MATERIALS R & D REPORT

AGC 4-435 REV. 7-65

AEROJET-GENERAL CORPORATION
SACRAMENTO CALIFORNIA

TID/KNA -- 2097

Enclosures:

TABLE I - XIV

WORK REQUESTED BY L. M. Swope		DEPT. 7732	EXT. 0566	BLDG. 2019	PAGE 1 of 1
PROGRAM NERVA		WORK ORDER 7325-12-012			REPORT NO. ME-70-149 vmd
SUBJECT Nozzle Skirt Extension Documentation of Laminate Test Data as of 1 July 1970					DATE 13 July 1970
PART NO. --	SERIAL NO. --	PART NAME --		MATERIAL Fibrous Graphite	
PURPOSE					

To record the results of "The Nozzle Skirt Extension Materials and Processing and Manufacturing Methods Program".

DISCUSSION

The measurements, weights and percent change for graphite fabric reinforced laminates after each processing step are recorded in Tables I through XIV.

The processing steps are (1) Precure (2) Post Cure (3) Carbonization and (4) Graphitization. Only laminate data and calculations made prior to 1 July 1970 are recorded. Additional data will be recorded as it is accumulated. The materials systems are: (1) WCA/EC260 (2) WCA/LB (3) 4G3086 (4) CA8207 (5) 4G3008 (6) CA8204 (7) MXG248 (8) CA8235 (9) FM5228.

The data is presented as recorded in the original tables for calculation; therefore, the sequence of laminates is related to fabrication sequence. Material systems are not necessarily grouped, but may appear in several different tables. Summary tables, figures and graphs can be prepared from the data contained in these tables as required.

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TABLE I A

Page 1

Description	Mold#/ Panel#	Precure						Post Cure								
		L	W	T	Volume		Weight gms	Density gms/cc	L	W	T	Vol. In ³ % Shrink	Vol. Cm ³	Weight/ gms % Loss	Density	
					In ³	Cm ³										
WCA/EC260 3-20-70	Control 1	12.951	4.465	.331			428.4		12.940	4.471	.335				416.8/2.71%	
		12.955	4.460	.329					12.942	4.468	.343					
			4.472	.333						4.462	.328					
				.328							.323					
				.327							.327					
				.333							.327					
	Avg.	12.953	4.466	.330	19.090	312.9		1.369	12.941	4.467	.331	19.134/ 100.2%	313.6			1.329
WCA/EC260 3-20-70	Control 2	12.950	4.465	.333			429.5		12.951	4.466	.334				411.3/3.54%	
		12.942	4.462	.336					12.932	4.464	.343					
			4.455	.333						4.471	.329					
				.334							.324					
				.338							.337					
				.334							.329					
	Avg.	12.946	4.461	.335	19.347	317.1		1.354	12.942	4.467	.333	19.251/ .50%	315.5			1.313
WCA/EC260 Nylon Scrim 3-20-70	B-1	12.926	4.469	.356			459.3		12.922	4.475	.379				439.3/4.35%	
		12.952	4.467	.359					12.947	4.467	.371					
			4.467	.356						4.464	.365					
				.356							.381					
				.358							.371					
				.357							.364					
	Avg.	12.939	4.468	.357	20.639	338.3		1.358	12.935	4.469	.372	21.504/ 104.2%	352.5			1.246
WCA/EC260 Nylon Scrim 3-20-70	B-2	12.910	4.460	.355			454.5		12.913	4.462	.365				433.1/4.71%	
		12.908	4.457	.359					12.913	4.459	.368					
			4.460	.359						4.458	.362					
				.356							.366					
				.357							.366					
				.361							.361					
	Avg.	12.909	4.459	.358	20.607	337.7		1.346	12.913	4.460	.365	21.021/ 102.0%	344.4			1.257
WCA/L8 3-24-70	C-1	12.914	4.380	.366			412.4		12.919	4.378	.366				409.0/.82%	
			4.380	.337						4.381	.336					
			4.380	.337						4.381	.336					
				.380							.382					
				.377							.371					
				.336							.339					
	Avg.	12.914	4.380	.356	20.137	330.0		1.250	12.919	4.380	.355	20.088/ .24%	329.2			1.242

L = Length
W = Width
T = Thickness

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TABLE I B

Page 2

Description	Mold#/ Panel#	Carbonization							Graphitization							Cross Ply		Final Density gms/cc
		L	W	T	In ³ / Vol. % Shrink	Gm ³	Weight/ % Loss	Density gms/cc	L	W	T	% Shrinkage/ Vol. In ³	Gm ³	Weight/ % Loss	Total % Shrinkage based on Thickness	Shrinkage based on Thickness Carb. to Graph.		
WCA/EC260 3-20-70	Control 1	12.930	4.470	.328			367.5/ (1) 11.22%		12.912	4.470	.311			364.0/ (1) 15.03				
		12.954	4.470	.337			(2) 11.83%		4.468	.323			(2) 12.67					
			4.462	.321					4.461	.314			(3) .95					
				.318						.311								
	Avg.	12.942	4.467	.324	18.731/ (1) 1.88% (2) 2.11%	307.0		1.197	12.912	4.466	.316	18.222	298.7		4.2	2.5	1.219	
WCA/EC260 3-20-70	Control 2	12.950	4.479	.322			365.2/ (1) 11.99%							361.4/ (1) 15.86				
		12.940	4.474	.332			(2) 11.85%						(2) 12.77					
			4.480	.323														
				.323														
	Avg.	12.945	4.478	.328	19.013/ (1) 1.73% (2) 1.24%	311.6		1.172	12.908	4.469	.312	17.998/	295.0		6.7	4.9	1.225	
WCA/EC260 Nylon Scrim 3-20-70	B-1	12.925	4.483	.354			369.8/ (1) 19.49%							365.4/ (1) 20.44				
		12.950	4.480	.354			(2) 15.82%						(2) 16.82					
			4.473	.352									(3) 1.19					
				.356														
	Avg.	12.938	4.479	.354	20.514/ (1) .61% (2) 4.60%	336.2		1.100	12.908	4.471	.342	19.737/	323.5		4.2	3.4	1.130	
WCA/EC260 Nylon Scrim 3-20-70	B-2	12.913	4.470	.365			365.1/ (1) 19.67%							360.7/ (1) 20.64				
		12.920	4.468	.368			(2) 15.70%						(2) 16.72					
			4.468	.362									(3) 1.21					
				.366														
	Avg.	12.917	4.469	.365	21.070/ (1) 102.24% (2) 100.23%	345.3		1.057	12.868	4.463	.340	19.526/	320.0		5.0	6.8	1.127	
WCA/L8 3-24-70	C-1	12.931	4.378	.362			362.6/ (1) 12.08%		12.876	4.371	.338			359.2/ (1) 12.90				
			4.375	.330			(2) 11.34						(2) 12.18					
			4.392	.327									(3) .94					
				.372														
	Avg.	12.931	4.382	.345	19.549/ (1) 2.92% (2) 2.68%	320.5		1.131	12.876	4.371	.338	19.023/	311.8		5.1	2.0	1.152	
(1) = Precure to Carb. (2) = Post Cure to Carb.								(1) = Precure to Graph. (2) = Post Cure to Graph (3) = Carbonization to Graph										

