A model for the ionic interactions in polyvalent metal halides was originally built for chloro-
aluinate clusters using an analysis of data on static and dynamic structure of their molecular
monomers [for a review see M. P. Tosi, Phys. Chem. Liquids 43, 409 (2005)]. Recently, by continuing
the deformation-dipole model calculations, the transferability of the halogen parameters was tested
through the calculation of the structure of alkali halides and alkaline-earth halides. In this work we
test the usefulness of the deformation-dipole model in the study of ionic materials by examining the
transferability of the overlap parameters for the halogen ions across families of halide compounds.
Following a comparative discussion of alkali and alkaline-earth halide monomers near equilibrium,
results on alkaline-earth halides are given. By using the transferable ionic potential model we also
calculate the equilibrium structure of the molecular clusters, as well as the vibrational frequencies of
ACL₄ compounds (where A = U, Np, Pu, Am and Th).

Key words: Ionic Models; Ionic Clusters; Molten Salts.