

**SHIPPING  
CONTAINER  
FIRE TESTING**

**AT 14 GAUGE  
FOR 3 HOUR  
APPROVAL**

SMALL SCALE ASTM E119  
FIRE RESISTANCE  
FOR  
SUPERIOR PRODUCTS INTERNATIONAL II INC.  
ON 300 MILS OF HPC AND 200 MILS  
OF OMEGA FIRE ON 14 GAUGE STEEL  
TESTED: JANUARY 29, 2009  
VTEC #100-3126-2



# VTEC Laboratories Inc.

January 30, 2009

**Client:** Superior Products International II Inc.  
10835 W 78<sup>th</sup> Street  
Shawnee, KS 66214

**Attn:** J.E. Pritchett

**Subject:** Fire Resistance Testing According to Modified ASTM  
E119 Specification.

**SAMPLE DESCRIPTION:**

A 14"x14" 14 gauge steel panel was coated with Hot Pipe Coating and Omega Fire. The Hot Pipe Coating was applied at a dry thickness of 320 mils. The Omega Fire Coating was applied over the Hot Pipe Coating at a dry thickness of 263 mils.

**DISCLAIMER:** This test should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazards or fire risks of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment, which takes into account all of the factors which are pertinent to an assessment of fire hazard of a particular end use.

**Notice:** VTEC Laboratories Inc. will not be liable for any loss or damage resulting from the use of the data in this report, in excess of the invoice. This report pertains to the sample tested only. Such report shall not be interpreted to be a warranty, either expressed or implied as to the suitability or fitness of said sample for such uses or applications, as the party contracting for the report may apply such sample.

**PROCEDURE:**

The furnace used in this test measures 3ft x 3ft x 3ft. The outside construction is steel and the furnace is lined with a ceramic refractory insulation. The furnace dimensions inside the insulation are nominally 27" x 27" x 27". A single burner is centered vertically in the wall opposite the sample. This burner is rated for 1.5 million Btu/hr and is of the flat flame or non-impinging flame design. Furnace conditions are monitored by three Inconel-sheathed chromel-alumel thermocouples. These thermocouples are positioned 6" from the face of the sample. A transition piece was placed on the front of the furnace that had an opening of 12" x 12" where the sample was to be placed.

The sample was oriented vertically in the front opening of the furnace. The unexposed surface temperature of the sample was monitored by two, 20 gauge type K, fiberglass sheathed thermocouples. An insulating pad was placed over each thermocouple on the unexposed side of the sample.

The fire test was run following the ASTM E119 time-temperature curve.

The endpoint for this test occurs when all the thermocouples on the sample reach an average of 1,000°F, or when any individual thermocouple on the sample reaches 1,200°F.

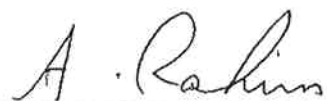
**RESULTS:**

The ambient temperature was 54°F.

An endpoint was reached at 3 hours and 28 minutes, when the average of all thermocouples exceeded 1000°F. A second endpoint was reached at 3 hours and 57 minutes, when thermocouple #1 exceeded 1200°F.

The time-temperature data are contained on the following pages.

  
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Neil Schultz  
Executive Director

  
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Amirudin Rahim  
Technical Director