(1) = Precure to Carb.
(2) = Post Cure to Carb.

(1) = Precure to Graph.
(2) = Post Cure to Graph
(3) = Carbonization to Graph

TABLE IIIA

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Description	Mold#/ Panel#	Precure						Post Cure								
		L	W	T	Volume		Weight gms	Density gms/cc	L	W	T	Vol. In ³ % Shrink	Vol. Cm ³	Weight/ gms	Wt. % Loss	Density
					In ³	Cm ³										
WCA/EC260 3-30-70	B-1	12.907	4.508 4.506 4.503	.249			336.8		12.908	4.516 4.516 4.508	.249			325.3/3.41%		
				.251												
				.251												
				.253												
				.254												
				.254												
	Avg.	12.907	4.506	.252	14.656	240.2		1.402	12.908	4.513	.250	14.563/.63%	238.7		1.363	
WCA/EC260 3-30-70	B-2	12.886	4.527 4.524 4.525	.252			335.0		12.892	4.526 4.524 4.524	.250			323.5/3.43%		
				.251												
				.251												
				.247												
				.249												
				.254												
	Avg.	12.886	4.525	.251	14.636	239.9		1.396	12.892	4.525	.247	14.409/1.55%	236.2		1.370	
WCA/EC260 3-30-70	C-1	12.827	4.512 4.510 4.500	.239			317.7		12.828	4.518 4.513 4.498	.239			308.5/2.90%		
				.240												
				.236												
				.239												
				.241												
				.242												
	Avg.	12.827	4.507	.240	13.875	227.4		1.397	12.828	4.510	.240	13.885/100.07%	227.6		1.355	
WCA/EC260 3-30-70	C-2	12.793	4.528 4.519 4.523	.239			319.2		12.800	4.525 4.527 4.525	.239			309.9/2.91%		
				.241												
				.234												
				.242												
				.238												
				.236												
	Avg.	12.793	4.523	.238	13.771	225.7		1.414	12.800	4.526	.240	13.904/100.97%	227.9		1.360	
4 3008 4-3-70	B-1	13.007	4.417 4.416 4.422	.321			414.3		13.015	4.418 4.417 4.422	.316			401.3/3.11%		
				.320												
				.319												
				.313												
				.318												
				.315												
	Avg.	13.007	4.418	.318	18.274	299.5		1.383	13.015	4.419	.315	18.117/.86%	296.9		1.351	

TABLE IIIB

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Description	Mold#/ Panel#	Carbonization							Graphitization							Cross Ply			
		L	W	T	In ³	Vol.% Shrink	Cm ³	Weight/ % Loss	Density gms/cc	L	W	T	Vol. In ³	% Shrink	Cm ³	Weight/ % Loss	Total % Shrinkage Based on Thickness	Shrinkage based on Thickness Carb. to Graph.	Final Density gms/cc
					%														
WCA/EC260 3-30-70	B-1	12.900	4.516	.245			291.7/ (1) 13.39%						13.833		290.1				
			4.515	.246			(2) 10.33%					%							
			4.510	.245				(1) 5.62	(1) 13.87										
				.249			(2) 5.01	(2) 10.82											
				.247			(3) 3.82	(3) .55											
	Avg.	4.514	.247	14.383/ (1) 1.86% (2) 1.23%	219.3	1.243	12.814	4.498	.240		226.7	4.8	2.8	1.279					
WCA/EC260 3-30-70	B-2	12.897	4.532	.242		291.5/ (1) 12.98%													
			4.527	.244		(2) 9.89%													
			4.535	.240															
				.248															
				.247															
	Avg.	4.531	.244	14.258/ (1) 2.58% (2) 1.05%	233.7	1.248													
WCA/EC260 3-30-70	C-2	12.974	4.522	.237		278.7/ (1) 12.69%						13.285		276.4					
			4.525	.239		(2) 10.07%													
			4.527	.238				(1) 3.53	(1) 13.41										
				.238			(2) 4.45	(2) 10.19											
				.238			(3) 5.05	(3) .83											
	Avg.	4.531	.238	13.991/ (1) 101.60% (2) 100.63%	229.3	1.215	12.749	4.511	.231		217.7	2.9	2.9	1.269					
EG3C08 4-3-70	B-1	13.004	4.426	.312		352.3/ (1) 14.97%			12.979	4.421	.306	17.448		348.7					
			4.422	.311		(2) 12.21%			4.420	.306									
			4.429	.311				(1) 4.52	(1) 15.83										
				.307			.300	(2) 3.69	(2) 13.11										
				.308			.301	(3) 1.98	(3) 1.02										
	Avg.	4.426	.310	17.80/ (1) 2.59% (2) 1.76%	291.74	1.207	12.979	4.422	.304		286.0	4.4	1.9	1.219					

