

TABLE 5. (continued)

Round	Impactor			Atmosphere			Target		Efficiency
	Diameter	Mass	Type	Velocity		Pressure	Type	Type††	
	$2r_p$ , cm	$m_p$ , g		Launch	Impact†	Bars			
871213	0.6350	0.3760	Al	5.47	4.97	0.9170	N <sub>2</sub>	P	712
890932	0.6350	0.3760	Al	5.41	4.95	0.9210	N <sub>2</sub>	P	610
810506	0.6350	0.3760	Al	6.09	5.36	0.9470	argon	P	504
810213	0.6350	0.3760	Al	6.60	5.81	0.9470	argon	P	449
820513	0.6350	0.3760	Al	5.86	5.78	0.9470	helium	P	487
820518	0.6350	0.3760	Al	5.86	5.78	0.9470	helium	P	506
820520	0.6350	0.3760	Al	5.64	4.90	0.9470	CO <sub>2</sub>	P	371
821234	0.3180	0.1490	Cd	4.84	4.45	0.9850	argon	P	425
821235	0.3180	0.1320	Fe	4.17	3.79	0.9850	argon	P	349
820509	0.6350	0.3760	Al	1.97	1.79	1.0000	air	P	141
821124	0.6350	0.3760	Al	1.99	1.81	1.0000	air	P	129
900511	0.6350	0.3760	Al	1.79	1.77	0.0697	CO <sub>2</sub>	S1	764
900510	0.6350	0.3760	Al	1.90	1.87	0.1140	argon	S1	817
821214	0.6350	0.3760	Al	1.92	1.89	0.1250	air	S1	738
900515	0.6350	0.3760	Al	1.82	1.80	0.1300	air	S1	615
900512	0.3175	0.0449	Al	1.87	1.82	0.1300	air	S1	910
900516	0.1590	0.0055	Al	1.42	1.35	0.1300	air	S1	1343
821218	0.6350	0.3760	Al	2.10	2.09	0.2500	helium	S1	703
821217	0.6350	0.3760	Al	2.02	1.95	0.2500	CO <sub>2</sub>	S1	619
811151	0.6350	0.3760	Al	1.94	1.88	0.2500	air	S1	607
821213	0.6350	0.3760	Al	1.92	1.81	0.5000	N <sub>2</sub>	S1	446
811147	0.6350	0.3760	Al	6.22	5.84	0.6430	N <sub>2</sub>	S1	2275
890124	0.6350	0.3760	Al	2.12	1.88	0.9020	argon	S1	509
890125	0.6350	0.3760	Al	2.01	2.00	0.9020	helium	S1	472
821211	0.6350	0.3760	Al	1.85	1.54	0.9850	CO <sub>2</sub>	S1	587
820552	0.6350	0.3760	Al	2.10	1.82	0.9850	CO <sub>2</sub>	S1	614
820553	0.6350	0.3760	Al	2.19	2.16	0.9850	helium	S1	519
811149	0.6350	0.3760	Al	2.04	1.82	1.0000	air	S1	536
890211	0.6350	0.3760	Al	2.02	1.83	1.0000	air	S1	619
890201	0.6350	0.3760	Al	2.11	1.92	0.9140	air	S2	1690
890202	0.6350	0.3760	Al	1.93	1.90	0.9140	helium	S2	1626
910212	0.6350	.1233	poly	1.79	1.78	0.0329	air	μ	482
910512	0.6350	.1230	poly	1.59	1.56	0.0632	air	μ	492
910513	0.6350	.1230	poly	1.65	1.59	0.126	air	μ	302
910138	0.6350	.1242	poly	1.81	1.68	0.25	air	μ	260
910529	0.6350	.122	poly	1.28	1.27	0.25	helium	μ	199
910139	0.6350	.1301	poly	1.85	1.83	0.25	helium	μ	385
910527	0.6350	.122	poly	1.53	1.50	0.49	helium	μ	136
910213	0.6350	.1229	poly	1.72	1.68	0.5	helium	μ	176
910137	0.6350	.1242	poly	1.74	1.50	0.5	air	μ	185
910130	0.6350	.1236	poly	1.57	1.20	0.92	air	μ	90
860822	0.6350	.376	Al	1.68	1.68	0.029	air	S2/P	891
860821	0.6350	.376	Al	2.00	1.86	0.25	air	S2/P	798
860823	0.6350	.376	Al	1.92	1.46	1.0	air	S2/P	301
910543	0.6350	.1227	poly	1.18	0.90	0.92	air	S2/μ	148
910544	0.6350	.1227	poly	1.12	0.85	0.92	air	S2/μ	99

\* Impactor types are aluminum (Al), Cadmium (Cd), and steel (Fe)

†† Target types are compacted pumice (P), no. 140-200 sand (S1), and no. 24 sand (S2), microspheres (μ), no. 24 + 8% pumice (S2/P), and Ottawa Flint sand +5% microspheres (S2/μ).

† Impact velocity is calculated from the launch velocity ( $v_l$ ) using the following relation for deceleration:  $v_i = v_l e^{k\rho/\rho_0}$ , where  $\rho/\rho_0$  is the atmospheric density relative to air at one bar and  $k$  is given by  $1/2C_D P_0 \gamma A_c / m_p = 0.362 r_p^2 / m_p$  for a drag coefficient of 0.9 and traverse distance of 198 cm.