Suave Deodorant Lifecycle & Social Hotspot Analysis

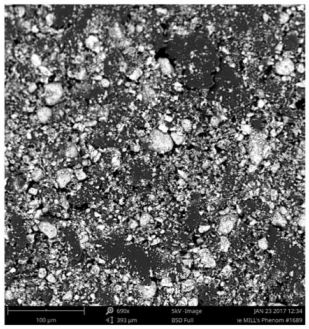
By Abigail Cohen and Fiona Wong

The product is made up of the deodorant powder stick or “invisible solid” housed in a plastic container. The container has a cap, a safety lid, an elevator platform, a screw with base handle, a tube, and a plastic cap on the bottom. The invisible solid can be broken down into the active ingredient and the inactive ingredients. Since the housing makes up most of the plastic, our analysis focused on LDPE along with active ingredient, Aluminum Chlorohydrate.

Determining Materials

As there was no labeling on the plastics, we used a *Burn Test* to determine what kind of plastic the tubing was made of. We watched (and smelled!) for flame color, odor, burn speed, and drippings. Many types of plastics share the same flame color, burn speed, and whether or not there is dripping present. The identifying factor the majority of the time is the odor that is released when the plastic is burned; careful wafting was our most telling differentiator. For LDPE, it was a blue with yellow-tipped flame, smelled of candle wax, burnt slowly, and had plastic drips. Since the burn test of the plastic can release dangerous particles, we do not recommend trying this at home!

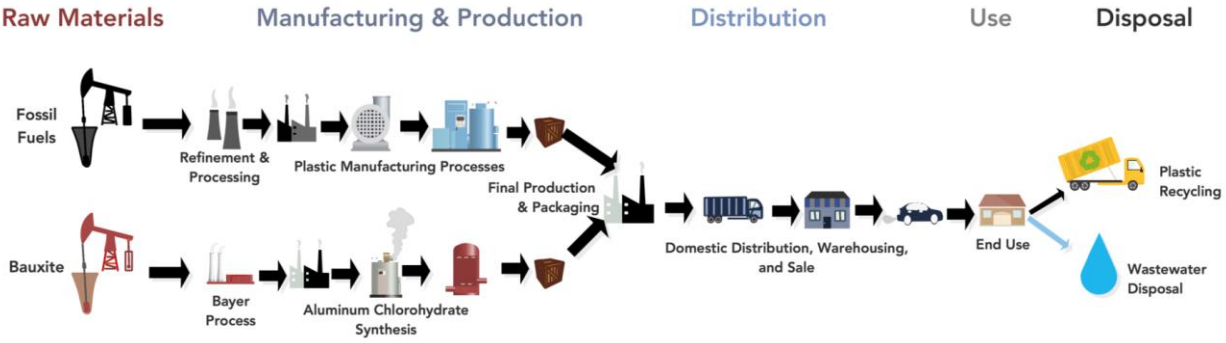
The Burn Test proved effective, but because of the potentially noxious fumes that can be released by burning plastic, we do not recommend trying this one at home!



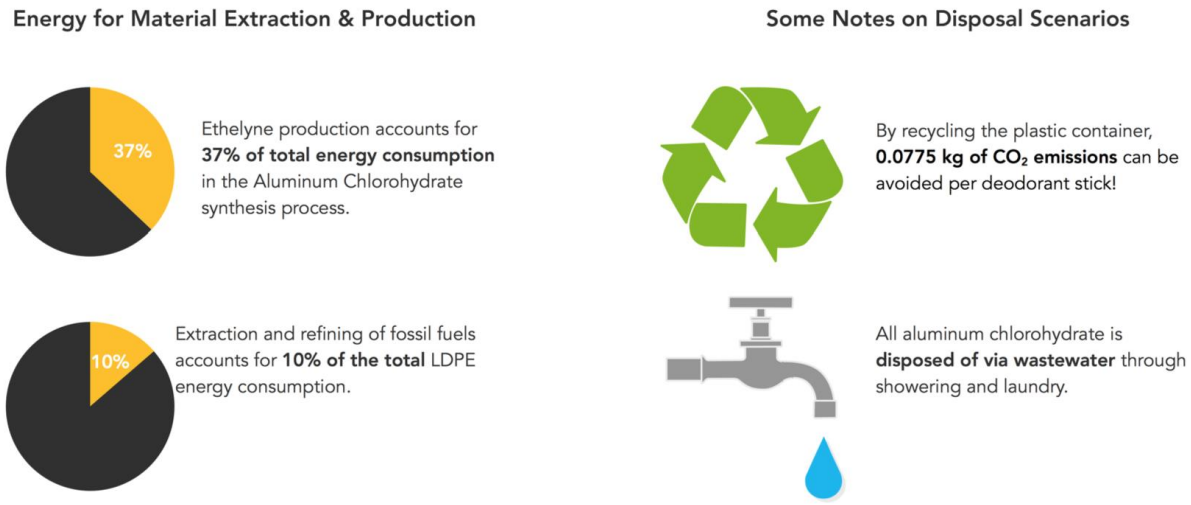
Although we could not isolate components of the Invisible Solid, we did catch a peek under **Scanning Electron Microscope**.