- (1) Precure to Graph
 (2) Postcure to Graph
 (3) Carbonization to Graph

TABLE IVA

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Description	Mold#/ Panel#	Precure						Post Cure							
		L	W	T	In $\frac{1}{2}$	Volume Cm ³	Weight gms	Density gms/cc	L	W	T	Vol. In/ % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density
LG3008 4-3-70	B-2	12.912	4.470	.317			416.7		12.912	4.480	.314			403.7/3.12%	
			4.466	.318						4.470	.320				
			4.464	.316						4.474	.316				
				.322							.320				
				.321							.314				
				.319							.319				
	Avg.	12.912	4.466	.319	18.395	301.5		1.382	12.912	4.475	.317	18.320/.41%	300.3		1.344
LG3008 4-3-70	C-1	12.959	4.422	.310			356.8								
			4.430	.316											
			4.427	.308											
				.310											
				.318											
				.307											
	Avg.	12.959	4.426	.312	17.90	293.4		1.216							
LG3008 4-3-70	C-2	12.961	4.421	.311			356.2								
			4.421	.317											
			4.421	.309											
				.312											
				.318											
				.309											
	Avg.	12.961	4.421	.312	17.88	293.1		1.215							
CAE207 4-6-70	A-1	12.955	4.416	.279			366.7		12.959	4.420	.277			352.8/3.79%	
			4.417	.278						4.419	.275				
			4.421	.279						4.430	.276				
				.282							.279				
				.284							.279				
				.280							.279				
	Avg.	12.955	4.418	.280	16.026	262.7		1.396	12.959	4.423	.278	15.934/.57%	261.2		1.351
CAE207 4-6-70	A-2	12.945	4.458	.281			369.2		12.948	4.461	.279			354.3/4.04%	
			4.458	.283						4.458	.281				
			4.464	.281						4.464	.278				
				.278							.276				
				.278							.275				
				.278							.275				
	Avg.	12.945	4.460	.280	16.166	265.0		1.393	12.948	4.461	.277	16.000/1.03%	262.2		1.351

TABLE 13 B

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Description	Mold#/ Panel#	Carbonization							Graphitization							Total % Shrinkage Based on Thickness	Shrinkage Based on Thickness Carb. to Graph.	Final Density gms/cc	
		L	W	T	In ³	Vol.% Shrink	Cm ³	Weight/ % Loss	Density gms/cc	L	W	T	Vol. In ³	% Shrink	Cm ³				Weight/ % Loss
LG3008 L-3-70	B-2	12.924	4.480 4.480 4.479	.307 .313 .308 .311 .309 .310 .309		(1) 2.75 %	353.2/ (1) 15.24 (2) 12.51		12.896	4.480 4.469 4.472	.302 .304 .304 .308 .305 .305 .305	17.597/ (1) 4.34 (2) 3.95 (3) 1.64		349.7/ (1) 16.08 (2) 13.38 (3) .99					
	Avg.	12.924	4.480	.309	17.890/ (1) 2.75(2).23%		293.2	1.205	12.896	4.474	.305			288.4	4.4	1.3	1.213		
LG3008 L-3-70	C-1																		
LG3008 L-3-70	C-2																		
CA5207 L-6-70	A-1	12.946	4.423 4.409 4.426	.270 .269 .270 .274 .274 .273 .272			307.9/ (1) 16.03% (2) 12.73%		12.983	4.432 4.436 4.440	.266 .265 .267 .270 .269 .269 .268	15.435 (1) 3.69 (2) 3.13 (3) .74		304.2/ (1) 17.04 (2) 13.78 (3) 1.20					
	Avg.	12.946	4.417	.272	15.550/ (1) 2.97% (2).24%		254.9	1.208	12.983	4.436	.268			253.0	4.3	1.5	1.202		

TABLE 7 A

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Description	Mold#/ Panel#	Precure							Post Cure						
		L	W	T	Volume In ³	Cm ³	Weight gms	Density gms/cc	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density
CA8207 4-6-70	B-1	12.954	4.405	.279			365.5		12.958	4.407	.272			350.9/3.99%	
			4.403	.279						4.410	.276				
			4.407	.279						4.415	.276				
				.282							.279				
				.282							.280				
				.282							.279				
	Avg.	12.954	4.405	.281	16.035	262.8		1.391	12.958	4.411	.277	15.833/1.26%	259.5		1.352
CA8207 4-6-70	B-2	12.975	4.474	.288			373.2		12.994	4.490	.280			358.0/4.07%	
			4.478	.284						4.484	.281				
			4.477	.283						4.490	.280				
				.279							.276				
				.281							.277				
				.280							.277				
	Avg.	12.975	4.476	.283	16.436	269.4		1.385	12.994	4.488	.279	16.270/1.01%	266.7		1.342
CA8207 4-6-70	C-1	13.054	4.396	.279			371.6		13.068	4.400	.275			352.2/5.22%	
			4.388	.279						4.396	.276				
			4.354	.279						4.402	.275				
				.281							.277				
				.281							.279				
				.281							.280				
	Avg.	13.054	4.379	.280	16.006	262.3		1.417	13.068	4.399	.277	15.924/.51%	261.0		1.349
CA8207 4-6-70	C-2	12.953	4.504	.284			366.7								
			4.483	.284											
			4.483	.282											
				.279											
				.279											
				.277											
	Avg.	12.953	4.490	.281	16.343	267.9		1.369							
CA8204 4-9-70	A-1	12.997	4.450	.275			358.6		13.008	4.464	.267			316.1/11.85%	
			4.460	.270						4.460	.265				
			4.448	.269						4.457	.262				
				.276							.268				
				.277							.269				
				.276							.267				
	Avg.	12.997	4.453	.274	15.858	259.9		1.380	13.008	4.460	.266	15.432/2.69%	252.9		1.250

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[illegible]

TABLE VI A

Page 11

Description	Mold#/ Panel#	Precure						Post Cure								
		L	W	T	Volume		Weight gms	Density gms/cc	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density	
CA8204 4-9-70	A-2	12.992	4.448	.265	In ³	Cm ³	357.5		13.004	4.458	.257			306.1/14.38%		
			4.448	.266						4.458	.260					
			4.450	.268						4.462	.262					
			.273	.267												
			.275	.271												
			.274	.267												
	Avg.	12.992	4.449	.270	15.606	255.8		1.398	13.004	4.459	.264	15.308/1.91%	250.9		1.220	
	CA8204 4-8-70	B-1	12.988	4.454	.277			358.8		12.993	4.464	.270			318.1/11.34%	
				4.455	.277						4.463	.270				
				4.450	.283						4.456	.267				
.269				.262												
.267				.260												
.271				.263												
Avg.		12.988	4.453	.274	15.847	259.7		1.382	12.993	4.461	.265	15.360/3.07%	251.8		1.263	
CA8204 4-8-70		B-2	12.995	4.448	.269			358.5		13.000	4.454	.260			316.9/11.60%	
				4.450	.270						4.459	.265				
				4.448	.272						4.462	.264				
	.275			.267												
	.275			.268												
	.278			.269												
	Avg.	12.995	4.449	.273	15.783	258.7		1.386	13.000	4.458	.266	15.416/2.33%	252.7		1.254	
	CA8204 4-9-70	C-1	12.993	4.452	.274			359.5		13.004	4.458	.265			317.0/11.82%	
				4.456	.272						4.458	.265				
				4.452	.276						4.460	.265				
.275				.267												
.276				.269												
.274				.267												
Avg.		12.993	4.453	.275	15.911	260.8		1.378	13.004	4.459	.266	15.424/3.06%	252.8		1.254	
CA8204 4-9-70		C-2	12.990	4.450	.273			357.3								
				4.458	.275											
				4.458	.273											
	.268															
	.268															
	.269															
	Avg.	12.990	4.455	.271	15.683	257.0		1.390								

