

Leechburg Coal Refuse (Sample LRBT#2). The Leechburg coal refuse deposits in Armstrong County, PA are associated with mines developed on the Lower Kittanning coal (Hornberger et al., 2005). The coal refuse was used in 2002 and 2003 weathering tests because of its high total sulfur content and low NP. The sample provided for characterization contains significant amounts of organic material, as indicated by the low-temperature ash determination (45 weight percent), significant amorphous content (77 weight percent), and significant volatile content (LOI 60 weight percent). The sample analyzed for geochemistry contained 5.5 weight percent total sulfur, 56 parts per million arsenic, and 952 parts per billion mercury (Table 5.2). XRD analysis estimated the mineralogical composition of the crystalline part of the material (in weight percent) as: 23 % quartz, 33% micas and clay minerals, 2% chlorite, 4% feldspar, 29% pyrite, and 2% carbonate minerals (Table 5.4). The sample was difficult to polish due to the high organic content, resulting in a smeared thin section (Figure 5.27). SEM images showed that the quartz grains were on the order of 5 micrometers in diameter. Although the pyrites were readily identifiable by SEM due to atomic number contrast with the quartz and organic material, they were too small to work with for determining mineral composition (Figure 5.28).



Figure 5.27. Leechburg Coal Refuse (Sample LRBT#2). Scanned image of a polished thin section. The sample is of organic material which complicated sample preparation and resulted in a thin, smeared mount.