

GEOL.3100L – SEDIMENTARY MINERALS IN THIN SECTION

1. Introduction

In this laboratory we will investigate the optical properties of the common minerals found in sedimentary rocks. This is a preparatory exercise for following labs that will require you to identify minerals in sedimentary rocks. The only way you can become proficient at identifying minerals in thin section is to look down the microscope and make observations. Taking pictures with your cell phone camera and then trying to match them with pictures on the web is not a successful strategy.

2. Common minerals in sedimentary rocks

Clastic sedimentary rocks are the product of erosion. In these types of rocks you will see many of the same minerals that you’ve already identified in igneous rocks – quartz, K-feldspar, and plagioclase are the most common. You will also find clay minerals, such as kaolinite, and the products of weathering, such as goethite, in clastic sedimentary rocks. **Biogenic** and **chemically precipitated** rocks contain carbonate minerals (aragonite, calcite, dolomite, magnesite, rhodochrosite, and siderite), sulfate minerals (anhydrite and gypsum), precipitated salts (halite and sylvite), phosphates (phosphorite), and silica (chert). Extreme weathering can also produce a mineral (really a rock) named bauxite. Identifying sedimentary minerals is not as easy as igneous minerals because many sedimentary minerals are fine-grained and have similar optical properties. For each specimen there is a hand sample which should help you with the mineral identification.

3. Identification of Sedimentary Minerals in Thin Section

For each of the thin section slides identify the mineral. The table below lists the thin sections, corresponding hand specimens, and characteristic(s) that can be used to determine which mineral you are to identify. In the Characteristics field list those properties that **you** found most useful in identifying the mineral (not simply a listing of properties from a book). Once completed, this table can help you identify minerals in sedimentary rocks in subsequent laboratories.

Slide #	Hand Specimen	Mineral to Identify	Mineral	Characteristics
65	258	Dominant mineral		
74	65	High birefringence mineral		

78	56	Dominant mineral		
UL-17	55	Dominant material		
UL-22	68	Dominant mineral		
UL-23	70	Whole slide		
UL-134	153	Whole slide		
UL-140	160	Whole slide		
UL-144	167	Whole slide		
UL-154	246	Whole slide		