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TABLE VII A

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Description	Mold#/ Panel#	Precure						Post Cure							
		L	W	T	Volume		Weight	Density	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density
MXG243 4-16-70	B-1	13.012	4.497	.281	16.347	267.93	371.3	1.386							
			4.504	.284											
			4.509	.281											
				.275											
				.276											
				.277											
	Avg.	4.503	.279												
MXG248 4-16-70	B-2	13.005	4.504	.276	16.342	267.85	371.1	1.385	13.010	4.510	.273	16.132/1.29%	264.40	350.2/5.63%	1.325
			4.504	.280							.278				
			4.503	.275							.272				
				.279							.274				
				.283							.280				
				.278							.274				
	Avg.	4.504	.279					4.509	.275						
MXG248 4-17-70	C-1	13.012	4.504	.245	14.238	233.36	321.1	1.376	13.012	4.504	.242	14.124/.80%	231.49	305.2/4.95%	1.318
			4.501	.244							.242				
			4.505	.244							.241				
				.241							.239				
				.242							.240				
				.241							.241				
	Avg.	4.503	.243					4.504	.241						
MXG248 4-17-70	C-2	13.013	4.504	.241	14.239	233.38	321.6	1.378	13.015	4.512	.239	14.143/.67%	231.80	305.7/4.94%	1.319
			4.504	.243							.240				
			4.502	.241							.237				
				.244							.243				
				.245							.243				
				.245							.241				
	Avg.	4.503	.243					4.509	.241						
MXG243 4-17-70	C-3	13.007	4.505	.280	16.235	266.09	370.5	1.392	13.011	4.512	.277	16.203/.20%	265.57	351.4/5.15%	1.323
			4.506	.280							.278				
			4.508	.276							.274				
				.277							.275				
				.276							.275				
				.275							.274				
	Avg.	4.506	.277					4.512	.276						

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Description	Mold#/ Panel#	Carbonization						Graphitization						Total % Shrinkage Based on Thickness	% Shrinkage Based on Thickness Carb. to Graph.	Final Density gms/cc
		L	W	T	In ³ Vol. % Shrink	Cm ³	Weight/ % Loss	Density gms/cc	L	W	T	Vol. In ³ / % Shrink	Cm ³			
MX3248 4-16-70	B-1															

TABLE VIII A

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Description	Mold#/ Panel#	Precure						Post Cure							
		L	W	T	Volume		Weight	Density	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density
MXG248 4-17-70	C-4	13.010	4.505	.277	16.286	266.93	370.7	1.389	13.010	4.514	.274	16.202/.52%	265.55	347.7/6.20%	1.309
			4.504	.277						4.516	.277				
			4.500	.279						4.506	.278				
			.278	.274											
			.279	.277											
			.277	.276											
	Avg.	4.503	.278	4.512	.276	16.202/.52%	265.55	1.309							
4G3086 4-21-70	A-1	13.017	4.498	.261	15.809	259.11	360.0	1.389	13.007	4.500	.257	15.566/1.54%	255.13	348.5/3.19%	1.366
			4.499	.263						4.500	.260				
			4.498	.263						4.496	.260				
			.276	.271											
			.282	.277											
			.277	.273											
	Avg.	4.498	.270	4.499	.266	15.566/1.54%	255.13	1.366							
4G3086 4-21-70	A-2	13.005	4.500	.275	15.846	259.72	360.3	1.387	13.002	4.498	.273	15.611/1.48%	255.86	348.9/3.16%	1.364
			4.496	.282						4.496	.277				
			4.492	.278						4.496	.273				
			.262	.260											
			.266	.263											
			.264	.257											
	Avg.	4.496	.271	4.497	.267	15.611/1.48%	255.86	1.364							
WCA/L8 4-21-70	B-1	13.012	4.495	.270	16.037	262.85	366.4	1.394	13.008	4.495	.268	15.922/.72%	260.96	356.9/2.59%	1.368
			4.498	.269						4.502	.267				
			4.500	.271						4.504	.268				
			.279	.277											
			.277	.274											
			.279	.275											
	Avg.	4.498	.274	4.500	.272	15.922/.72%	260.96	1.368							
WCA/L8 4-21-70	B-2	13.005	4.498	.280	16.028	262.70	367.2	1.398	13.001	4.498	.275	15.965/.39%	261.7	357.5/2.64%	1.366
			4.499	.279						4.499	.276				
			4.497	.279						4.496	.274				
			.268	.265											
			.269	.278											
			.271	.269											
	Avg.	4.498	.274	4.498	.273	15.965/.39%	261.7	1.366							

