Viticulturists in Midwestern states face climatic challenges in winegrape production, most importantly fluctuating winter temperatures and high humidity throughout the growing season. Research has made significant advances in the development of new hybrid cultivars and best management practices for vineyards. However, some issues such as high pH/high titratable acidity wines still stand as a barrier to wine quality improvements. Ion exchange is a method of acid adjustment helps to correct high pH/high titratable acidity wines. Ion exchange is not widely utilized throughout the wine industry due to concerns that it negatively impacts many aspects of wine quality such as color, flavor, and aroma. The impacts of ion exchange on the several important parameters including volatile aromas were assessed in several Missouri wines (Norton, Chambourcin, and Valvin Muscat). Significant differences were determined in ion exchanged wines. The benefits of ion exchange appear to outweigh the drawbacks. Further optimization of the ion exchange process can mitigate the negative impacts.