



NOCSAE Test Results

Requestor Data:

GelCool Systems
6596 Highway 100
Nashville, Tennessee 37205

Contact: Larry Wahl
Phone: (615) 352-5815

Report Date: December 14, 2007

Test Report Number: R4151-A

Laboratory Technician: Louise Ellenburg
Laboratory Supervisor: Mel Cook
Technical Director: P. David Halstead

Test Type: NOCSAE DOC (ND) 002-98m05 "Standard Performance Specification for newly Manufactured Football Helmets".

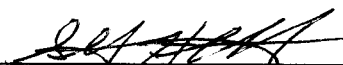
Deviations from Standard: Labeling requirements not evaluated for this test.

Subject: Two of each size L and XL Riddell model Revolution and VSR-4 football helmets with GelCool system conditioned at ambient temperature installed, submitted by GelCool in new unused condition for evaluation.

Test Results: The NOCSAE standard requires evaluation of helmet performance in random locations; not every possible random location was evaluated during this test. These helmets appear to be constructed of materials that are not known to cause skin irritation or disease. This model size met the requirements of the standard as tested; see attached data sheets.

Model #	Size	Comply/ Comment
Revolution	Large	Compliant / As Tested
Revolution	X-Large	Compliant / As Tested
VSR-4	Large	Compliant / As Tested
VSR-4	X-Large	Compliant / As Tested

Notice: This report only describes results obtained from testing performed on the submitted samples noted above.

Reviewed By: 

Title of Reviewer: Adm. Dir.

**Football Helmet Shock Attenuation Test
(NOCSAE Standard)**

Manufacturer: Riddell Helmet / Gel Cool Test #: 1 Pass: X Fail: _____
 Make, Model: VSR-4 w/ Gel Cool Pak @ Amb. Temp Date: 12/11/2007 Head Model: RMM094
 Size: Large Date Code: January-08 Technician(s): M. Cook
 SN: _____ Helmet Ref #: 1 Conditions: 72 Deg. F 48 %RH
 See Comments, below, for further information.

Equipment Check-out:

Before Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	467	152
18	476	153
18	483	154

After Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	471	148
18	466	148
18	465	147

Summary:

	SI	GS
Avg. Before	475	153
Avg. After	467	148
% Difference	1.7%	3.5%

Helmet Ambient Temperature Drops:

Drop Height (inches)	Front		Side		Rear Boss		Rear		Top		Random	
	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS
36	199	79	243	95								
48	350	105	338	115								
60	414	115	467	136	637	138	750	166	752	137	826	157
60	501	137	411	130	644	140	782	165	788	129	844	157

Helmet High Temperature Drops:

High Temp. Condition: 116 Deg. F

Drop Height (inches)	Side	
	SI	GS
60	421	110
60	452	116

Random Location: Upper Rear

Comments: _____

Football Helmet Shock Attenuation Test (NOCSAE Standard)

Manufacturer: Riddell Helmet / Gel Cool Test #: 1 Pass: X Fail: _____
 Make, Model: VSR-4 w/ Gel Cool Pak @ Amb. Temp Date: 12/10/2007 Head Model: RML001
 Size: X-Large Date Code: January-08 Technician(s): M. Cook
 SN: _____ Helmet Ref #: 1 Conditions: 72 Deg. F 48 %RH
 See Comments, below, for further information.

Equipment Check-out:

Before Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	606	169
18	580	168
18	579	167

After Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	603	169
18	584	166
18	592	168

Summary:

	SI	GS
Avg. Before	588	168
Avg. After	593	168
% Difference	0.8%	0.2%

Helmet Ambient Temperature Drops:

Drop Height (inches)	Front		Side		Rear Boss		Rear		Top		Random	
	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS
36	272	88	270	91								
48	476	123	361	99								
60	511	123	502	116	621	131	748	133	600	110	793	140
60	680	139	493	118	645	132	780	141	551	104	843	140

High Temp. Condition: 116 Deg. F

Random Location: Upper Rear

Drop Height (inches)	SI	GS
60	542	140
60	528	134

Comments: _____

**Football Helmet Shock Attenuation Test
(NOCSAE Standard)**

Manufacturer: Riddell Helmet / Gel Cool Test #: 2 Pass: X Fail: _____
 Make, Model: VSR-4 w/ Gel Cool Pak @ Amb. Temp Date: 12/10/2007 Head Model: RML001
 Size: X-Large Date Code: January-08 Technician(s): M. Cook
 SN: _____ Helmet Ref #: 2 Conditions: 72 Deg. F 48 %RH
 See Comments, below, for further information.

Equipment Check-out:

Before Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	606	169
18	580	168
18	579	167

After Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	603	169
18	584	166
18	592	168

Summary:

	SI	GS
Avg. Before	588	168
Avg. After	593	168
% Difference	0.8%	0.2%

Helmet Ambient Temperature Drops:

Drop Height (inches)	Front Boss		Side		Rear Boss		Rear		Top		Random	
	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS
36	247	86	248	86								
48	500	126	346	98								
60	514	126	483	115	612	128	761	133	517	102	779	149
60	629	148	491	118	643	134	769	141	572	105	792	144

High Temp. Condition: 116 Deg. F

Random Location: Lower Rear

Random Location: _____

Helmet High Temperature Drops:

Drop Height (inches)	Side	
	SI	GS
60	659	160
60	596	145

Comments: _____

Football Helmet Shock Attenuation Test (NOCSAE Standard)

Manufacturer: Riddell Helmet / Gel Cool Test #: 3 Pass: X Fail: _____
 Make, Model: Revolution w/ Gel Cool Pak @ Amb Temp Date: 12/11/2007 Head Model: RMM094
 Size: Large Date Code: January-08 Technician(s): M. Cook
 SN: _____ Helmet Ref #: 1 Conditions: 72 Deg. F 48 %RH
 See Comments, below, for further information.