TABLE VIII B

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Description	Mold#/ Panel#	Carbonisation							Graphitization							Total % Shrinkage Based on Thickness	% Shrinkage Based on Thickness Carb. to Graph.	Final Density gms/cc
		L	W	T	In ³ Vol. % Shrink	Cm ³	Weight/ % Loss	Density gms/cc	L	W	T	Vol. In ³ % Shrink	Cm ³	Weight/ % Loss				
MX3248 4-17-70	C-4	13.004	4.512 4.515 4.504	.276 .275 .276 .276 .276 .276	16.187 % (1) .67 (2) .09		309.8/ % (1) 16.43 (2) 10.90											
	Avg.	13.004	4.510	.276		265.3		1.168										
433086 4-21-70	A-1	13.002	4.499 4.499 4.495	.253 .258 .256 .265 .271 .267	15.323 % (1) 3.07 (2) 1.56		305.9/ % (1) 15.03 (2) 12.22		12.963	4.496 4.492 4.487	.250 .254 .251 .260 .265 .262	14.965 % (1) 5.34 (2) 3.86 (3) 2.34		303.5/ % (1) 15.69 (2) 12.91 (3) .78				
	Avg.	13.002	4.498	.262		251.1		1.218	12.963	4.492	.257		245.3		4.8	1.9	1.237	
433086 4-21-70	A-2	13.000	4.500 4.500 4.495	.269 .269 .267 .256 .257 .255	15.320 % (1) 3.32 (2) 1.86		306.7/ % (1) 14.88 (2) 12.10		12.970	4.492 4.492 4.488	.262 .267 .264 .251 .255 .252	15.086 % (1) 4.80 (2) 3.36 (3) 1.53	247.3	303.8 % (1) 15.68 (2) 12.93 (3) .95				
	Avg.	13.000	4.498	.262		251.1		1.221	12.970	4.491	.259				4.4	1.1	1.228	
WCA/18 4-21-70	B-1	12.998	4.500 4.508 4.507	.265 .262 .264 .271 .269 .269	15.634 % (1) 2.51 (2) 1.81		317.8/ % (1) 13.26 (2) 10.96		12.959	4.492 4.492 4.496	.259 .255 .259 .265 .263 .264	15.197 % (1) 5.24 (2) 4.55 (3) 2.80		315.1/ % (1) 14.00 (2) 11.71 (3) .85				
	Avg.	12.998	4.505	.267		256.2		1.240	12.959	4.493	.261		249.1		4.7	2.2	1.265	
WCA/18 4-21-70	B-2	12.994	4.500 4.500 4.502	.270 .270 .270 .262 .262 .262	15.557 % (1) 2.94 (2) 2.56		318.0/ % (1) 13.40 (2) 11.05		12.957	4.496 4.492 4.496	.265 .265 .266 .260 .255 .260	15.259 % (1) 4.80 (2) 4.42 (3) 1.92		315.2/ % (1) 14.16 (2) 11.83 (3) .88				
	Avg.	12.994	4.501	.266		255.0		1.247	12.957	4.495	.262		250.1		4.4	1.5	1.260	

TABLE IX A

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Description	Mold# / Panel#	Precure							Post Cure							
		L	W	T	Volume		Weight gms	Density gms/cc	L	W	T	Vol. In ³ % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density	
					In ³	Cm ³										
CA8235 5-1-70	B-2	13.073	4.430 4.429 4.440	.269 .270 .266 .285 .299 .281 .278			366.2		13.073	4.434 4.432 4.443	.260 .270 .260 .281 .292 .276 .273	15.832 % (1) 1.73		338.3 % (1) 7.62		
	Avg.	13.073	4.433		16.111	264.06		1.387	13.073	4.436			259.5		1.304	
CA8235 5-1-70	B-3	13.075	4.333 4.320 4.297	.285 .302 .279 .270 .278 .263 .280			358.7		13.079	4.342 4.327 4.302	.277 .299 .272 .264 .274 .260 .274	15.496 % (1) 1.96		329.9 % (1) 8.03		
	Avg.	13.075	4.317		15.805	259.04		1.385	13.079	4.324			254.0		1.299	
CA8235 5-1-70	B-1	13.081	4.478 4.486 4.505	.281 .299 .277 .276 .275 .273 .280			373.7		13.078	4.480 4.485 4.512	.272 .291 .271 .268 .269 .263 .272	15.979 % (1) 2.83		337.6 % (1) 9.66		
	Avg.	13.081	4.490		16.445	269.53		1.386	13.078	4.492			261.9		1.289	
CA8235 5-1-70	C-1	13.040	4.438 4.440 4.426	.282 .297 .275 .279 .281 .271 .281			360.1		13.048	4.442 4.436 4.432	.276 .291 .270 .271 .275 .263 .274	15.863 % (1) 2.39		336.5 % (1) 6.55		
	Avg.	13.040	4.435		16.251	266.35		1.352	13.048	4.437			260.0		1.294	
CA8235 5-1-70	C-2	13.044	4.484 4.463 4.443	.277 .295 .279 .271 .284 .275 .280			362.2		13.038	4.490 4.465 4.440	.270 .288 .272 .265 .276 .268 .273	15.893 % (1) 2.50		326.8 % (1) 9.77		
	Avg.	13.044	4.463		16.300	267.16		1.356	13.038	4.465			260.5		1.255	

IX B
TABLE IX B

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Description	Mold #/ Panel #	Carbonization						Graphitization						Total % Shrinkage Based on Thickness	% Shrinkage Based on Thickness Carb. to Graph.	Final Density gms/cc
		L	W	T	In ³ Vol. % Shrink	Cm ³	Weight/ % Loss	Density gms/cc	L	W	T	Vol. In ³ % Shrink	Cm ³	Weight/ % Loss		
CA8235 5-1-70	B-2	13.066	4.434 4.436 4.436	.264 .271 .264 .279 .291 .277 .274	15.878 % (1) 1.45 (2) 100.29		295.0 % (1) 19.44 (2) 12.80									
	Avg.	13.066	4.435			260.2		1.134								
CA8235 5-1-70	B-3	13.073	4.339 4.322 4.298	.278 .290 .276 .267 .274 .262 .275	15.531 % (1) 1.73 (2) 100.23		287.8 % (1) 19.77 (2) 34.25		13.040 4.340 4.316 4.292		.276 .285 .271 .262 .264 .259 .269	15.139/ % (1) 2.55 (2) 2.32 (3) 4.20		283.4/ % (1) 20.99 (2) 14.10 (3) 1.53		
	Avg.	13.073	4.320			254.6		1.130	13.040	4.316			248.1			1.142
CA8235 5-1-70	B-1	13.068	4.470 4.481 4.503	.279 .291 .275 .271 .271 .267 .276	16.176 % (1) 1.64 (2) 101.23		294.3 % (1) 21.25 (2) 12.83		13.032 4.429 4.432 4.435		.262 .265 .261 .278 .286 .273 .271	15.653/ % (1) 4.82 (2) 2.06 (3) 3.24		291.1/ % (1) 22.10 (2) 13.77 (3) 1.09		
	Avg.	13.068	4.485			265.1		1.110	13.032	4.432			256.5			1.135
CA8235 5-1-70	C-1															
CA8235 5-1-70	C-2	13.033	4.479 4.460 4.446	.274 .290 .278 .268 .279 .272 .277	16.108 % (1) 1.18 (2) 101.35		284.5 % (1) 21.45 (2) 12.94		13.003 4.432 4.452 4.473		.269 .276 .266 .274 .286 .272 .274	15.862 % (1) 2.69 (2) .20 (3) 1.53	260.0	280.5 % (1) 22.56 (2) 14.17 (3) 1.41		
	Avg.	13.033	4.462			264.0		1.078	13.003	4.452				2.1	1.1	1.079