Processes & Material Flow

For the plastic container, the main raw material comes from Saudi Arabia. The crude oil is extracted there and then goes through a distillation process. Aluminum chlorohydrate is made from Bauxite ore, which is mines in Australia. It goes through the Bayer process, and then is reacted with hydrochloric acid and distilled to produce aluminum chlorohydrate. The plastics and the chemicals are then transported to a manufacturing plant in the USA. Here, the plastics are made into the plastic container through injection molding, and the powder solid is extruded. The final product is shipped and used by the end user. Afterwards, the invisible solid is disposed of in wastewater and the plastic is either recycled or discarded for landfill.



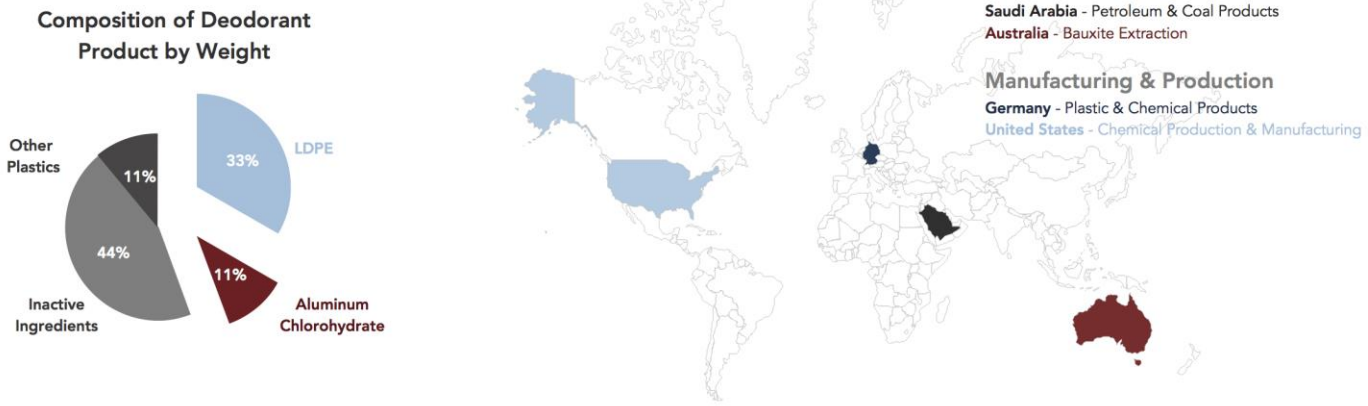
Environmental Impacts



Because the plastics are not clearly labeled, it may not be immediately noticeable that the container is recyclable. Each container that is recycled and repurposed reduces the carbon emission by 2.5 kg of CO_2 per kg of plastic. At 0.031 kg of plastic per deodorant, that is a reduction of 0.0775 kg of CO_2 per stick! Clearer labeling and perhaps a marketing campaign encouraging people to recycle could go a long way in the reduction of environmental impacts from this product.

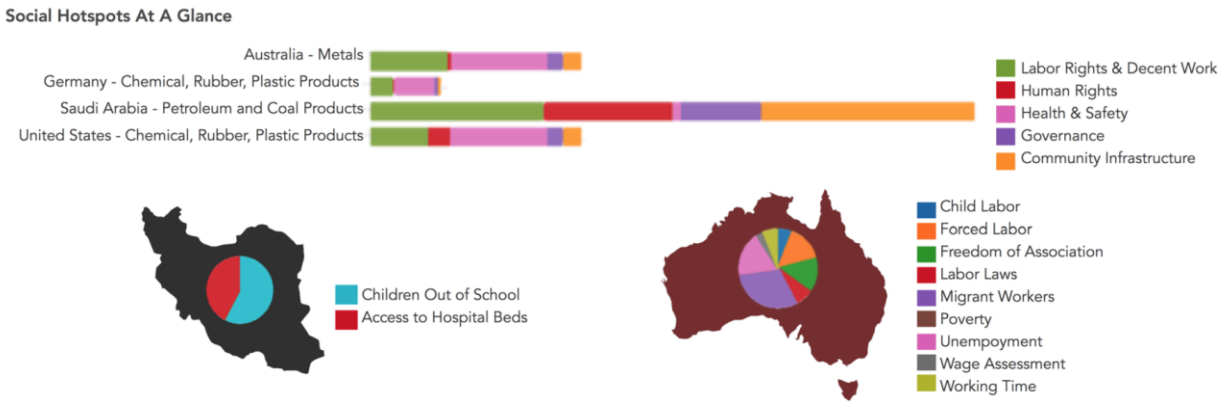
Social Hotspot Analysis

The social life cycle analysis (SCLA) looked into the countries that were involved in the product's lifecycle and the potential for social impact that they had there.



The countries involved in the product lifecycle were the United States, where the majority of the manufacturing occurred, Saudi Arabia, where the crude oil is extracted and refined, Australia, where bauxite is mined, and Germany, where the majority of chemical pharmaceuticals come from. The categories that the SCLA looked into were community infrastructure, governance, health and safety, human rights, and labor rights and decent work. Saudi Arabia has the greatest hotspot potential and is where the majority of the product comes from as the product is mostly plastic and Saudi Arabia is the source of the petroleum for

these plastics. Because of these facts, it would be beneficial to consider other sources for petroleum products if decision makers in the company look to reduce social impacts.



Extraction Social Impact Hotspots: On the left, Saudi Arabia's leading hotspot, Community Infrastucture, is broken down into the two leading trouble areas, Access to Hospital Beds and Children Out of School. The right shows Australia's Labor Rights & Decent Work Catigory and the leading hotspots in this area.

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