File created by SFG. Data obtained by BAMV.

Version 5/2/11 - updated to make limits a function of energy rather than momentum

Light gas gun results for CFRP/ Kapton.

PENETRATION DATA

shot no	Date	Projectile material	penetration?	particle (m)	Density kg m-3	Calculated mass of 1 particle	velocity km/s	Momentum of 1 particle	impacting particles	momentum of particles	area mm2	area mm2	kinetic energy of 1 particle	log ke
37		4520	yes	0.001	4540	2.38E-06	5.09	1.21E-02	1	1.21E-02	3.5	26.21	6.16E+01	1.7894911
12		Al	yes	0.001	2710	1.42E-06	5.01	7.11E-03	1	7.11E-03	6.08	22.46	3.56E+01	1.5516444
13		Al	yes	0.0015	2710	4.79E-06	4.69	2.25E-02	1	2.25E-02	10.41	39.93	1.05E+02	2.0225884
14		Al	yes	0.0008	2710	7.27E-07	5.21	3.79E-03	1	3.79E-03	4.27	15.04	1.97E+01	1.2949143
18		Al	yes	0.001	2710	1.42E-06	4.85	6.88E-03	1	6.88E-03	4.71	22.04	3.34E+01	1.5234524
23		Al	yes	0.001	2710	1.42E-06	5.35	7.59E-03	1	7.59E-03	3.49	19.19	4.06E+01	1.6086765
46	98/06/23d	Al	yes	3.81E-04	2710	7.85E-08	5.75	4.51E-04	3	1.35E-03	5.01	0.44	2.59E+00	0.4140795
47	98/06/26a	Al	yes	0.001	2710	1.42E-06	5.61	7.96E-03	1	7.96E-03	5.83	34.52	4.47E+01	1.6498947
48	98/06/26b	Al	yes	0.001	2710	1.42E-06	5.28	7.49E-03	1	7.49E-03	5.06	20.26	3.96E+01	1.5972368
15		Nylon	yes	0.0012	1150	1.04E-06	5.17	5.38E-03	1	5.38E-03	4.92	0.4	2.78E+01	1.4442223
16		Nylon	yes	0.0012	1150	1.04E-06	5	5.20E-03	1	5.20E-03	6.19	1.39	2.60E+01	1.4151812
17		Nylon	yes	0.0012	1150	1.04E-06	4.07	4.23E-03	1	4.23E-03	4.08	8.52	1.72E+01	1.2364300
25		Nylon	yes	0.0012	1150	1.04E-06	5.02	5.22E-03	1	5.22E-03	5.14		2.62E+01	1.4186487
41		Phosphor-bronze	yes	0.001	8900	4.66E-06	5.27	2.46E-02	1	2.46E-02	3.74	18.33	1.29E+02	2.1120109
50	98/07/06a	Soda Glass	no	0.0001951	2450	9.53E-09	5.29	5.04E-05	6	3.02E-04	1.18	0	2.67E-01	-0.574151
52	98/12/18a	Soda Glass	no	0.00105	2450	1.49E-06	6.1	9.06E-03	1	9.06E-03			5.53E+01	1.7423933
53	98/12/18	Soda Glass	yes	0.001025	2450	1.38E-06	5.93	8.19E-03	1	8.19E-03	4.77	25.91	4.86E+01	1.6864467
59	99/01/14b	soda glass	no	0.00018	2450	7.48E-09	5.47	4.09E-05	3	1.23E-04	0.53	0	2.24E-01	-0.650042
73	99/04/29a	Soda Glass	no	1.78E-04	2450	7.23E-09	6.12	4.43E-05	3	1.33E-04		0	2.71E-01	-0.567071
74	99/04/29b	Soda Glass	no	0.000106	2450	1.53E-09	6.1	9.32E-06	1	9.32E-06		0	5.69E-02	-1.245257
75	99/05/14a	Soda Glass	no	0.000106	2450	1.53E-09	6.07	9.27E-06	1	9.27E-06		0	5.63E-02	-1.249539
76	99/05/14b	Soda Glass	no	0.000106	2450	1.53E-09	5.97	9.12E-06	4	3.65E-05		0	5.45E-02	-1.263968
77	99/05/14c	Soda Glass	no	0.000078	2450	6.09E-10	5.65	3.44E-06	2	6.88E-06		0	1.94E-02	-1.711454
78	99/05/14d	Soda Glass	no	0.000078	2450	6.09E-10	6.39	3.89E-06	3	1.17E-05		0	2.49E-02	-1.604549
79	99/05/19a	Soda Glass	no	0.000078	2450	6.09E-10	6.1	3.71E-06	1	3.71E-06		0	2.27E-02	-1.644891
80	99/05/19b	Soda Glass	yes	0.000972	2450	1.18E-06	6.2	7.30E-03	1	7.30E-03		7.43	4.53E+01	1.6559479
83	99/05/25a	Soda Glass	yes	0.001564	2450	4.91E-06	5.69	2.79E-02	1	2.79E-02		36.44	1.59E+02	2.2011005
86	99/05/25d	Soda Glass	yes	0.000726	2450	4.91E-07	5.93	2.91E-03	1	2.91E-03		5.11	1.73E+01	1.2370850
90	99/06/28a	Soda Glass	no	0.000106	2450	1.53E-09	6	9.17E-06	1	9.17E-06		0	5.50E-02	-1.259614
94	99/07/06	Soda Glass	no	0.000154	2450	4.69E-09	6.08	2.85E-05	1	2.85E-05		0	1.73E-01	-0.761465
36		Steel	yes	0.001	7930	4.15E-06	5.12	2.13E-02	1	2.13E-02	5.23	16.52	1.09E+02	2.0368127
40		Steel	yes	0.001	7930	4.15E-06	5.2	2.16E-02	1	2.16E-02	4.6	12.3	1.12E+02	2.0502795
43		Steel	?	0.0008	7930	2.13E-06	5.07	1.08E-02	1	1.08E-02			5.46E+01	1.7375587
44		Steel	yes	0.0015	7930	1.40E-05	5.09	7.13E-02	1	7.13E-02			3.63E+02	2.5599822
45		Steel	yes	0.002	7930	3.32E-05	4.45	1.48E-01	1	1.48E-01			6.58E+02	2.8180828

fit for penetration

	area	mom	energy
	45.4	3.00E-02	
	0	2.21E-03	

Defined limit/

	value	-err	+err	logs	log energy fit
1					
170	1.22E-03	7.00E-04	1.22E-03		2.2304489
10					
7	4	7	0.8450980	0.3679768	0.3010300	1