

## STUDY FINDS NO SUBSTITUTES FOR IMPORTANT METALS

The National Mining Association recently highlighted a study from Yale University's School of Forestry and Environmental Studies that analyzed potential substitutes for 62 different metals and their major uses. The study concluded that there was not one "exemplary" replacement for any of the metals studied. The study included metals such as copper and nickel among many others.

The study noted that in today's world these metals as well as their "superalloy" counterparts are far more complex in their components and uses than even a half a century ago when "less than 12 materials were in wide use: wood, brick, iron, copper, gold, silver and plastics." The study cited many essential modern products that require these metals which "...provide great benefits; faster computers, more dependable vehicles, and higher resolution medical images."

The study explained that each metal or combination of metals are chosen for products based on each metal's



very unique properties which enables optimal and specific performance in the goods they are used in; therefore, the study raised potential concerns about the necessary supplies of these materials in the future.

The ever increasing use, importance and need for the metals found in the Twin Metals project is evident in the products we use on a daily basis and in the growing green economy, but, as the study cited, they are currently irreplaceable without compromising performance and uses.

To read Yale University's study in its entirety visit: <http://www.pnas.org/content/early/2013/11/27/1312752110.abstract>.

To visit the National Mining Association's overview visit: <http://mineralsmakelife.org/blog/details/no-substitutes-for-common-metals>.

Source: "On the materials basis of modern society," T.E. Graedel, E.M. Harper, N.T. Nassar and Barbara K. Reck, School of Forestry and Environmental Studies, Center for Industrial Ecology, Yale University, New Haven, CT

