Abstract: Slags issued from base metal smelting industry constitute a serious environmental problem in Upper and Lower Silesia (Poland). The waste is located in heavily urbanized areas, covers large surfaces and still may contain large quantities of potentially toxic metallic trace elements. This review paper summarizes all the major problems related to slag storage in Upper and Lower Silesia, including: (i) detailed characteristics of the studied slags, (ii) potential release of toxic elements and (iii) related risks for the surrounding areas and (iv) applications of slags for commercial purposes.