

# A first-principles based potential for the description of alkaline-earth metals: Supplementary Information

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TABLE I: Weighting factors employed for the global optimization of the Gupta potentials.

$r/a_0$	Be-Be	Be-Mg	Be-Ca	Mg-Mg	Mg-Ca	Ca-Ca
2.3	5	-	-	-	-	-
2.4	5	-	-	-	-	-
2.5	5	-	-	-	-	-
2.6	4	17	-	-	-	-
2.7	-	-	-	-	-	-
2.8	-	-	-	-	-	-
2.9	-	10	-	-	-	-
3.0	-	15	-	10	-	-
3.1	-	15	25	-	-	-
3.2	-	23	25	-	-	-
3.3	-	27	-	-	-	-
3.4	-	17	20	-	-	-
3.5	-	10	30	-	-	-
3.6	-	6	35	-	-	-
3.7	-	-	32	15	-	-
3.8	-	-	25	20	-	25
3.9	-	-	-	35	15	-
4.0	-	-	-	20	15	-
4.1	-	-	-	15	15	-
4.2	-	-	-	15	20	25
4.3	-	-	-	-	15	20
4.4	-	-	-	-	15	25
4.5	-	-	-	-	15	10
4.6	-	-	-	-	-	10
5.5	-	-	-	-	-	25
5.6	-	-	-	-	-	25

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