Development of Advanced Mineral Processing Technology and Recycling Process

Our laboratory is investigating the development of process for unutilized resources which are impurity containing and/or low grade minerals and valuable metals including the electronic waste. The typical research work is focusing as follows.

**Development of advanced mineral processing technology of unutilized mineral resources**
- Process for impurity bearing copper mineral.
- Metal recovery from low grade ore and mine tailings, etc.

**Development of precious metal extraction process from wasted materials**
- Precious metal recovery process from E-waste by various leaching and purification.
- Development of novel extractant for selective extraction of precious metal, etc.

**Development of Advanced Mineral Processing for Utilization of Mineral Resources**
- Development of arsenic and antimony removal process to produce clean copper concentrate

**Development of Precious Metal Extraction Process from E-waste and Wasted Materials**
- Development of precious metal extraction process to recycle precious metal from wasted materials

**Removal of impurity (arsenic etc.) or condense of copper by physico-chemical separation process**
- Roasting
- Alkali leaching
- Pressure leaching

**Copper concentrate**
(Input to copper smelting)

**Arsenic concentrate**
(Storage and stabilization)

**Comparison of each method to find optimum process**

**Halide leaching**
- Chloride
- Iodine

**Thiourea leaching**

**Pressure leaching**

**Leaching of precious metal and rare metal**

**Precious metal extraction**

Creation of novel extractant for selective extraction of precious metal

Effective extraction of precious metal and rare metal