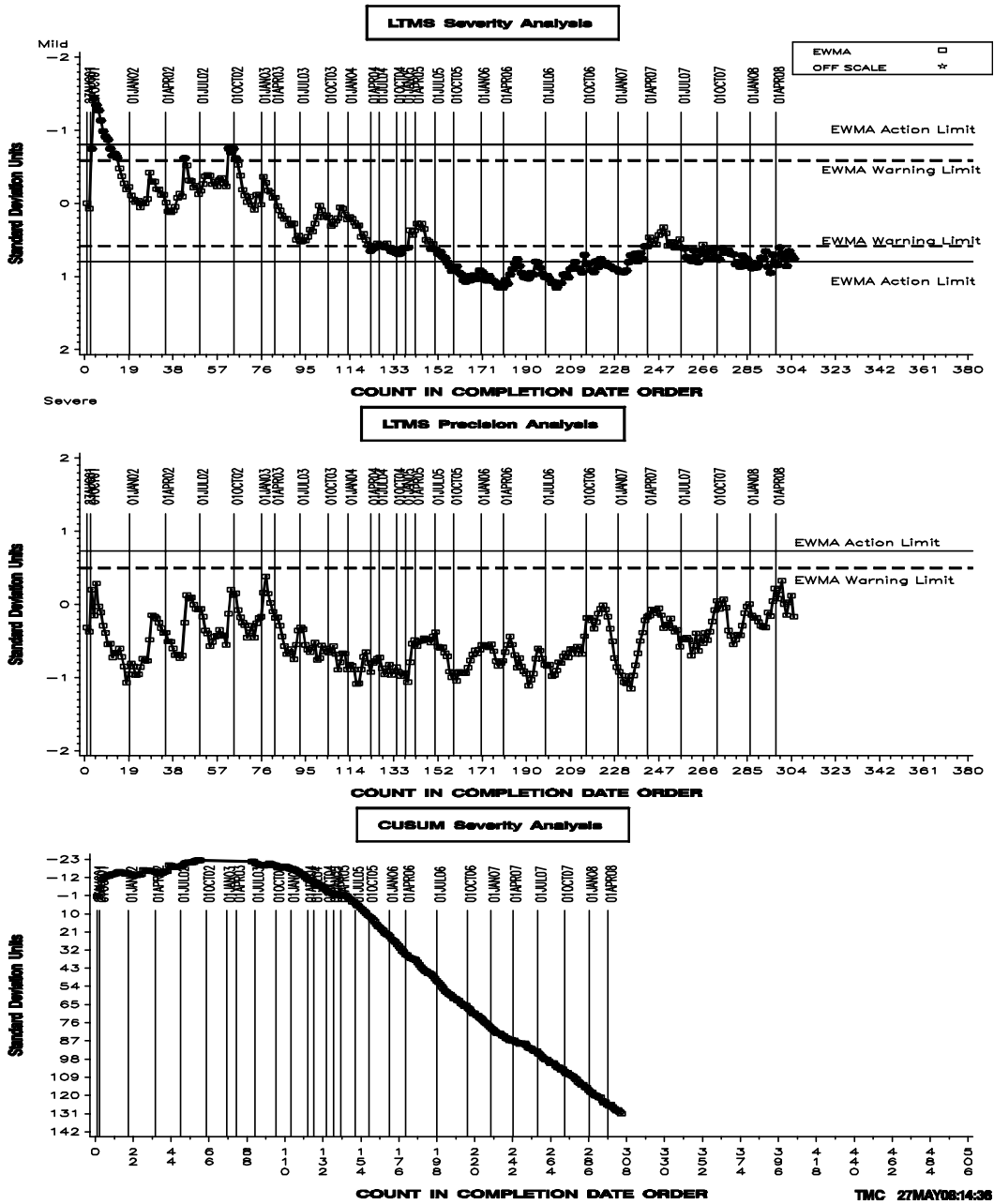
EOEC – POLYACRYLATE INDUSTRY OPERATIONALLY VALID DATA

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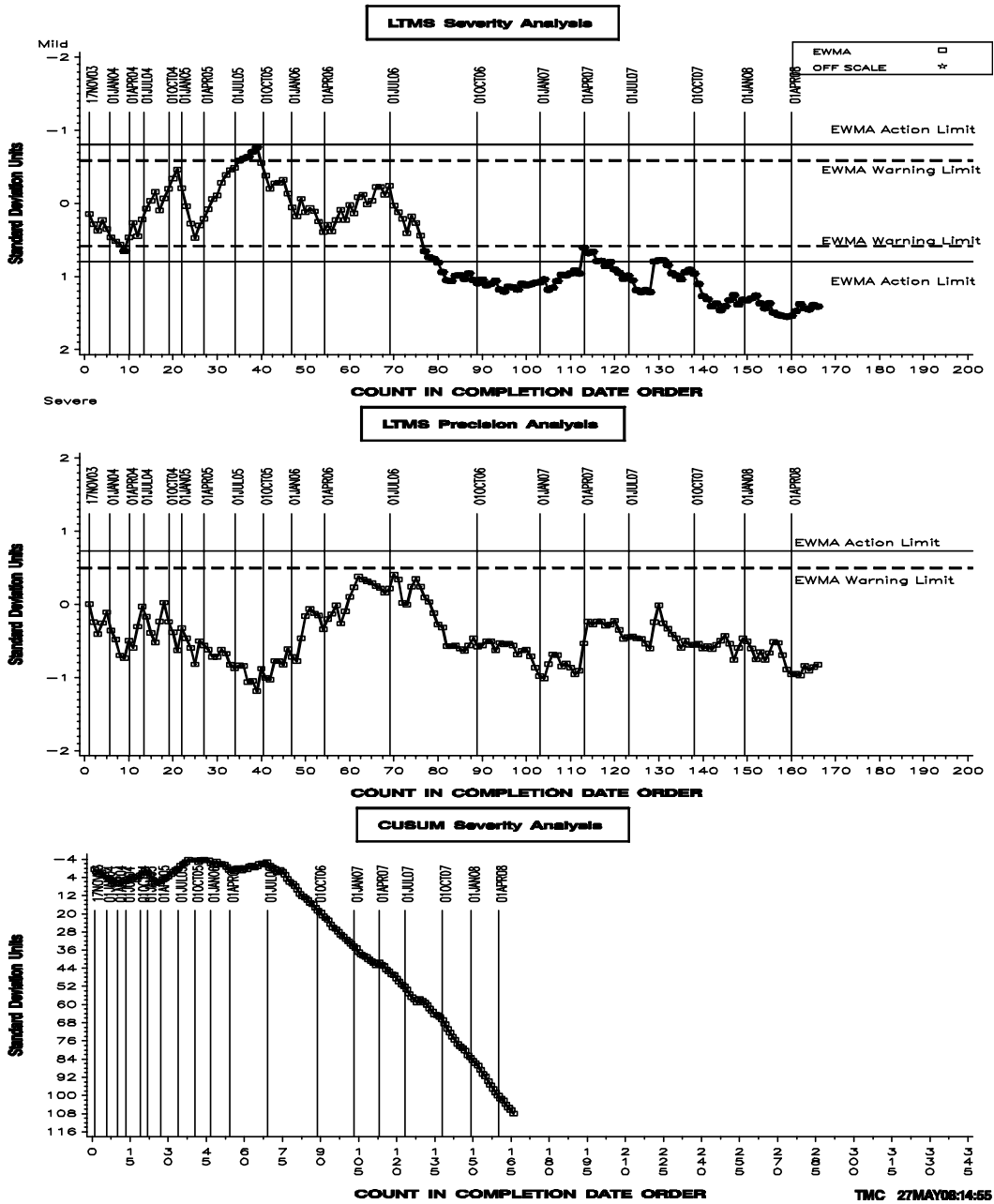
EOEC – SILICONE INDUSTRY OPERATIONALLY VALID DATA

REFERENCE SILICON VOLUME CHANGE AVERAGE



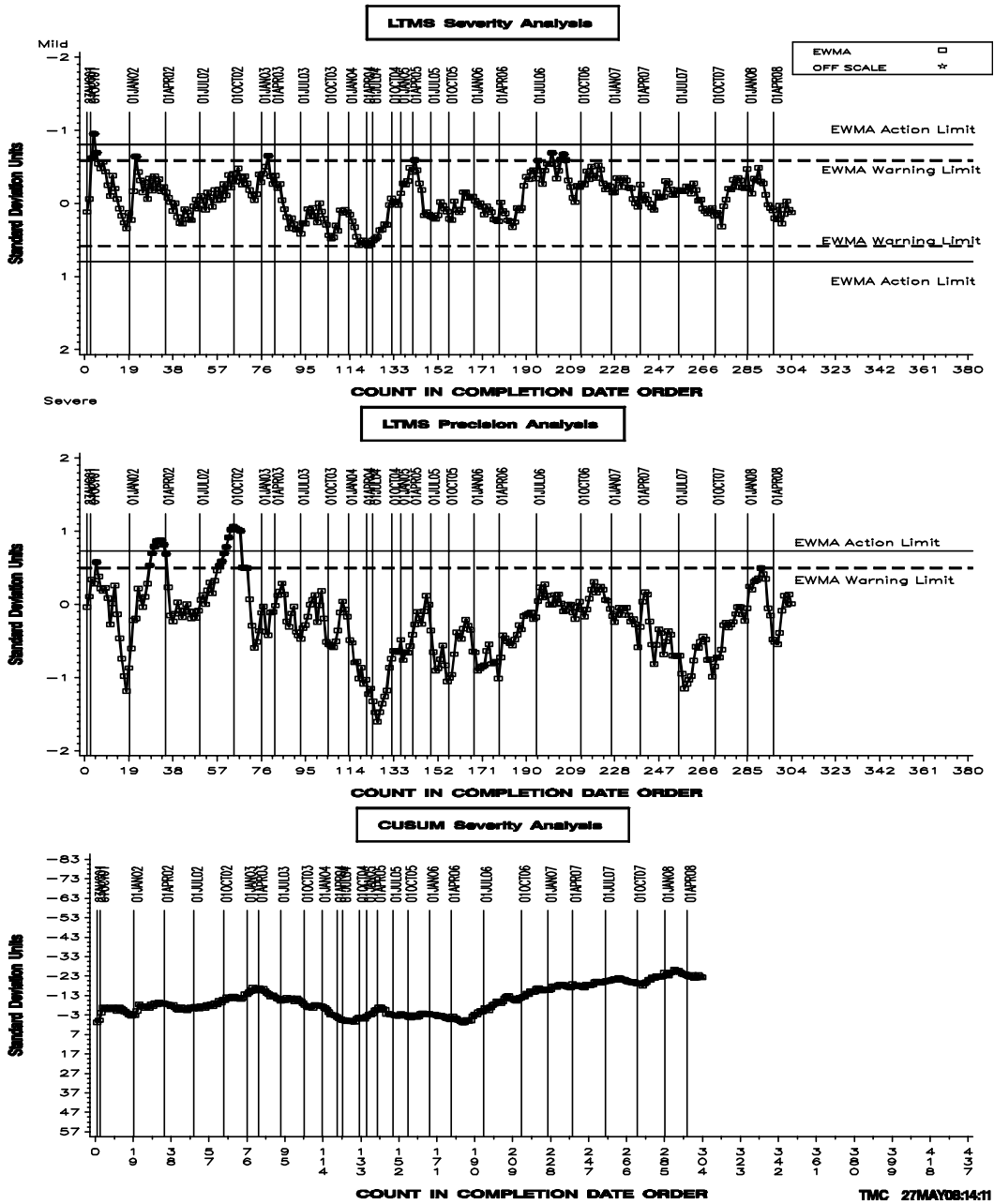
EOEC – VAMAC INDUSTRY OPERATIONALLY VALID DATA

