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ALCOA Sustainable Campus

Understanding the Needs, Requirements and Definition of the Problem

The top ten aluminum manufacturers produce approximately 20 million tonnes annually. The leading manufacturers being UC RUSAL, Alcoa, and Alcan. The raw materials come mostly from South East Asia, West & Central Africa, and parts of South America. Some of the largest aluminum processing plants are located in Hongjun, China (1060000 t/year); Jebel Ali, UAE (1040000); and Krasnoyarsk, Russia (1010000). Some aluminum products include auto parts, license plates, siding for houses, window frames, power lines, beverage cans.

Aluminum is widely used in the packaging of consumer products, such as food. This packaging is widespread on Pennsylvania State University Park campus by the plethora of vending machines in each residence hall, student activity buildings, and academic buildings. Aluminum packaging is also present in all of the dining halls on campus. Also, packaging for snacks, such as potato chips, is made out of aluminum. The major problem with aluminum in packaging is that it is laminated with plastic or other materials that aren’t made out of metal. Because of this, one cannot recycle it properly. People end up recycling the packaging incorrectly or they just throw it in the trash.

The first stage of the aluminum packaging life cycle is assembling the raw materials into the product. In this case, aluminum and plastic laminate are the materials. After assembling the packaging, it is packaged with consumer products, such as food. After this step, the packages
with food are transported to campus via shipping trucks. Then, people consume the products and attempt to recycle the packaging. The packaging is then either mixed with other trash or recyclable materials. The aluminum laminated with plastic is impossible to recycle without separating the materials. We are investigating a new, sustainable aluminum packaging product that can be recycled.

- Areas where raw aluminum is located

Works Cited