Time (min)	Unexposed Side	Unexposed Side	Furnace Temp.	Furnace Temp.	Furnace Temp.	Avg. of Unexposed	Avg. of
	Top Left (Deg. F) <u>Channel 1</u>	Bottom Right (Deg. F) <u>Channel 2</u>	(Deg. F) <u>Channel 3</u>	(Deg. F) <u>Channel 4</u>	(Deg. F) <u>Channel 5</u>	Side (Deg. F) <u>Channel 6</u>	Furnace (Deg. F) <u>Channel 7</u>
0	55	54	51	51	51	54	51
1	54	54	55	55	55	54	55
2	54	54	711	743	682	54	712
3	55	54	733	775	722	55	744
4	58	56	785	827	773	57	795
5	63	59	809	847	799	61	819
6	70	64	1049	1115	1046	67	1070
7	80	71	1155	1198	1141	75	1164
8	93	80	1209	1230	1182	86	1207
9	106	91	1239	1255	1212	98	1236
10	118	102	1257	1277	1238	110	1257
11	128	111	1271	1292	1259	119	1274
12	135	117	1300	1320	1285	126	1302
13	141	122	1310	1325	1294	131	1310
14	144	125	1318	1348	1315	135	1327
15	140	129	1340	1360	1330	134	1343
16	139	131	1348	1367	1337	135	1350
17	140	134	1360	1377	1346	137	1361
18	141	137	1364	1381	1360	139	1369
19	142	139	1375	1393	1369	141	1379
20	145	142	1384	1408	1375	143	1389
21	147	145	1386	1412	1386	146	1395
22	150	147	1398	1416	1390	148	1402
23	151	149	1401	1418	1400	150	1406
24	153	151	1465	1483	1469	152	1472
25	155	154	1494	1511	1494	154	1500
26	156	156	1500	1527	1507	156	1512
27	158	157	1509	1527	1512	158	1516
28	159	159	1527	1540	1530	159	1532
29	161	162	1537	1552	1540	161	1543
30	162	163	1538	1556	1545	163	1546
31	163	165	1552	1568	1561	164	1560
32	165	167	1560	1571	1562	166	1564
33	167	169	1566	1584	1569	168	1573
34	167	171	1573	1585	1580	169	1579
35	168	172	1579	1591	1575	170	1582

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	<u>Channel 1</u>	<u>Channel 2</u>	<u>Channel 3</u>	<u>Channel 4</u>	<u>Channel 5</u>	<u>Channel 6</u>	<u>Channel 7</u>
36	170	174	1581	1600	1584	172	1589
37	171	176	1587	1603	1594	173	1595
38	172	177	1585	1612	1596	174	1598
39	172	178	1587	1604	1595	175	1595
40	174	179	1590	1611	1605	176	1602
41	173	181	1582	1608	1592	177	1594
42	175	182	1591	1613	1594	179	1599
43	176	184	1592	1621	1603	180	1605
44	177	185	1596	1622	1610	181	1609
45	178	186	1600	1623	1613	182	1612
46	180	188	1599	1621	1610	184	1610
47	182	190	1605	1625	1619	186	1616
48	183	193	1608	1630	1620	188	1619
49	186	196	1606	1631	1618	191	1619
50	190	198	1615	1640	1629	194	1628
51	191	202	1615	1639	1625	196	1626
52	192	205	1622	1641	1627	198	1630
53	194	207	1673	1694	1684	200	1684
54	196	210	1668	1698	1690	203	1685
55	199	213	1677	1700	1693	206	1690
56	202	215	1683	1709	1701	208	1698
57	204	219	1690	1708	1706	211	1701
58	207	222	1691	1723	1711	214	1709
59	209	224	1700	1730	1716	216	1715
60	211	227	1715	1744	1731	219	1730
61	215	230	1714	1744	1738	223	1732
62	223	233	1722	1737	1736	228	1732
63	232	236	1734	1754	1745	234	1744
64	239	239	1730	1760	1751	239	1747
65	247	242	1730	1758	1750	244	1746
66	253	245	1736	1764	1756	249	1752
67	257	248	1738	1756	1747	252	1747
68	260	250	1741	1761	1746	255	1749
69	262	254	1741	1762	1756	258	1753
70	265	256	1737	1750	1752	261	1746
71	268	259	1750	1764	1763	263	1759