TABLE 4 *

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Description	Mold#/ Panel#	Precure						Post Cure								
		L	W	T	Volume		Weight	Density	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight/wt. gms/% Loss	Density	
CA8235 2nd Batch 5-5-70	B-1	13.085	4.496	.248			329.4		13.078	4.498	.243	14.493 % (1) 1.26		302.5 % (1) 8.17		
			4.502	.248						4.506	.246					
			4.517	.245						4.510	.244					
			.251	.248						.248						
			.252	.248						.248						
	Avg.	13.085	4.505	.249	14.678	240.57	1.369	13.078	4.505	.246	237.5	1.274				
	CA8235 5-5-70	B-2	13.084	4.432	.253			323.3		13.078	4.435	.248	14.268 % (1) 1.20		297.7 % (1) 7.92	
				4.436	.255						4.438	.252				
				4.430	.249						4.432	.246				
				.247	.244						.244					
.248				.240	.246											
Avg.		13.084	4.433	.249	14.442	236.70	1.366	13.078	4.435	.246	233.9	1.273				
CA8235 5-5-70		C-1	13.053	4.436	.256			330.3		13.058	4.434	.252	14.407 % (1) 1.61		302.0 % (1) 8.57	
				4.439	.255						4.435	.250				
				4.427	.251						4.424	.248				
				.251	.247						.247					
	.252			.248	.247											
	Avg.	13.053	4.434	.253	14.643	240.00	1.376	13.058	4.431	.249	236.1	1.279				
	CA8235 5-5-70	C-2	13.071	4.499	.251			329.5		13.072	4.498	.246	14.387 % (1) 1.175		300.0 % (1) 8.95	
				4.468	.252						4.470	.248				
				4.453	.249						4.454	.248				
				.248	.244						.245					
.248				.242	.246											
Avg.		13.071	4.473	.249	14.558	238.61	1.381	13.072	4.474	.246	235.8	1.272				
FM5228 5-11-70 1st Run 21436 5000°F		A-1	13.065	4.530	.255			349.4		13.066	4.529	.254	14.990 % (1) .68		334.4 % (1) 4.29	
				4.532	.254						4.534	.251				
				4.528	.252						4.529	.252				
				.256	.254						.254					
	.257			.253	.254											
	Avg.	13.065	4.530	.255	15.092	247.44	1.412	13.066	4.531	.253	245.7	1.361				

TABLE X B

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Description	Mold#/ Panel#	Carbonization							Graphitization							Total % Shrinkage Based on Thickness	% Shrinkage Based on Thickness Carb. to Graph.	Final Density gms/cc
		L	W	T	In ³ Vol. % Shrink	Cm ³	Weight/ % Loss	Density gms/cc	L	W	T	In ³ Vol. % Shrink	Cm ³	Weight/ % Loss				
CA8235 2nd Batch 5-5-70	B-1																	
CA8235 5-5-70	B-2	13.075	4.435 4.433 4.427	.252 .255 .251 .247 .249 .248	14.487 % (1) .31 (2) 101.53		264.8 % (1) 18.09 (2) 11.05		13.052	4.433 4.427 4.419	.252 .252 .252 .248 .246 .247	14.385 % (1) 0.39 (2)* 0.81 (3) 0.71		261.3/ % (1) 19.17 (2) 12.23 (3) 1.32				
	Avg.	13.075	4.432	.250		237.4	1.115	13.052	4.426	.249		235.77	1.1082					
CA8235 5-5-70	C-1	13.048	4.435 4.435 4.422	.257 .255 .252 .251 .252 .250	14.627 % (1) .11 (2) 101.53		266.8 % (1) 19.22 (2) 11.66		13.036	4.422 4.428 4.429	.249 .249 .251 .249 .251 .252	14.425/ % (1) 1.5 (2)* 0.13 (3) 1.4		265.0/ % (1) 19.77 (2) 12.25 (3) 0.67				
	Avg.	13.048	4.431	.253		239.7	1.113	13.036	4.426	.250		236.43	1.120					
CA8235 5-5-70	C-2	13.065	4.489 4.468 4.450	.253 .253 .251 .248 .248 .247	14.597 % (1) 100.27 (2) 100.15		268.0 % (1) 18.66 (2) 10.67		13.040	4.480 4.462 4.452	.250 .249 .247 .246 .249 .244	14.378/ % (1) 1.22 (2) 0.04 (3) 1.46		264.9/ % (1) 19.61 (2) 11.70 (3) 1.16				
	Avg.	13.065	4.469	.250		239.2	1.120	13.040	4.464	.247		235.7	1.1239					
FM5228 5-14-70 1st Run 21436	A-1	13.052	4.528 4.528 4.528	.252 .252 .252 .252 .249 .253	14.893 % (1) 1.32 (2) .65		288.1 % (1) 17.54 (2) 13.85		13.069	4.536 4.536 4.532	.252 .252 .254 .254 .254 .252	15.00 % (1) 0.90 (2) *0.06 (3) *0.80		286.1 % (1) 18.12 (2) 14.44 (3) 0.69				
5000°F	Avg.	13.052	4.528	.252		244.1	1.180	13.069	4.535	.253		245.85	1.163					
																	4000°F Graph	

4000°F Graph

*Increase in cu. in. from graph to post cure.