Equipment Check-out:

Drop Height (inches)	Front Boss	
	SI	GS
18	467	152
18	476	153
18	483	154

After Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	471	148
18	466	148
18	465	147

Summary:

	SI	GS
Avg. Before	475	153
Avg. After	467	148
% Difference	1.7%	3.5%

Helmet Ambient Temperature Drops:

Drop Height (inches)	Front		Side		Rear Boss		Rear		Top		Random	
	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS
36	187	73	146	68								
48	357	103	254	86								
60	389	114	335	99	401	95	453	102	395	82	535	105
60	459	128	344	92	389	95	432	101	571	112	593	119

Helmet High Temperature Drops:

Drop Height (inches)	Side	
	SI	GS
60	360	111
60	325	101

High Temp. Condition: 116 Deg. F

Random Location: Upper Rear

Comments: _____

Football Helmet Shock Attenuation Test (NOCSAE Standard)

Manufacturer: Riddell Helmet / Gel Cool Test #: 4 Pass: X Fail: _____
 Make, Model: Revolution w/ Gel Cool Pak @ Amb Temp Date: 12/11/2007 Head Model: RMM094
 Size: Large Date Code: January-08 Technician(s): M. Cook
 SN: _____ Helmet Ref #: 2 Conditions: 72 Deg. F 48 %RH
 See Comments, below, for further information.

Equipment Check-out:

Drop Height (inches)	Front Boss	
	SI	GS
18	467	152
18	476	153
18	483	154

After Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	471	148
18	466	148
18	465	147

Summary:

	SI	GS
Avg. Before	475	153
Avg. After	467	148
% Difference	1.7%	3.5%

Helmet Ambient Temperature Drops:

Drop Height (inches)	Front		Side		Rear Boss		Rear		Top		Random	
	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS
36		200	158	74								
48		376	267	92								
60	352	112	631	141	376	99	368	92	448	94	490	107
60	422	123	628	141	411	102	363	89	613	114	592	125

Helmet High Temperature Drops:

Drop Height (inches)	Side	
	SI	GS
60	264	87
60	292	91

High Temp. Condition: 116 Deg. F

Random Location: Upper Rear

Comments: _____

**Football Helmet Shock Attenuation Test
(NOCSAE Standard)**

Manufacturer: Riddell Helmet / Gel Cool Test #: 3 Pass: X Fail: _____
 Make, Model: Revolution w/ Gel Cool Pak @ Amb Temp Date: 12/10/2007 Head Model: RML001
 Size: X-Large Date Code: January-08 Technician(s): M. Cook
 SN: _____ Helmet Ref #: 1 Conditions: 72 Deg. F 48 %RH
 See Comments, below, for further information.

Equipment Check-out:

Before Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	606	169
18	580	168
18	579	167

After Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	603	169
18	584	166
18	592	168

Summary:

	SI	GS
Avg. Before	588	168
Avg. After	593	168
% Difference	0.8%	0.2%

Helmet Ambient Temperature Drops:

Drop Height (inches)	Front		Side		Rear Boss		Rear		Top		Random	
	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS
36	220	78	169	70								
48	447	118	263	83								
60	531	130	356	98	432	101	451	99	438	91	546	107
60	538	128	360	96	591	129	455	99	467	96	568	109

Helmet High Temperature Drops:

High Temp. Condition: 116 Deg. F

Drop Height (inches)	Side	
	SI	GS
60	460	129
60	477	135

Random Location: Upper Rear

Comments: _____

**Football Helmet Shock Attenuation Test
(NOCSAE Standard)**

Manufacturer: Riddell Helmet / Gel Cool Test #: 4 Pass: X Fail: _____
 Make, Model: Revolution w/ Gel Cool Pak @ Amb Temp Date: 12/10/2007 Head Model: RML001
 Size: X-Large Date Code: January-08 Technician(s): M. Cook
 SN: _____ Helmet Ref #: 2 Conditions: 72 Deg. F 48 %RH
 See Comments, below, for further information.

Equipment Check-out:

Before Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	606	169
18	580	168
18	579	167

After Helmet Test:

Drop Height (inches)	Front Boss	
	SI	GS
18	603	169
18	584	166
18	592	168

Summary:

	SI	GS
Avg. Before	588	168
Avg. After	593	168
% Difference	0.8%	0.2%

Helmet Ambient Temperature Drops:

Drop Height (inches)	Front		Side		Rear Boss		Rear		Top		Random	
	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS	SI	GS
36	217	78	146	65								
48	463	116	256	82								
60	490	124	354	97	450	103	499	98	432	91	548	105
60	586	138	350	93	511	114	504	99	498	93	560	106

Helmet High Temperature Drops:

Drop Height (inches)	Side	
	SI	GS
60	450	130
60	444	129

High Temp. Condition: _____

116 Deg. F

Random Location: _____

Upper Rear

Comments: _____