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72	270	262	1744	1764	1753	266	1754
73	272	264	1742	1762	1758	268	1754
74	296	277	1742	1770	1761	287	1758
75	309	282	1748	1773	1761	295	1760
76	316	285	1753	1778	1770	301	1767
77	323	288	1759	1781	1772	305	1771
78	328	291	1755	1772	1770	310	1765
79	334	294	1756	1781	1773	314	1770
80	338	297	1761	1777	1773	317	1770
81	341	299	1759	1775	1776	320	1770
82	345	302	1756	1774	1773	323	1768
83	348	304	1757	1790	1783	326	1777
84	351	307	1757	1788	1777	329	1774
85	353	310	1762	1790	1779	331	1777
86	356	312	1758	1791	1782	334	1777
87	357	315	1762	1785	1778	336	1775
88	360	317	1766	1789	1780	339	1779
89	361	320	1764	1782	1781	340	1775
90	363	322	1765	1792	1780	342	1779
91	364	325	1768	1793	1787	344	1783
92	366	327	1769	1794	1784	347	1782
93	367	329	1775	1809	1798	348	1794
94	367	331	1799	1828	1816	349	1814
95	368	334	1807	1830	1828	351	1822
96	370	336	1811	1841	1829	353	1827
97	374	339	1816	1841	1834	356	1831
98	377	342	1819	1845	1841	360	1835
99	381	345	1819	1845	1848	363	1837
100	385	349	1825	1851	1842	367	1839
101	389	352	1821	1854	1851	370	1842
102	394	356	1826	1853	1850	375	1843
103	400	360	1827	1856	1842	380	1842
104	407	365	1832	1856	1854	386	1848
105	415	369	1833	1856	1853	392	1847
106	421	373	1824	1846	1848	397	1840
107	428	378	1833	1858	1851	403	1847

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108	435	382	1833	1859	1855	409	1849
109	444	387	1827	1862	1857	416	1849
110	455	393	1837	1860	1853	424	1850
111	463	398	1825	1859	1853	430	1846
112	473	402	1825	1854	1847	437	1842
113	480	407	1821	1855	1850	444	1842
114	490	412	1832	1859	1852	451	1848
115	499	416	1834	1860	1850	458	1848
116	507	421	1833	1855	1851	464	1846
117	519	426	1828	1854	1850	473	1844
118	539	431	1828	1867	1860	485	1852
119	557	436	1826	1861	1853	497	1847
120	577	444	1833	1861	1856	511	1850
121	605	451	1826	1852	1848	528	1842
122	621	458	1835	1864	1854	539	1851
123	638	464	1830	1856	1855	551	1847
124	652	471	1839	1863	1859	561	1854
125	675	477	1834	1864	1856	576	1851
126	686	483	1841	1868	1859	585	1856
127	694	489	1842	1861	1866	591	1856
128	705	495	1847	1875	1861	600	1861
129	714	501	1841	1875	1868	607	1862
130	718	506	1841	1879	1870	612	1863
131	723	512	1851	1882	1870	617	1868
132	727	516	1844	1870	1869	622	1861
133	724	521	1841	1875	1866	623	1861
134	729	526	1841	1877	1865	628	1861
135	729	531	1843	1881	1868	630	1864
136	735	536	1844	1870	1869	636	1861
137	735	541	1844	1879	1874	638	1865
138	734	546	1850	1877	1868	640	1865
139	737	552	1852	1877	1869	644	1866
140	737	556	1846	1878	1867	647	1864
141	732	565	1845	1874	1869	648	1863
142	740	570	1855	1889	1879	655	1874
143	740	575	1846	1879	1870	658	1865

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144	746	576	1859	1882	1872	661	1871
145	744	584	1853	1883	1873	664	1870
146	745	590	1849	1876	1877	667	1868
147	747	595	1853	1878	1870	671	1867
148	748	600	1855	1881	1879	674	1871
149	749	606	1850	1877	1877	678	1868
150	751	611	1855	1882	1870	681	1869
151	752	616	1845	1876	1872	684	1865
152	754	622	1849	1887	1874	688	1870
153	767	627	1858	1892	1881	697	1877
154	800	633	1852	1880	1875	716	1869
155	806	638	1854	1884	1875	722	1871
156	852	643	1849	1887	1877	747	1871
157	870	644	1852	1876	1874	757	1867
158	888	649	1852	1882	1877	768	1870
159	914	667	1950	1978	1967	790	1965
160	934	693	1934	1963	1953	814	1950
161	948	709	1931	1954	1952	829	1946
162	939	716	1731	1754	1752	828	1746
163	923	715	1823	1849	1838	819	1837
164	913	715	1878	1903	1899	814	1893
165	921	721	1914	1933	1927	821	1924
166	934	729	1916	1937	1935	832	1929
167	944	737	1922	1944	1939	841	1935
168	952	746	1930	1954	1948	849	1944
169	962	756	1938	1964	1955	859	1952
170	970	765	1937	1967	1954	867	1953
171	976	770	1941	1962	1963	873	1955
172	979	778	1943	1973	1963	878	1960
173	989	786	1949	1969	1966	887	1961
174	990	791	1953	1981	1972	890	1969
175	1004	798	1950	1975	1964	901	1963
176	1005	802	1941	1978	1970	904	1963
177	1005	809	1934	1956	1952	907	1947
178	1013	807	1922	1952	1941	910	1938
179	1007	813	1919	1945	1934	910	1933