TABLE IXI A

Description	Mold# / Panel#	Precure						Post Cure							
		L	W	T	Volume		Weight	Density	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight / Wt. gms / % Loss	Density
FM5228 5-14-70 1st Run 21436 1000°F	A-2	13.070	4.534 4.527 4.526	.256 .257 .257 .254 .256 .252			350.1		13.075	4.530 4.528 4.525	.254 .255 .255 .252 .253 .251	14.979 % (1) .76		334.3 % (1) 4.51	
	Avg.	13.070	4.529	.255	15.094	247.4		1.415	13.075	4.528	.253		245.5		1.362
FM5228 5-15-70 1st Run 21436 (cut up for impregnation studies)	B-1	13.058	4.530 4.534 4.530	.259 .258 .259 .260 .259 .261			349.7		13.058	4.530 4.532 4.532	.256 .255 .256 .258 .257 .258	15.206 % (1) .77		332.7 % (1) 4.86	
	Avg.	13.058	4.531	.259	15.324	251.2		1.392	13.058	4.531	.257		249.2		1.335
FM5228 5-15-70 21436	A-1	13.060	4.532 4.528 4.532	.250 .253 .251 .254 .255 .254			348.4		13.064	4.528 4.534 4.534	.250 .252 .253 .253 .253 .254	14.979 % (1) 100.05		332.2 % (1) 4.36	
	Avg.	13.060	4.531	.253	14.971	245.4		1.420	13.064	4.532	.253		245.5		1.357
FM5228 5-15-70 21436 4000°F	A-2	13.082	4.535 4.526 4.536	.253 .253 .253 .252 .252 .253			348.3		13.080	4.535 4.532 4.531	.251 .251 .252 .250 .251 .251	14.882 % (1) .79		332.4 % (1) 4.57	
	Avg.	13.082	4.532	.253	15.000	245.9		1.416	13.080	4.533	.251		243.9		1.363
FM5228 5-15-70	B-2	13.062	4.530 4.528 4.532	.262 .261 .260 .259 .257 .259			349.8		13.064	4.532 4.528 4.540	.258 .258 .256 .256 .257 .257	15.219 % (1) 1.07		333.0 % (1) 4.80	
	Avg.	13.062	4.530	.260	15.384	252.1		1.388	13.064	4.533	.257		249.4		1.335

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[illegible]

TABLE XII A

Page 23

Description	Mold#/ Panel#	Precure							Post Cure						
		L	W	T	Volume		Weight	Density	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density
FM5228 5-15-70 21436	C-1	13.077	4.527 4.520 4.536	.249 .249 .249 .255 .254 .256 .252			347.9		13.080	4.528 4.520 4.528	.247 .249 .249 .252 .253 .254 .251	14.856 % (1) .44		333.2 % (1) 4.23	
	Avg.	13.077	4.528		14.922	244.6		1.422	13.080	4.525			243.5		1.368
FM5228 Standard 5-19-70	A-1	13.023	4.437 4.441 4.432	.262 .262 .262 .261 .264 .265 .263			342.0								
	Avg.	13.023	4.437		15.197	249.1		1.373							
FM5228 Standard 5-19-70	A-2	13.018	4.407 4.408 4.406	.258 .263 .261 .266 .263 .262 .262			340.6		13.019	4.408 4.404 4.413	.257 .261 .258 .262 .260 .260 .260	14.921 % (1) .73		325.8 % (1) 4.35	
	Avg.	13.018	4.407		15.031	246.4		1.382	13.019	4.408			244.6		1.332
FM5228 Standard 5-19-70	B-1	13.019	4.440 4.434 4.444	.260 .262 .258 .263 .260 .263 .261			337.3		13.022	4.440 4.435 4.440	.257 .260 .257 .259 .257 .258 .258	14.910 % (1) 1.15		324.4 % (1) 3.82	
	Avg.	13.019	4.439		15.084	247.2		1.364	13.022	4.438			244.4		1.327
FM5228 Standard 5-19-70	B-2	13.021	4.412 4.407 4.408	.261 .262 .262 .257 .262 .258 .260			344.6		13.024	4.412 4.407 4.408	.260 .260 .258 .253 .261 .255 .258	14.815 % (1) .74		321.1 % (1) 4.03	
	Avg.	13.021	4.409		14.926	244.6		1.368	13.024	4.409			242.8		1.322

TABLE III B

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Description	Mold#/ Panel#	Carbonization							Graphitization							Total % Shrinkage Based on Thickness	Shrinkage Based on Thickness Carb. to Graph.	Final Density gms/cc
		L	W	T	Vol. In ³ % Shrink	Cm ³	Weight/ % Loss	Density gms/cc	L	W	T	Vol. In ³ % Shrink	Cm ³	Weight/ % Loss				
FM5228 5-15-70 21436	C-1	13.071	4.527	.248	14.852		288.6		13.048	4.526	.249	14.696	240.87	285.2				
			4.522	.250	%		%			4.516	.248	%		%				
			4.532	.248	(1) .47		(1) 17.05			4.528	.247	(1) 1.51		(1) 18.92				
				.253	(2) .03		(2) 13.39				.250	(2) 1.08		(2) 14.41				
				.252							.249	(3) 1.05		(3) 1.18				
				.255							.253							
	Avg.	13.071	4.527	.251		243.4		1.186	13.048	4.523	.249	14.696	240.87		1.19	0.80	1.1640	
FM5228 Standard 5-19-70	A-1																	
FM5228 Standard 5-19-70	A-2	13.004	4.403	.258	14.833		284.2		13.025	4.408	.255	14.809		280.7			1.1566	
			4.405	.260	%		%			4.407	.259	%		%				
			4.404	.256	(1) 1.32		(1) 16.56			4.407	.258	(1) 1.48		(1) 17.59				
				.261	(2) .59		(2) 12.77				.260	(2) 0.75		(2) 13.84				
				.259							.258	(3) 0.16		(3) 1.23				
				.262							.257							
	Avg.	13.004	4.404	.259		243.1		1.169	13.025	4.407	.258		242.72		1.53	0.39		
FM5228 Standard 5-19-70	B-1																	
FM5228 Standard 5-19-70	B-2	13.012	4.410	.260	14.845		281.0		13.030	4.417	.258	14.772		277.5			1.1462	
			4.402	.259	%		%			4.404	.257	%		%				
			4.404	.259	(1) .54		(1) 16.02			4.412	.258	(1) 1.02		(1) 17.07				
				.254	(2) 100.20		(2) 12.49				.253	(2) 0.29		(2) 13.58				
				.264							.261	(3) 0.41		(3) 1.25				
				.256							.254							
	Avg.	13.012	4.405	.259		243.1		1.156	13.030	4.411	.257		242.11		1.15	0.77		