REFERENCE VAMAC G VOLUME CHANGE AVERAGE



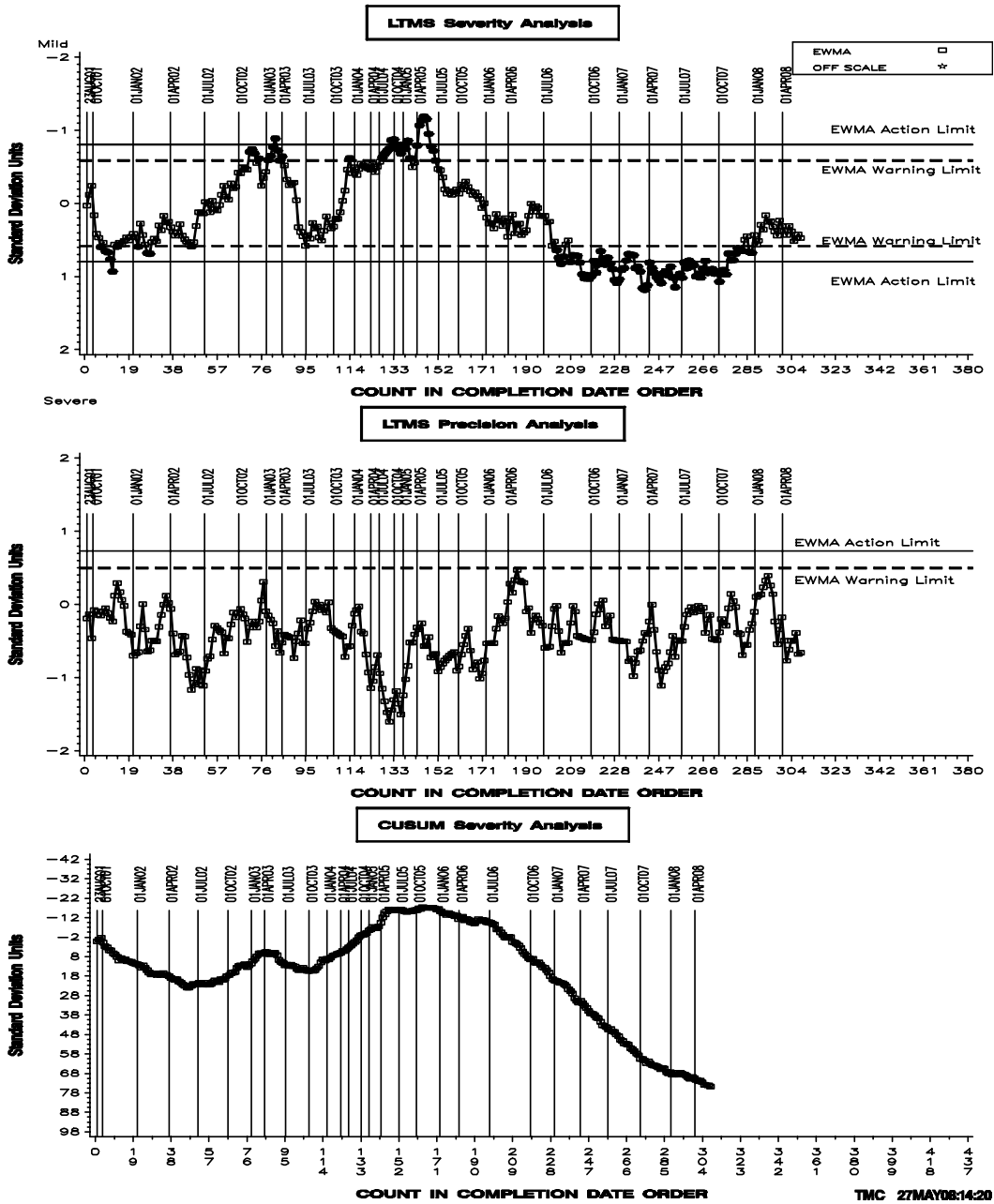
EOEC – FLUROELASTOMER INDUSTRY OPERATIONALLY VALID DATA

REFERENCE FLUROELASTOMER POINTS HARDNESS CHANGE A



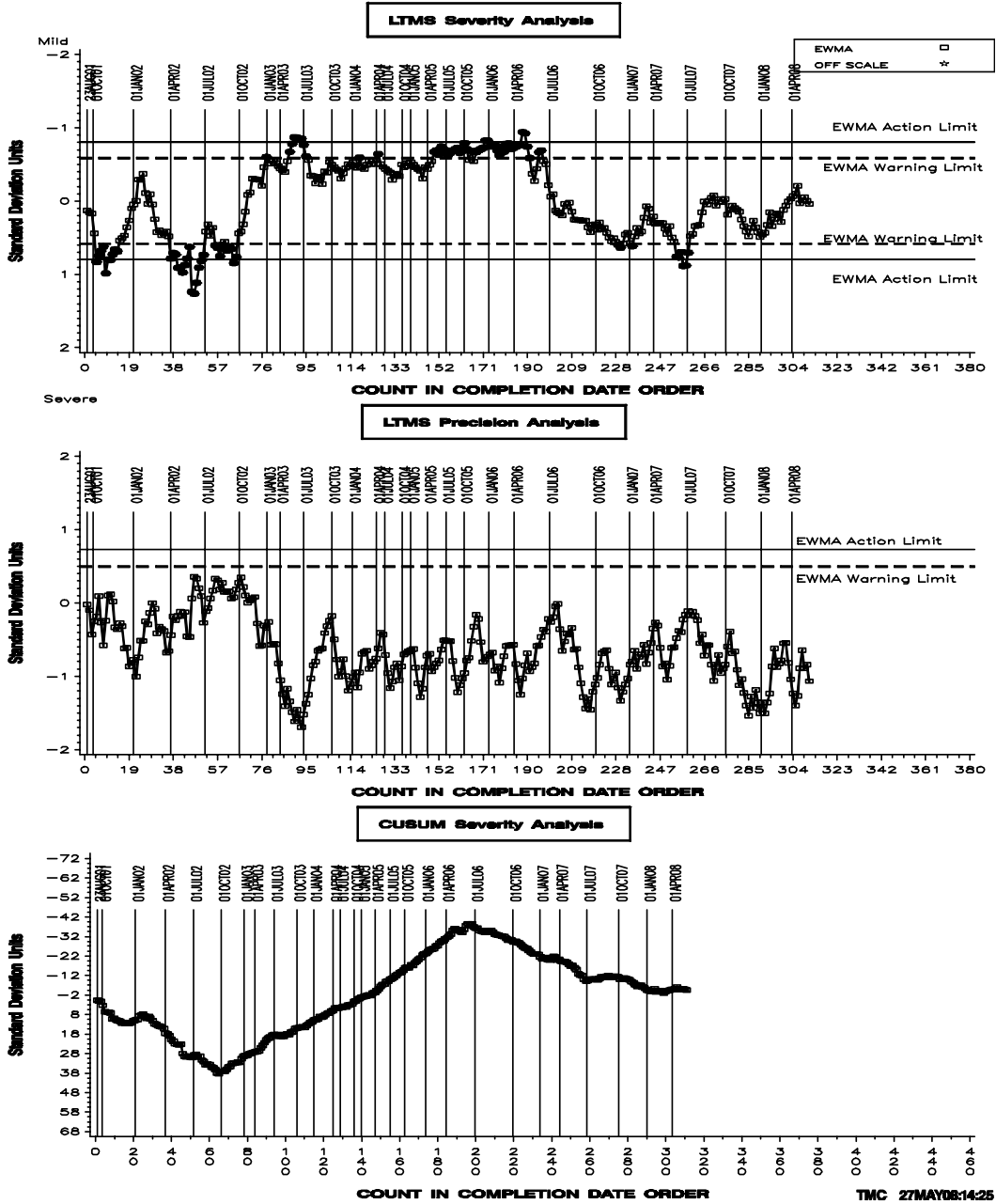
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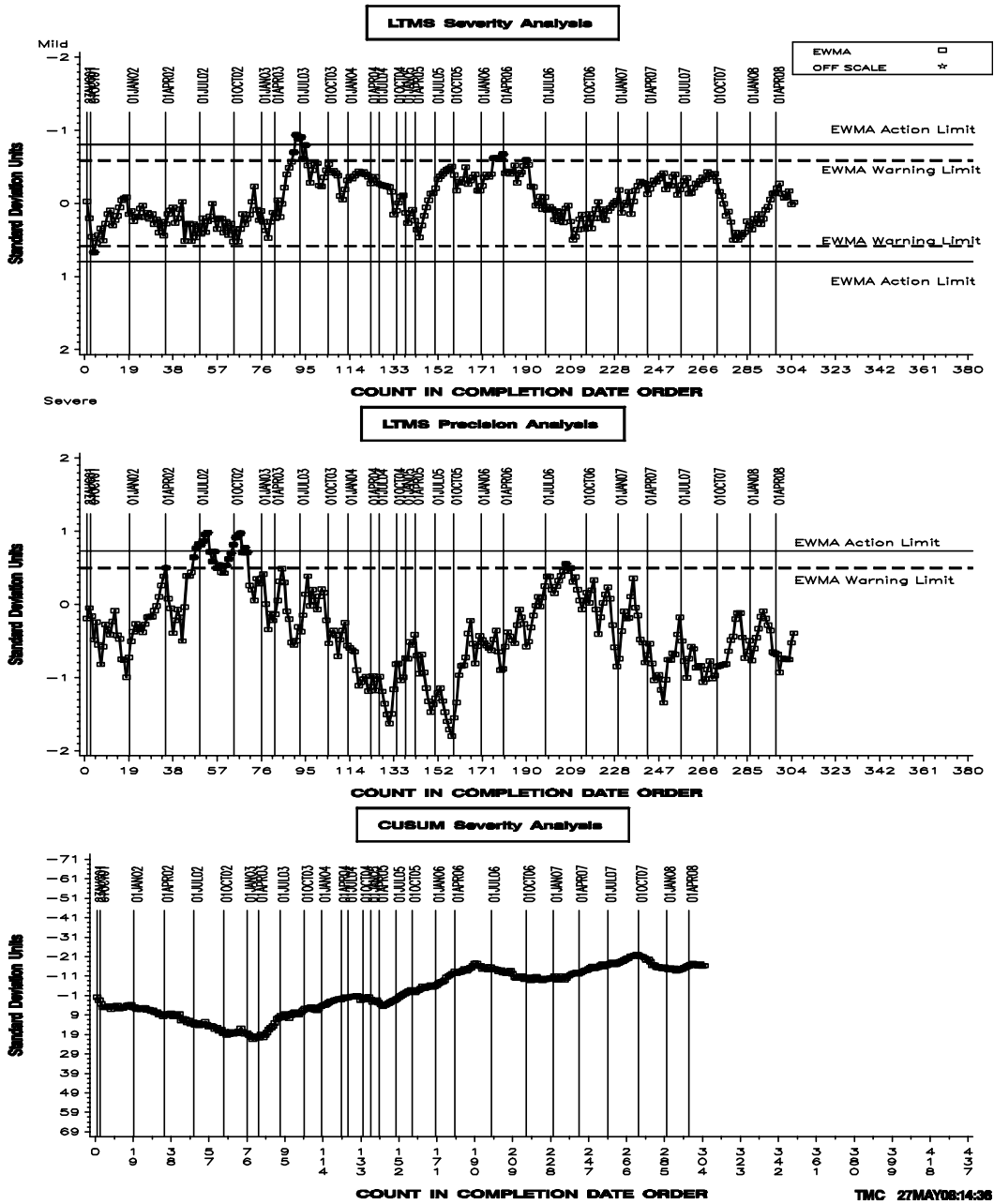
