

Table 1: Elemental composition (wt.%) of Moon and Mars regolith simulants. Samples labeled as Mix-x were created by mixing the commercial samples. “–” values represent the undetermined composition of the specific oxide by the manufacturer in the original samples.

Compound	SiO₂	Al₂O₃	CaO	Fe₂O₃	K₂O	MgO	TiO₂	Na₂O
Sample	Moon							
LHS-1D	51.20	26.60	12.80	3.00	0.50	1.60	0.60	2.90
Dusty	48.05	16.92	7.45	8.31	0.73	17.02	0.53	1.51
LHS-1	51.20	26.60	12.80	3.00	0.50	1.60	0.60	2.90
LHS-1E	47.10	26.35	17.47	3.44	0.51	1.28	0.46	2.36
LMS-1D	46.90	12.40	7.00	9.57	0.70	16.80	3.60	1.70
LMS-1	46.90	12.40	7.00	9.57	0.70	16.80	3.60	1.70
Mix-1	48.80	19.22	8.72	6.33	0.67	13.35	0.54	1.84
Mix-2	49.60	26.50	14.62	2.99	0.50	1.47	0.55	2.689
Mix-3	50.40	24.79	11.80	3.58	0.54	4.47	0.51	2.64
Mix-4	47.37	23.67	14.62	4.58	0.57	5.75	0.48	2.12
Mix-5	49.62	21.39	10.67	4.86	0.57	7.17	1.70	2.46
Mix-6	47.90	15.71	8.35	7.22	0.65	13.25	2.90	1.98
Mix-7	47.62	14.80	7.98	7.60	0.66	14.23	3.09	1.90
Mix-8	47.26	13.60	7.49	8.10	0.68	15.51	3.35	1.80
Mix-9	47.01	19.74	12.51	5.88	0.60	8.62	1.95	2.05
Mix-10	49.27	20.68	9.52	5.61	0.64	11.03	0.29	2.05
Mix-11	48.54	17.81	9.21	6.34	0.62	11.00	2.45	2.16
Mix-12	49.89	22.58	10.58	4.67	0.59	8.00	2.32	2.32
Mix-13	50.80	25.29	12.26	3.24	0.52	3.00	0.88	2.79
Mix-14	47.83	16.08	7.36	7.69	0.72	16.98	1.10	1.54
Mix-15	46.98	18.17	11.33	6.46	0.62	10.37	2.30	1.97
Sample	Mars							
MGS-1S	31.90	10.60	20.00	11.90	0.60	6.40	0.30	–
MGS-1	42.90	12.80	7.40	11.20	0.60	14.60	0.60	1.50
Jez-1	36.40	8.00	4.60	13.24	0.30	25.60	0.40	0.90
MGS-1C	44.80	9.80	15.30	12.00	3.40	9.90	0.40	–
Mix-16	34.10	9.33	12.47	6.08	0.45	15.79	0.35	0.44
Mix-17	38.60	11.94	12.32	4.65	0.60	11.39	0.48	0.91
Mix-18	40.80	8.94	10.20	6.28	1.92	17.38	0.40	0.43
Mix-19	33.00	10.53	19.60	11.91	0.84	6.70	0.31	–
Mix-20	35.00	8.81	9.39	3.70	0.39	19.63	0.37	0.62
Mix-21	43.40	12.00	9.51	3.20	1.35	13.35	0.55	1.10
Mix-22	37.07	8.50	4.86	–	0.33	24.45	0.42	0.96
Mix-23	38.20	10.20	17.70	11.95	1.97	8.11	0.35	–
Mix-24	39.65	10.40	6.00	12.91	0.45	20.10	0.50	1.20
Mix-25	43.27	12.21	8.95	2.36	1.15	16.68	0.56	1.20
Mix-26	36.97	10.29	18.15	11.94	1.70	7.78	0.34	–
Mix-27	39.50	10.12	17.23	11.96	2.25	8.46	0.36	–
Mix-28	43.17	9.45	13.23	9.68	2.80	12.94	0.40	0.17
Mix-29	38.52	9.57	5.52	–	0.40	22.00	0.45	1.10
Mix-30	34.62	9.03	10.70	4.71	0.42	18.00	0.36	0.54
Mix-31	40.73	11.20	6.47	12.69	0.50	18.26	0.53	1.30
Mix-32	37.61	8.26	6.14	1.73	0.75	23.33	0.40	0.77