TABLE XIII A

Description	Mold#/ Panel#	Precure							Post Cure						
		L	W	T	Volume		Weight	Density	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density
FM5228 Standard 5-19-70	C-1	13.015	4.432 4.436 4.436	.261	15.123	247.9	341.2	1.376	13.016	4.435 4.436 4.436	.257	14.954 % (1) 1.12	245.1	326.3 % (1) 4.37	1.331
				.260							.258				
				.263							.258				
				.260							.258				
				.266							.263				
	Avg.	4.435	.262	1.376	4.436	.259	245.1	1.331							
FM5228 Standard 5-19-70	C-2	13.023	4.414 4.408 4.410	.262	15.050	246.7	1.377	13.021	4.415 4.410 4.410	.259	14.879 % (1) 1.14	243.9	325.1 % (1) 4.30	1.333	
				.265						.262					
				.260						.258					
				.258						.256					
				.262						.259					
	Avg.	4.411	.262	1.377	4.412	.261	243.9	1.333							
FM5228 5-21-70	A-1	13.012	4.465 4.472 4.469	.266	15.410	252.6	1.402	13.013	4.468 4.475 4.471	.261	15.243 % (1) 1.08	249.8	327.2 % (1) 7.62	1.310	
				.264						.261					
				.262						.261					
				.269						.264					
				.266						.263					
	Avg.	4.469	.265	1.402	4.471	.260	249.8	1.310							
FM5228 5-21-70	A-2	13.010	4.427 4.416 4.420	.266	15.185	248.9	1.401	13.012	4.430 4.418 4.424	.263	15.024 % (1) 1.06	246.2	323.5 % (1) 7.25	1.314	
				.265						.261					
				.267						.264					
				.262						.259					
				.261						.260					
	Avg.	4.421	.264	1.401	4.424	.261	246.2	1.314							
FM5228 5-21-70	B-1	13.012	4.466 4.472 4.468	.265	15.468	253.5	1.392								
				.265											
				.265											
				.267											
				.266											
	Avg.	4.469	.266	1.392											

TABLE XIII B

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Description	Mold#/ Panel#	Carbonization						Graphitization						Total % Shrinkage Based on Thickness	% Shrinkage Based on Thickness Carb. to Graph.	Final Density gms/cc	
		L	W	T	In ³ Vol. % Shrink	Cm ³	Weight/ % Loss	Density gms/cc	L	W	T	Vol. In ³ / % Shrink	Cm ³				Weight/ % Loss
FM5223 Standard 5-19-70	C-1	13.000	4.432 4.432 4.434	.258 .259 .259 .258 .261 .261	14.926 % (1) 1.30 (2) .19		285.2 % (1) 16.41 (2) 12.60										
	Avg.	13.000	4.433	.259		244.6		1.166									
FM5228 Standard 5-19-70	C-2	13.005	4.410 4.400 4.410	.259 .260 .259 .255 .260 .262	14.844 % (1) 1.37 (2) .24		284.0 % (1) 16.40 (2) 12.64		13.023	4.417 4.406 4.407	.257 .258 .257 .254 .258 .259	14.760 % (1) 1.95 (2) 0.82 (3) 0.58		280.5 % (1) 17.43 (2) 13.72 (3) 1.23			
	Avg.	13.005	4.407	.259		243.3		1.167	13.023	4.410	.257		241.92		1.51	0.77	1.160
FM5228 5-21-70 21436	A-1																
FM5228 5-21-70 21436	A-2	12.998	4.423 4.417 4.421	.265 .261 .263 .260 .266 .263	15.11 % (1) 0.49 (2) *0.59		288.0 % (1) 17.43 (2) 10.97		12.982	4.421 4.412 4.423	.262 .260 .262 .259 .258 .260	14.916 % (1) 1.77 (2) 0.72 (3) 0.63		284.0 % (1) 18.58 (2) 12.21 (3) 1.39			
	Avg.	12.998	4.420	.263		247.7		1.163	12.982	4.419	.260		244.47		1.52%	1.14%	1.1616
FM5228 5-21-70 21436	B-1																

*Increase

TABLE XIV A

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Description	Mold#/ Panel#	Precure						Post Cure							
		L	W	T	Volume		Weight	Density	L	W	T	Vol. In ³ / % Shrink	Vol. Cm	Weight/Wt. gms/% Loss	Density
FM5228 5-21-70 21136	B-2	13.009	4.425 4.416 4.420	.268 .267 .267 .262 .264 .265 .266			349.4		13.012	4.425 4.421 4.423	.264 .260 .263 .261 .263 .260 .262	15.079 % (1) 1.41		322.2 % (1) 7.78	
	Avg.	13.009	4.420	.266	15.295	250.7		1.394	13.012	4.423	.262		247.1		1.304
FM5228 5-21-70 21136	C-1	13.012	4.472 4.472 4.470	.261 .261 .262 .265 .265 .264 .263			349.3		13.015	4.470 4.480 4.475	.258 .258 .259 .262 .262 .263 .260	15.143 % (1) 1.03		323.5 % (1) 7.39	
	Avg.	13.012	4.471	.263	15.300	250.8		1.393	13.015	4.475	.260		248.2		1.303
*FM5228 5-21-70 21136	C-2	13.010	4.425 4.418 4.420	.264 .262 .265 .263 .260 .259 .262			346.5		13.011	4.429 4.420 4.423	.261 .258 .262 .258 .262 .256 .260	14.966 % (1) .69		319.6 % (1) 7.76	
	Avg.	13.010	4.421	.262	15.070	247.0		1.403	13.011	4.424	.260		245.3		1.303
WCA/260	A-1	13.227	4.515 4.516 4.508	.286 .288 .290 .288 .290 .292 .289			393.5		13.226	4.516 4.515 4.512	.285 .287 .287 .292 .285 .289 .288	17.19 % (1) 0.35		383.3 % (1) 2.95	
	Avg.	13.227	4.513	.289	17.251	282.7		1.392	13.226	4.514	.288		281.81		1.360
WCA/260	A-2	13.284	4.512 4.505 4.512	.288 .284 .292 .288 .291 .289 .287			391.6		13.280	4.511 4.509 4.512	.281 .286 .284 .288 .281 .288 .285	17.07 % (1) 0.46		381.3 % (1) 2.63	
	Avg.	13.284	4.510	.287	17.194	281.8		1.390	13.280	4.511	.285		279.8		1.363

*Increase

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