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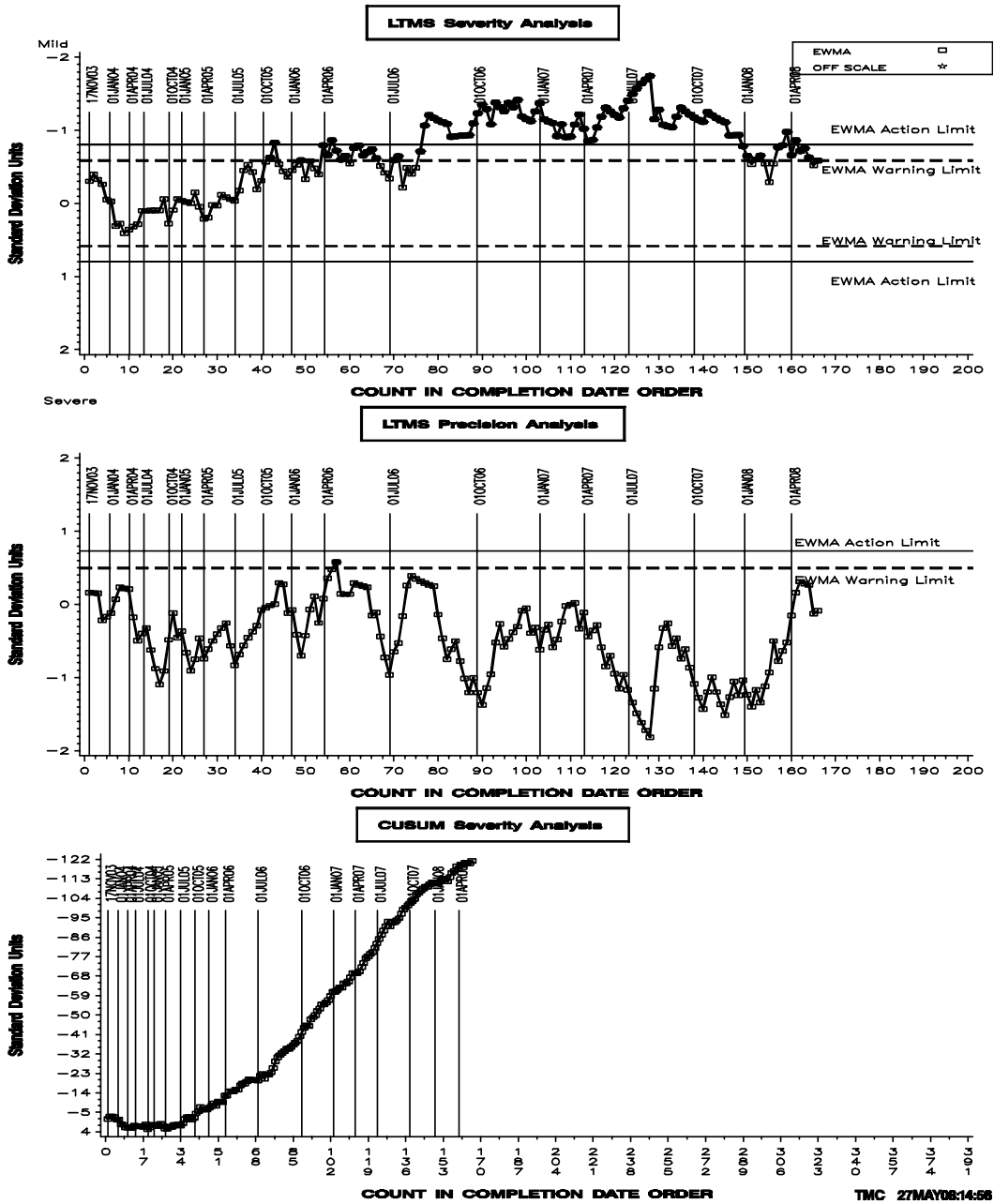
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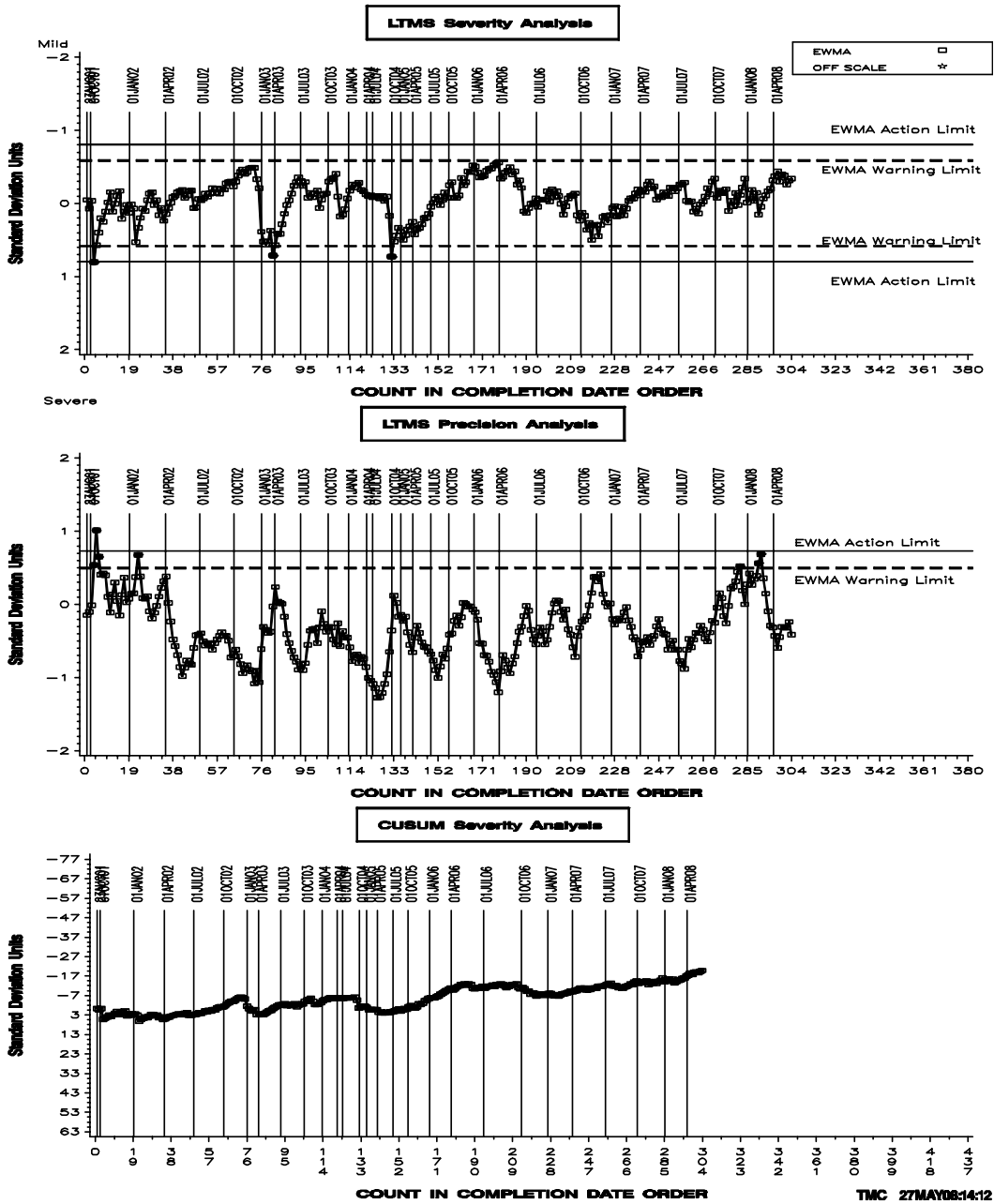
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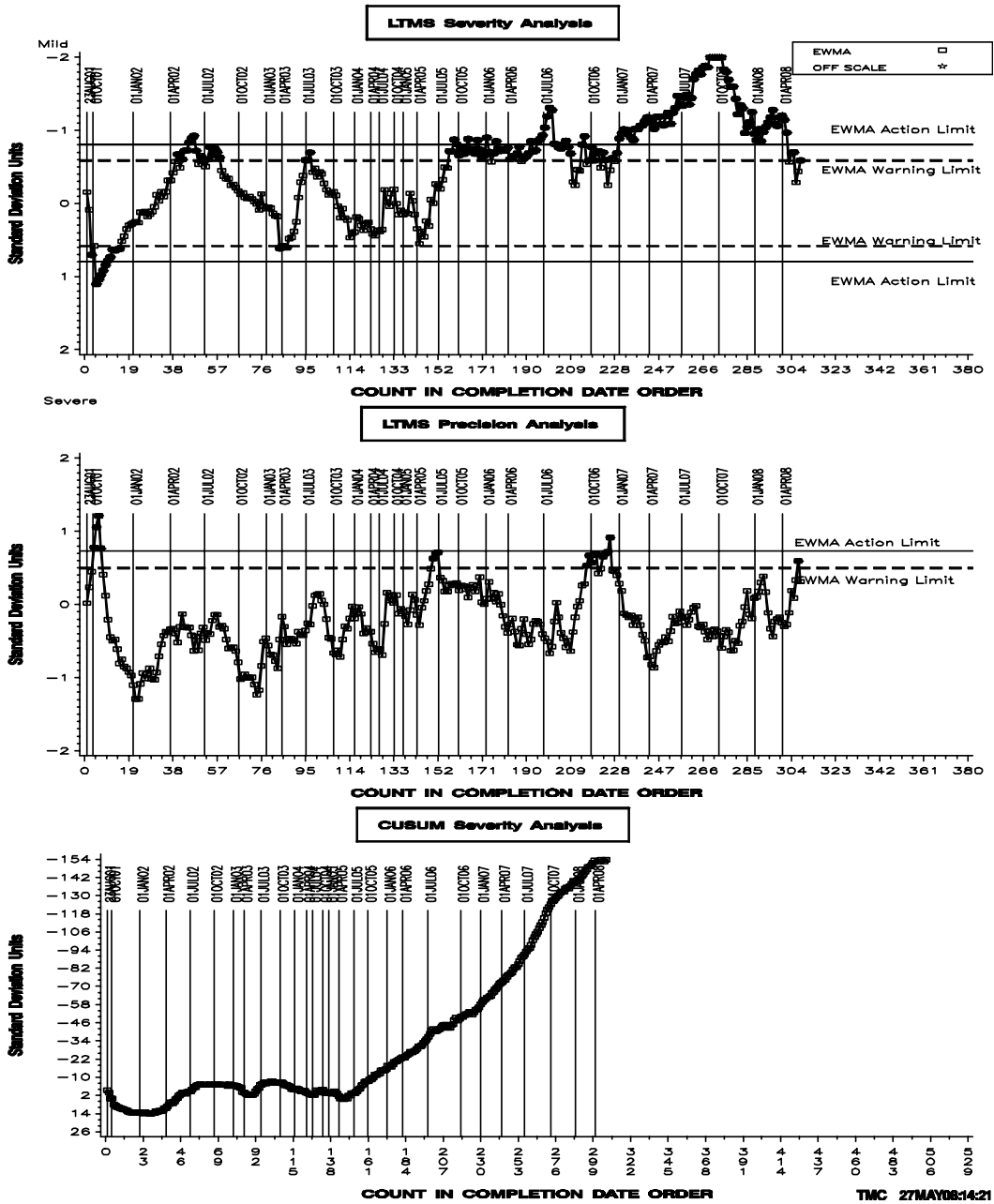
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REFERENCE FLUROELASTOMER TENSILE STRENGTH CHANGE



