

Multilaminate packaging involves a large supply chain, a series of polymer film processes, and the use of both metal and hydrocarbon based materials. Understanding the major environmental impacts and carbon footprint of these packages requires the use of life cycle inventory approaches. The supply chain extends from natural resources of fossil fuel and ores as the primary materials to refined metals and polymers. The variety of processes include lamination of films, adhesive layering, aluminum metalizing, printing, and forming of containers such as snack food pouches, familiar to AIMCAL. All of these steps are analyzed separately as the life cycle inventory (lci) of each plant or step in what is referred to as a gate-to-gate life cycle inventory (gtg lci). These gtg are then assembled to give profiles of energy, mass losses, carbon footprint, and other characterizations reaching from the cradle- (natural resources) to-gate (multilaminate product) (ctg lci). This presentation illustrates this modular life cycle inventory approach for the metalizing step on oriented polypropylene (OPP). The development of this lci demonstrates a set of principles of cost-effective life cycle studies that can be applied to transparent and maintainable life cycle studies of a wide range of processes or products.