

# Hexaborate Cluster Radical Anions $[B_6Hal_nHal'_{6-n}]^{\bullet-}$ and $[B_6Hal_5R]^{\bullet-}$ (Hal, Hal' = Cl, Br, I; R = H, alkyl). Chemical or Electrochemical Generation, Vibrational, UV-Vis and EPR Spectroscopy

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Paramagnetic hexaborate clusters with mixed halide, halide/alkyl or halide/hydride substitution were prepared from oxidizable dianionic precursors and were characterized by cyclic voltammetry, EPR, vibrational and UV-VIS spectroscopy. The EPR studies reveal increasing g anisotropy and EPR linewidths on replacing Cl by Br and especially by I substituents; on the other hand, the replacement of one halide by one alkyl (CH<sub>3</sub> or CH<sub>2</sub>CN) or hydride substituent in  $[B_6Hal_5R]^{\bullet-}$  causes decreasing radical persistence and g anisotropy. These results indicate a fairly uniform participation of the cluster core and the substituent sphere in the spin distribution as a major factor for the stability of these non- $\pi$  radicals.