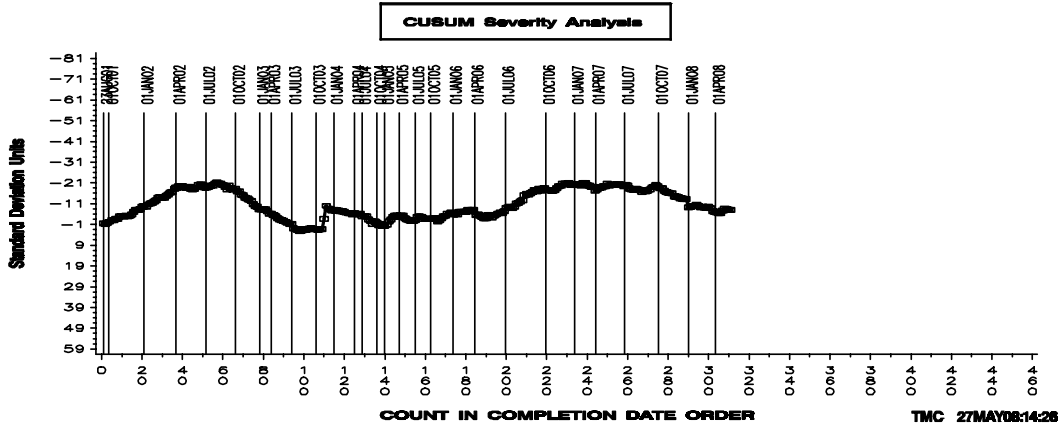
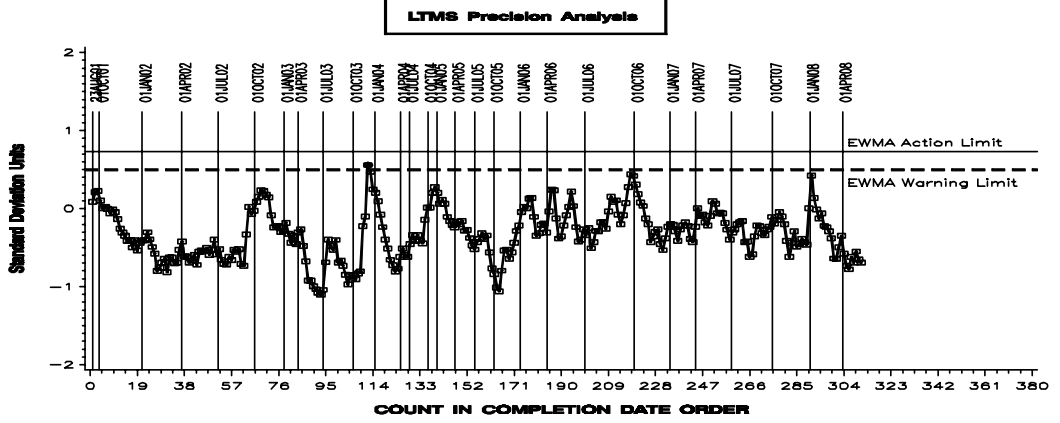
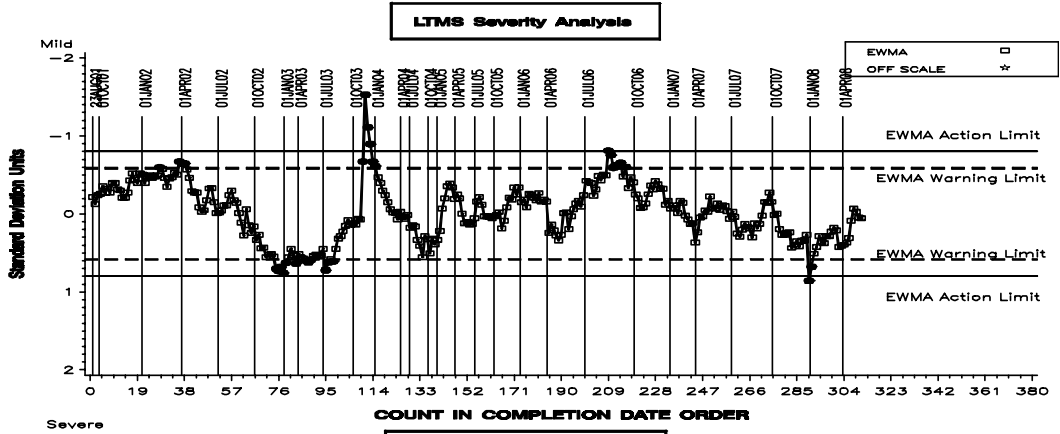
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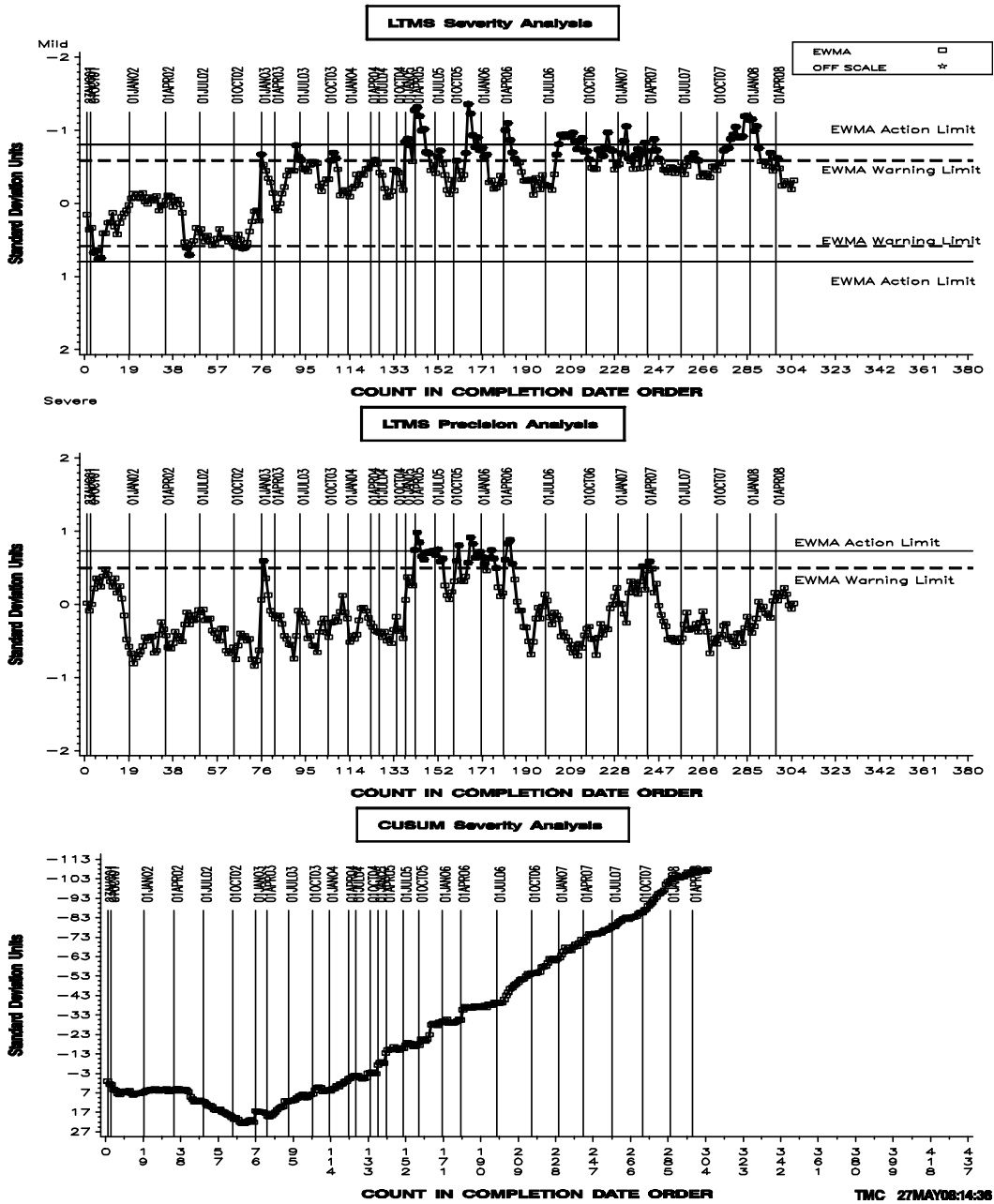
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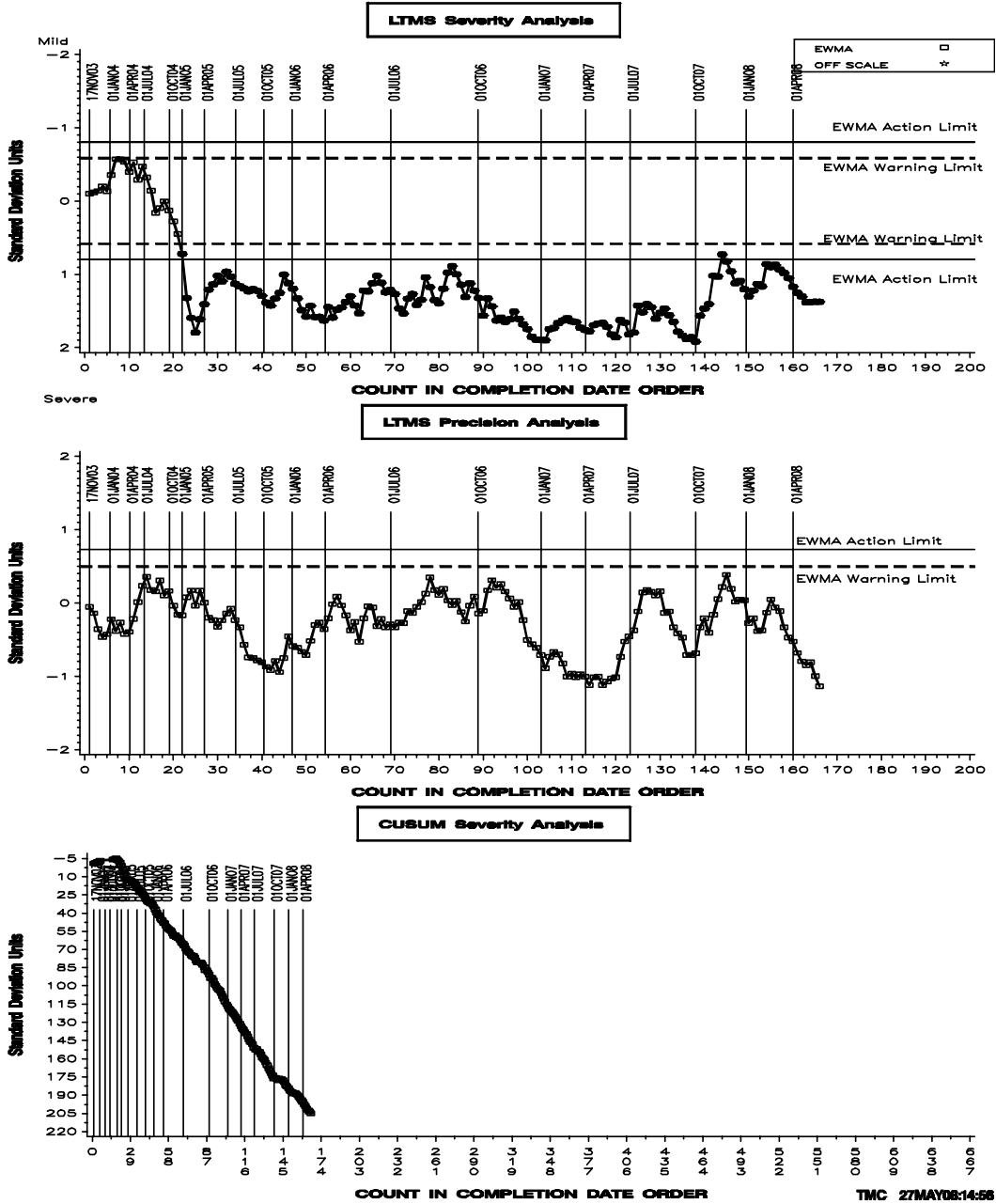