Time (min)	Unexposed Side	Unexposed Side	Furnace Temp.	Furnace Temp.	Furnace Temp.	Avg. of Unexposed	Avg. of
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180	1011	813	1909	1938	1933	912	1927
181	1010	814	1908	1941	1928	912	1925
182	1009	818	1910	1934	1934	913	1926
183	1006	820	1912	1935	1931	913	1926
184	1013	819	1915	1938	1934	916	1929
185	1012	820	1911	1935	1928	916	1925
186	1015	823	1901	1934	1923	919	1919
187	1016	823	1911	1940	1930	919	1927
188	1012	829	1911	1937	1930	920	1926
189	1017	827	1923	1956	1943	922	1941
190	1022	834	1933	1957	1948	928	1946
191	1030	835	1930	1966	1955	933	1950
192	1033	846	1938	1966	1954	940	1953
193	1040	851	1939	1963	1956	945	1953
194	1039	855	1940	1966	1956	947	1954
195	1043	860	1941	1965	1958	951	1955
196	1050	863	1943	1963	1956	956	1954
197	1055	866	1938	1971	1961	961	1957
198	1061	872	1945	1968	1953	966	1955
199	1067	876	1946	1973	1959	971	1959
200	1065	879	1945	1967	1959	972	1957
201	1067	882	1948	1969	1961	975	1960
202	1077	886	1937	1970	1958	982	1955
203	1080	891	1938	1973	1963	986	1958
204	1086	895	1945	1977	1964	990	1962
205	1087	897	1943	1977	1960	992	1960
206	1093	902	1950	1974	1958	998	1961
207	1094	904	1947	1979	1960	999	1962
208	1099	908	1940	1979	1967	1003	1962
209	1106	909	1947	1980	1966	1007	1965
210	1107	917	1945	1973	1962	1012	1960
211	1110	918	1944	1966	1966	1014	1958
212	1111	921	1945	1981	1966	1016	1964
213	1117	926	1944	1977	1966	1022	1962
214	1115	928	1946	1976	1964	1021	1962
215	1120	931	1939	1975	1962	1026	1959

Time (min)	Unexposed Side	Unexposed Side	Furnace Temp.	Furnace Temp.	Furnace Temp.	Avg. of Unexposed	Avg. of
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	<u>Channel 1</u>	<u>Channel 2</u>	<u>Channel 3</u>	<u>Channel 4</u>	<u>Channel 5</u>	<u>Channel 6</u>	<u>Channel 7</u>
216	1125	937	1943	1977	1965	1031	1962
217	1130	940	1945	1977	1963	1035	1962
218	1134	938	1948	1973	1963	1036	1961
219	1134	946	1954	1985	1970	1040	1970
220	1137	950	1951	1985	1967	1043	1968
221	1138	952	1944	1981	1970	1045	1965
222	1143	958	1952	1976	1967	1050	1965
223	1146	959	1940	1974	1965	1052	1959
224	1148	963	1959	1984	1973	1055	1972
225	1154	968	1971	1996	1982	1061	1983
226	1156	972	1973	1999	1991	1064	1988
227	1166	981	1975	2002	1991	1074	1990
228	1170	985	1975	2003	1987	1077	1988
229	1174	987	1969	2004	1991	1081	1988
230	1180	992	1969	2003	1994	1086	1989
231	1185	1002	1973	2012	1994	1093	1993
232	1187	1003	1971	2011	1999	1095	1993
233	1193	1011	1974	2004	1993	1102	1990
234	1195	1013	1972	1995	1991	1104	1986
235	1196	1017	1980	2009	1995	1106	1995
236	1198	1022	1981	2009	1994	1110	1994
237	1202	1026	1972	2011	1996	1114	1993
238	1200	1030	1976	2012	2001	1115	1997
239	1206	1031	1978	2014	1999	1118	1997