The standard ($p^o = 0.1$ MPa) molar enthalpies of formation for solid or liquid and gaseous 2-bromoaniline, 3-bromoaniline, 4-bromoaniline, 2,4-dibromoaniline, 2,5-dibromoaniline, 2,6-dibromoaniline and 2,4,6-tribromoaniline were derived from the standard molar enthalpies of combustion, in oxygen, at $T = 298.15$ K, measured by rotating-bomb calorimetry, and the standard molar enthalpies of sublimation or vaporization, at $T = 298.15$ K, measured by Calvet microcalorimetry. The standard molar enthalpies of formation for these compounds were determined by DFT calculations. The theoretical calculations were performed at the BP86/6-31 G* approach. Estimated values are in good agreement with the reported experimental ones. The results are discussed in terms of molecular structure. Acknowledgments, Thanks are due to Fundação para a Ciência e Tecnologia (FCT), Lisbon, Portugal and to FEDER for financial support to Centro de Investigação em Química, University of Porto. J.R.B.G. and A.I.M.C.L.F. thank FCT and the European Social Fund (ESF) under the 3rd Community Support Framework (CSF) for the award, respectively, of a post-doctoral fellowship (SFRH/BPD/11582/2002) and a PhD research grant (SFRH/BD/6719/2001).