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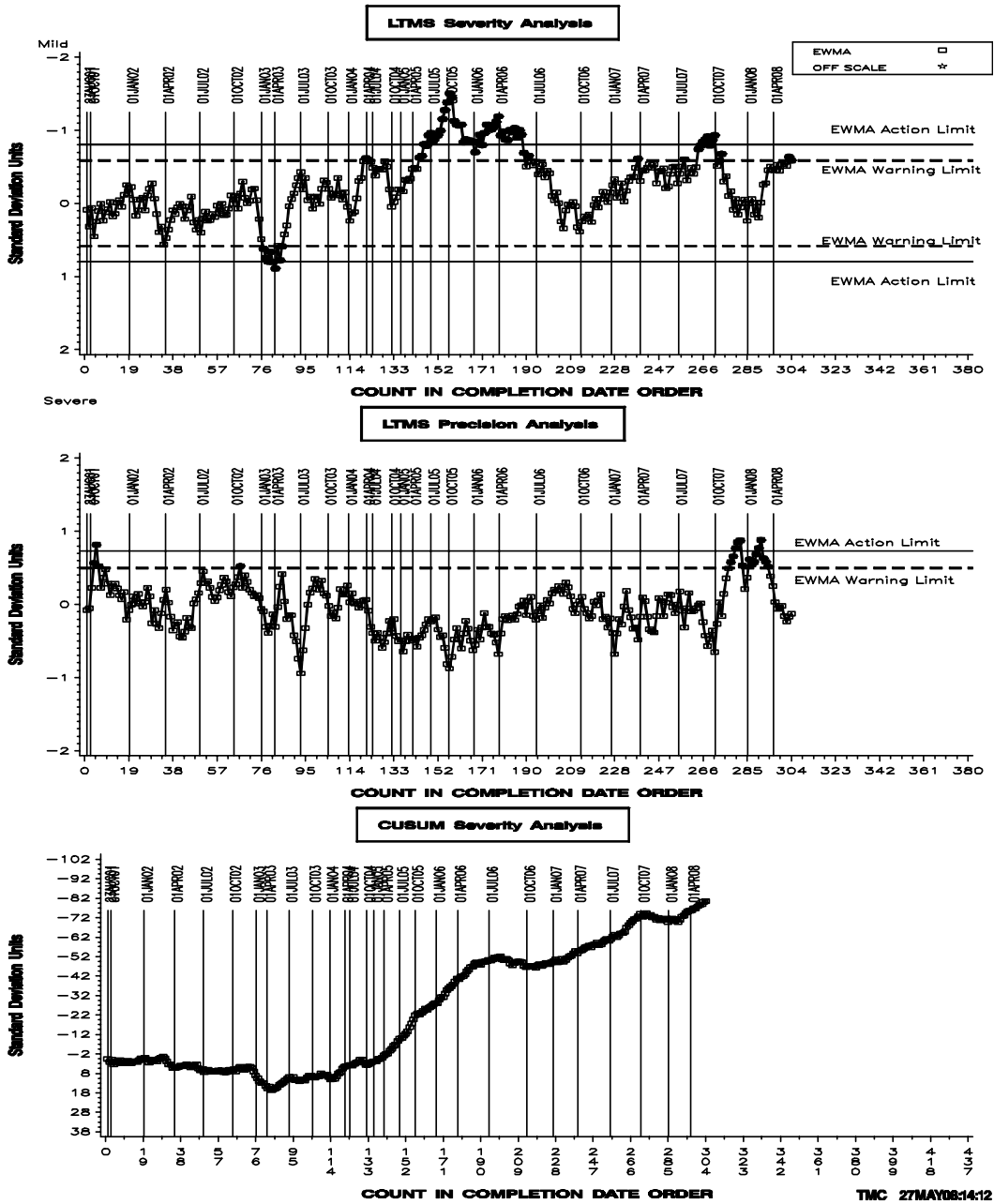
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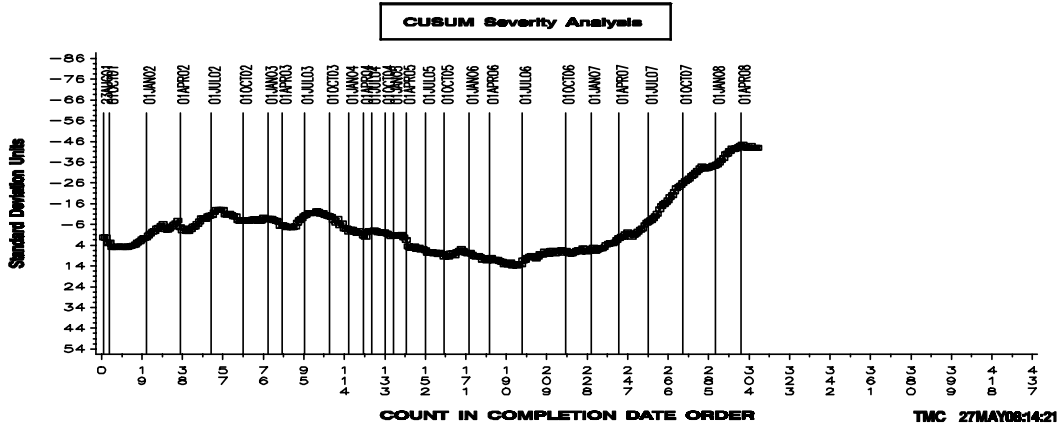
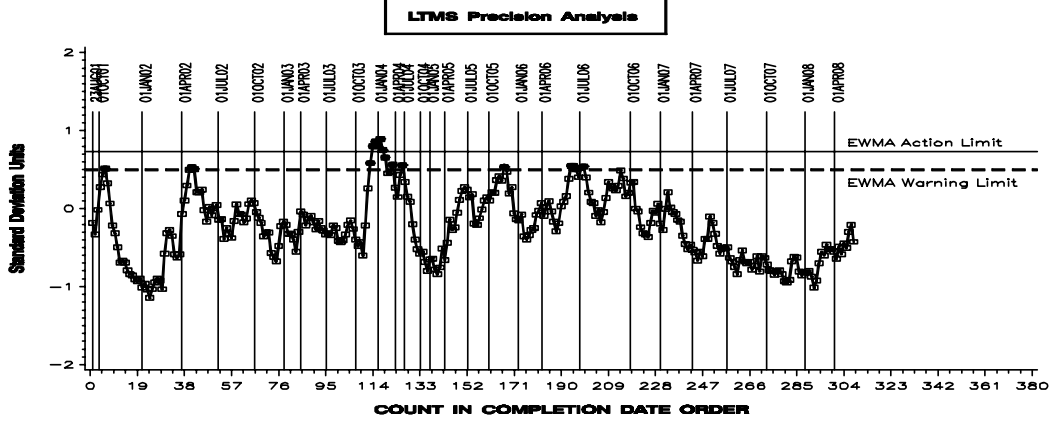
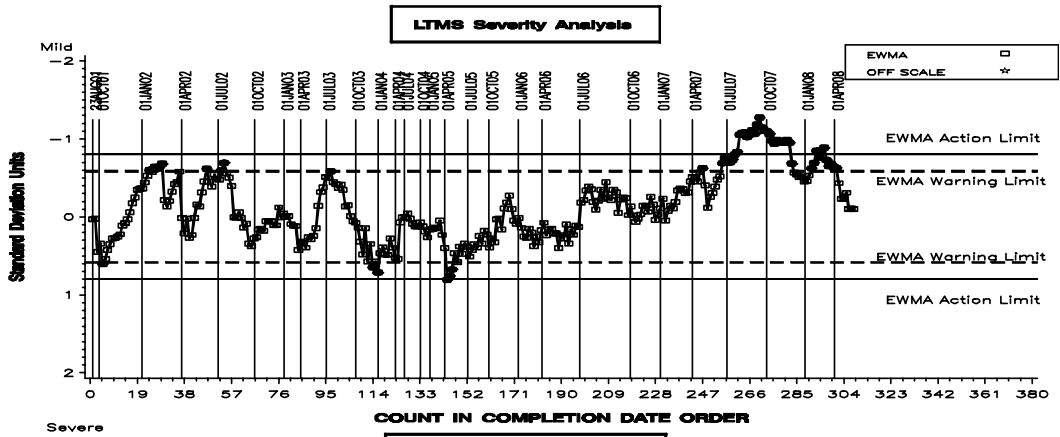
EOEC – FLUROELASTOMER INDUSTRY OPERATIONALLY VALID DATA

