The goal of this study is to describe autotrophic and heterothrophic respiration on mine heaps near Sokolov (Czech Republic) through literary research and a one year long research on mine heaps. Results show that the temperature and site difference have statistically significant impact on respiration, however, at temperatures around 0 degrees celsius, there were significant increases in respiration on unreclaimed sites. This phenomenon needs to be explored by further research for our understanding of natural succession dynamics on mine heaps. Temperature was not statistically significant for respiration on unreclaimed sites. That points to limitation of respiration by another factor.