REFERENCE FLUROELASTOMER ELONGATION CHANGE AVERAG



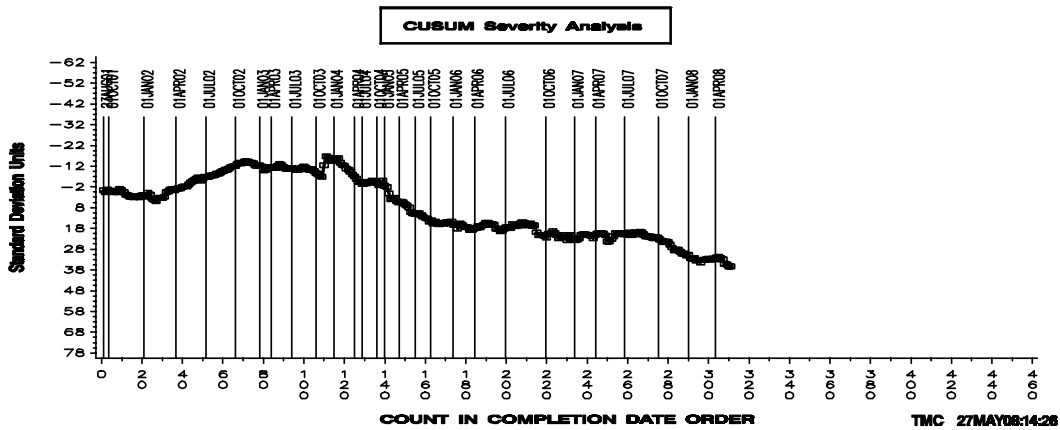
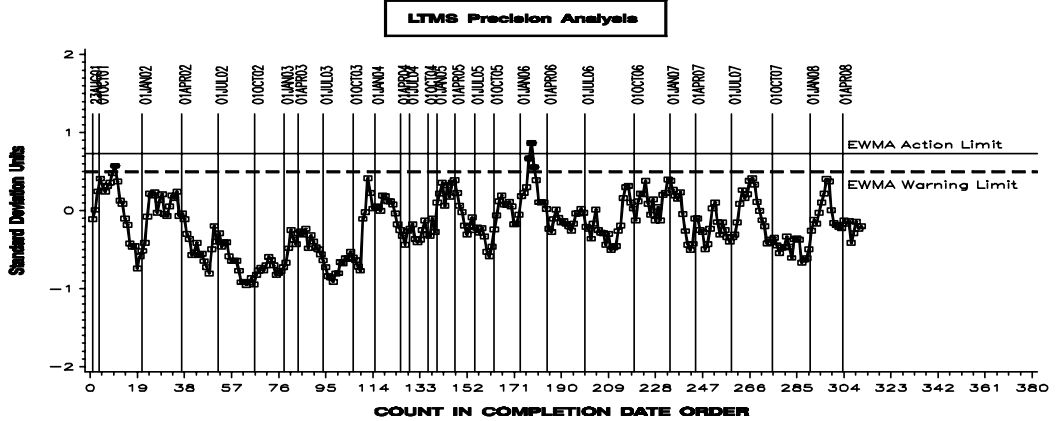
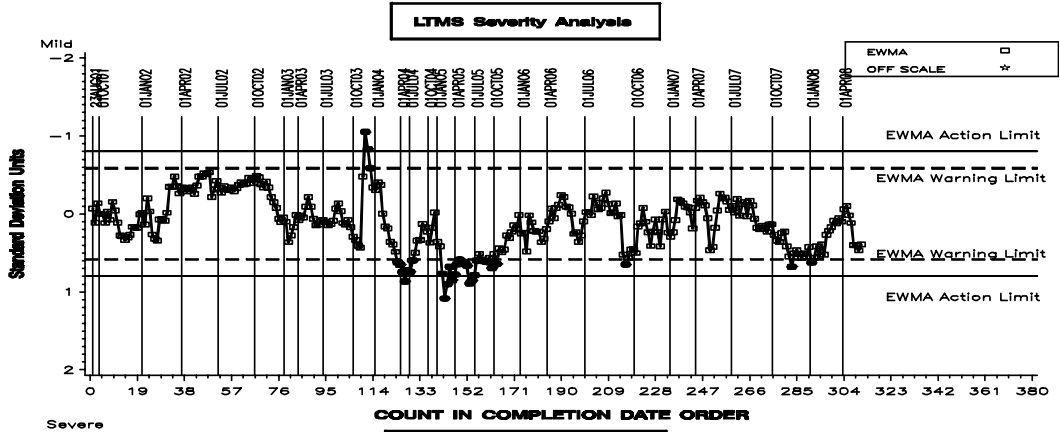
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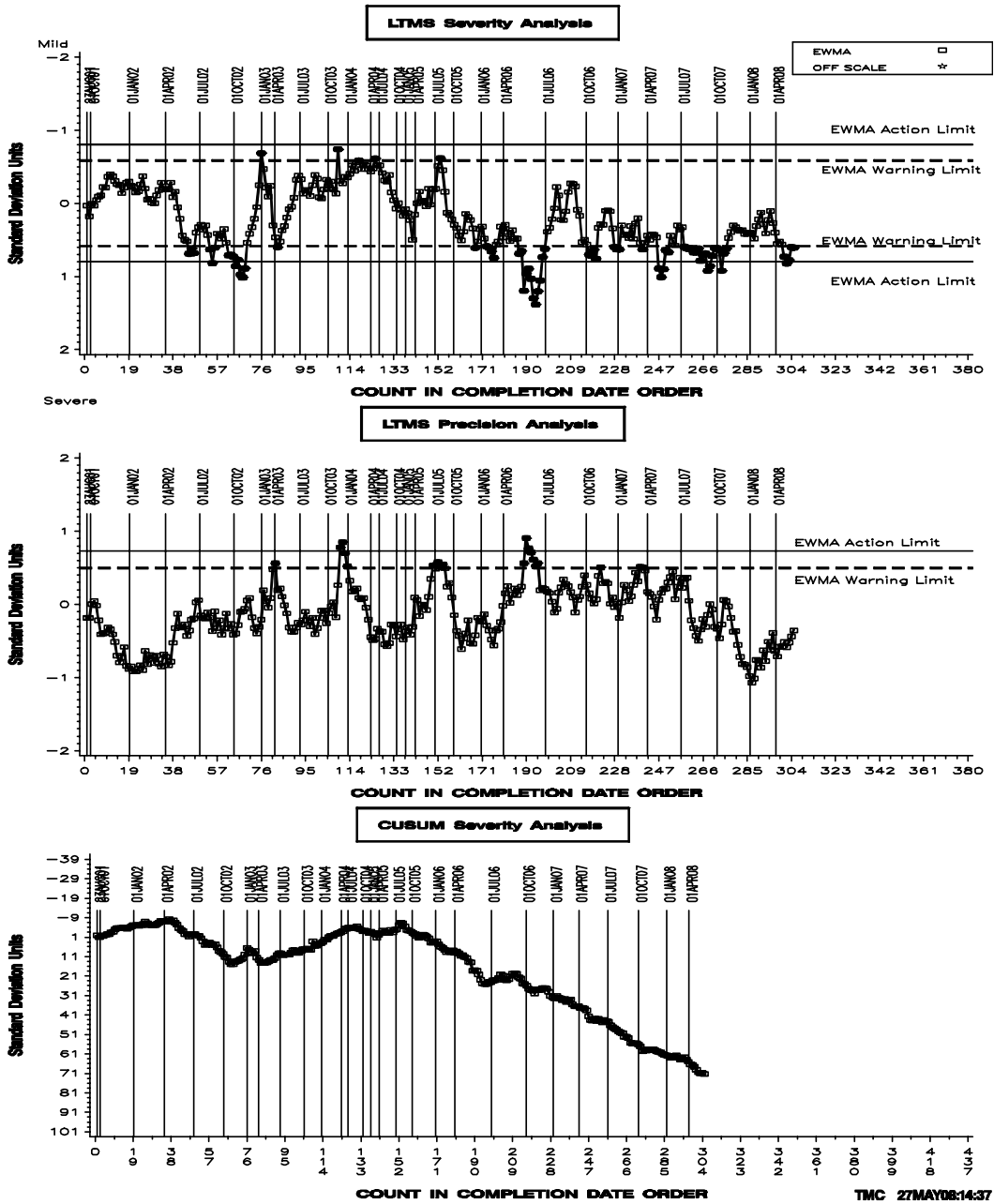
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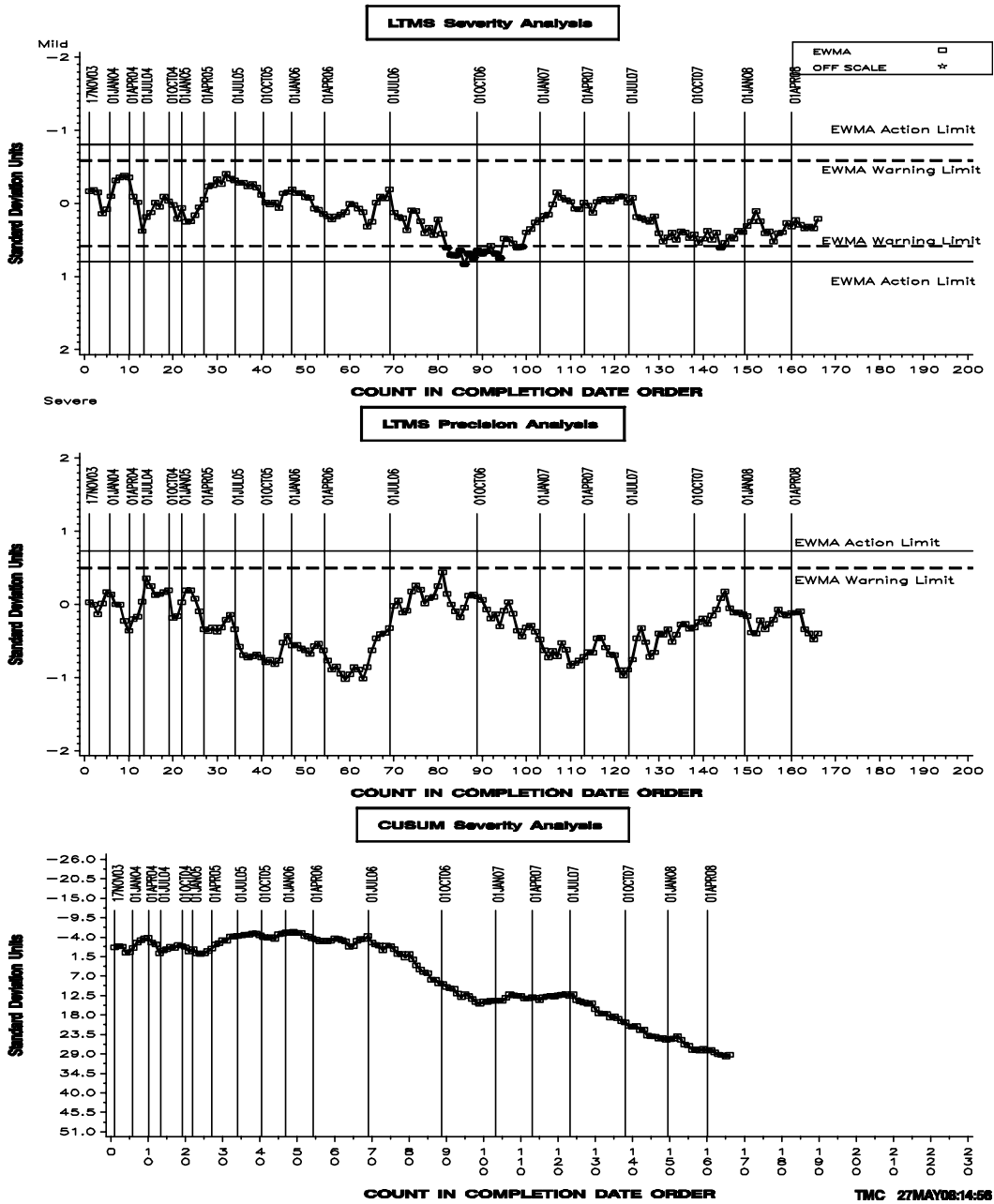
EOEC – SILICONE INDUSTRY OPERATIONALLY VALID DATA

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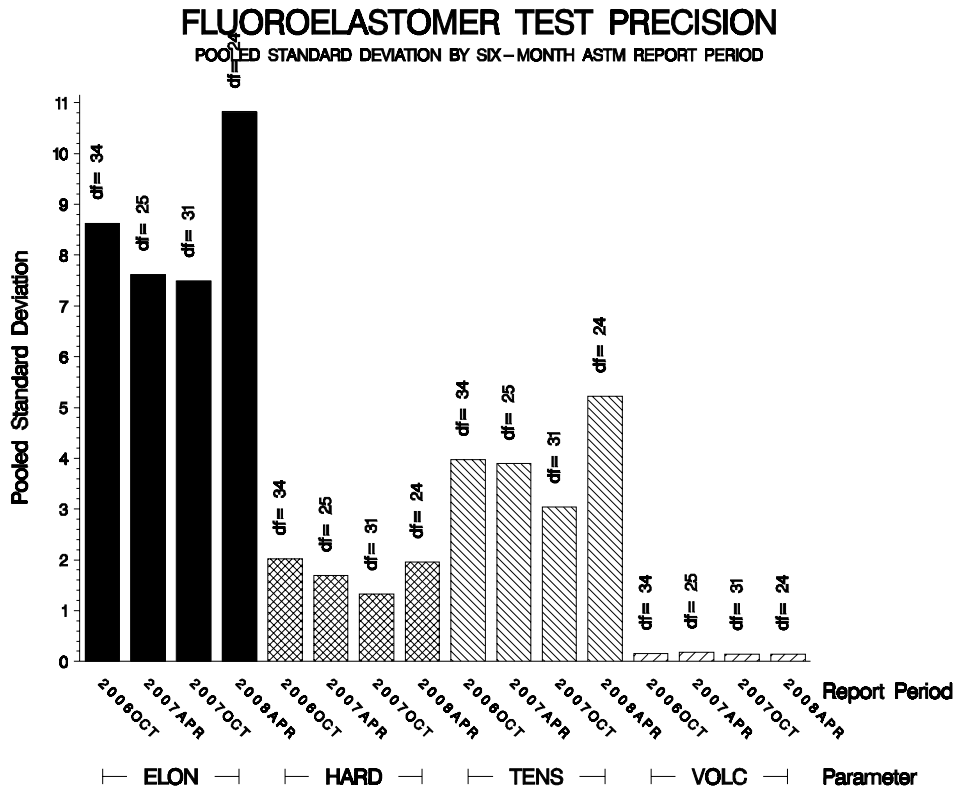
EOEC – VAMAC INDUSTRY OPERATIONALLY VALID DATA

REFERENCE VAMAC G ELONGATION CHANGE AVERAGE



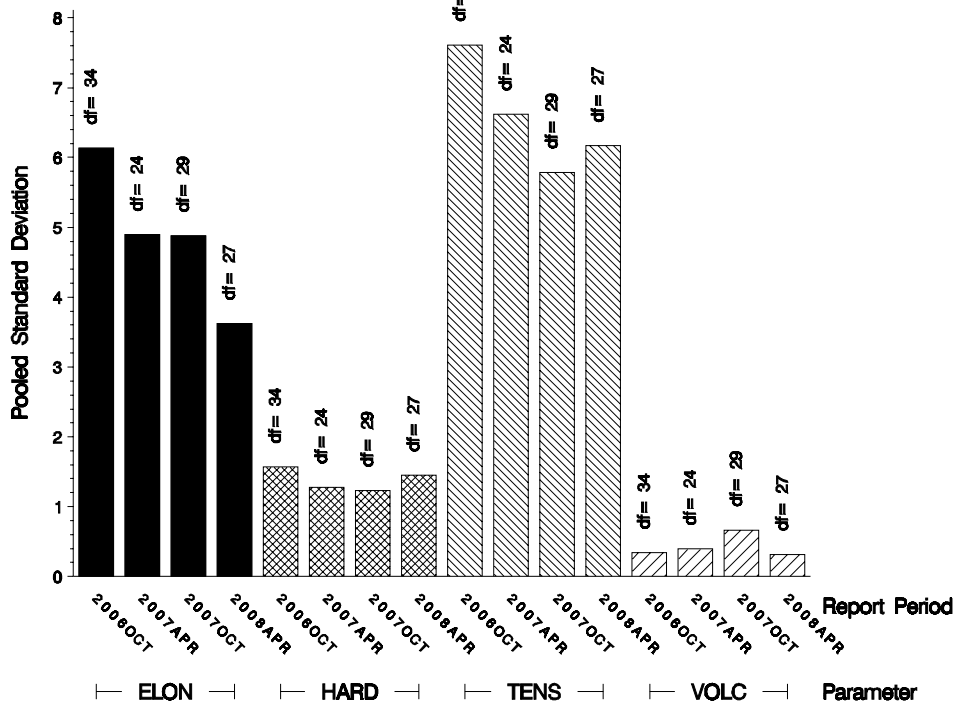
POOLED S:

Shown below are bar charts comparing the pooled s values for the EOEC test parameters over the last four report periods. Where degrees of freedom equal zero, no bars are shown. This will occur where only one test was reported or where multiple tests are reported but all are on different oils. Periods showing no information had no tests reported.



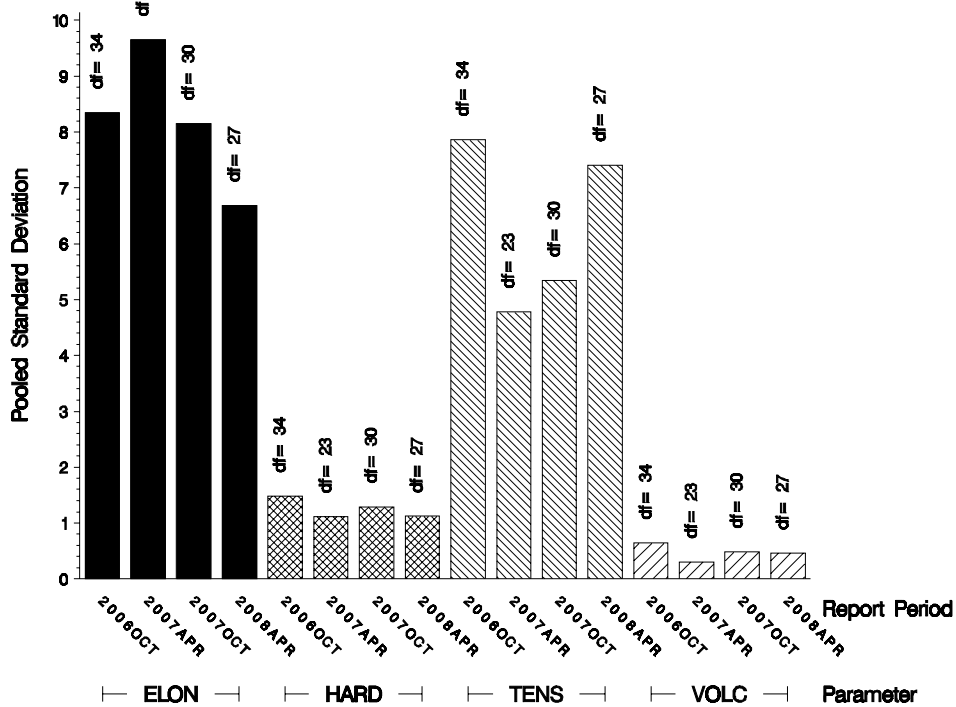
NITRILE TEST PRECISION

POOLED STANDARD DEVIATION BY SIX-MONTH ASTM REPORT PERIOD



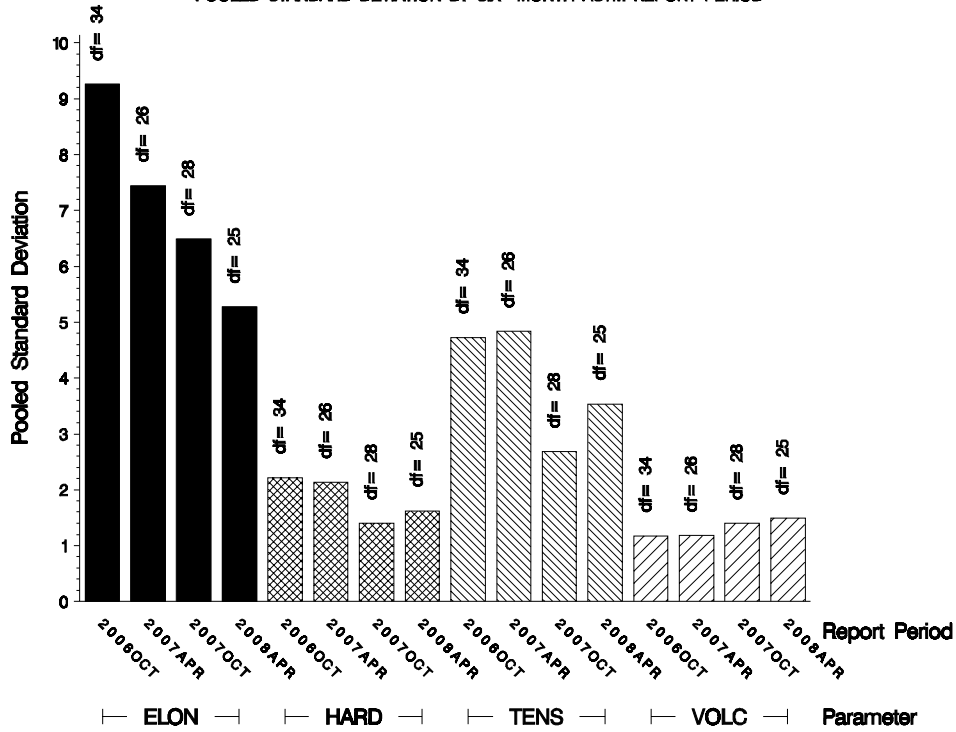
POLYACRYLATE TEST PRECISION

POOLED STANDARD DEVIATION BY SIX-MONTH ASTM REPORT PERIOD



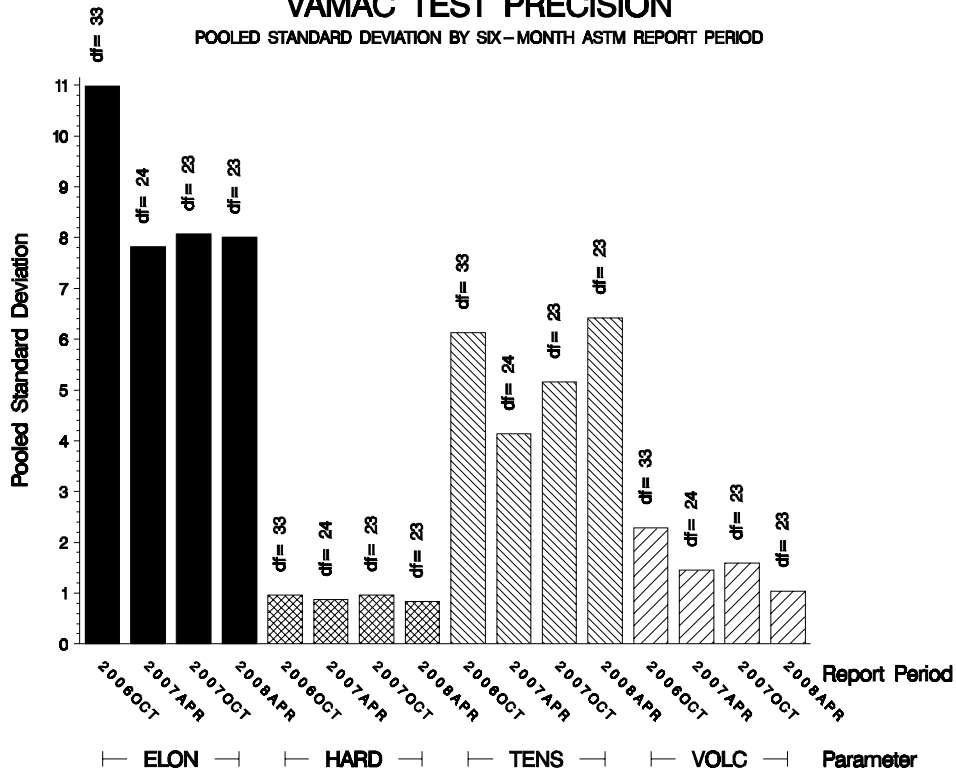
SILICONE TEST PRECISION

POOLED STANDARD DEVIATION BY SIX-MONTH ASTM REPORT PERIOD



VAMAC TEST PRECISION

POOLED STANDARD DEVIATION BY SIX-MONTH ASTM REPORT PERIOD



STATUS OF REFERENCE OIL SUPPLY:

At the end of this report period, the testing oil supply stood as outlined in the following table:

Oil	Cans @ Labs	@ TMC	
		Cans	Gallons
1006-1	101	14040	2782
Total	101	14040	2782

* Future reblends of oils marked with an asterisk are not obtainable by TMC.

Be aware that this table presumes that all of each of these oils is dedicated to the EOEC test area. This is not the case; all of these oils are also used in several other test areas.

INFORMATION LETTERS:

No information letters were issued during this report period.

SUMMARY

Summary of Severity as Measured by LTMS Control Charting				
Elastomer	VOLC	HARD	TENS	ELON
Fluoroelastomer	Within limits	Within limits	Within limits	Mild
Nitrile	Severe	Within limits	Mild	Within limits
Polyacrylate	Severe	Within limits	Within limits	Within limits
Silicone	Severe	Within limits	Within limits	Severe
VAMAC	Severe	Mild	Severe	Within limits
Summary of Precision as Measured by LTMS Control Charting				
Elastomer	VOLC	HARD	TENS	ELON
Fluoroelastomer	Within limits	Within limits	Within limits	Warning
Nitrile	Within limits	Within limits	Warning	Within limits
Polyacrylate	Within limits	Within limits	Within limits	Within limits
Silicone	Within limits	Within limits	Within limits	Within limits
VAMAC	Within limits	Within limits	Within limits	Within limits

SDP/sdp/astm0408.doc/mem08-040.sdp.doc

c: J. L. Zalar
F. M. Farber
M. T. Kasimirsky
EOEC Surveillance Panel
<ftp://ftp.astmtmc.cmu.edu/docs/bench/eoec/semiannualreports/eoec-04-2008.pdf>

Distribution: email