WASHINGTON, D.C. (May 9, 2012) – A new report quantifies the energy and emissions for converting plastic resins into finished products, based on operating data collected from a variety of manufacturers. Developed for processors, brand owners, retailers, and organizations seeking to evaluate the environmental attributes of various types of packaging, the report makes available for the first time “gate-to-gate” U.S. life cycle inventory data to support consistent, transparent modeling and the fabrication of rigid plastic products, such as yogurt tubs and butter bins.

Sponsored by the American Chemistry Council’s Rigid Plastic Packaging Group, the report, “Life Cycle Inventory of Plastic Fabrication Processes: Injection Molding and Thermoforming,” provides data on two distinct methods: (1) injection molding of resin and (2) conversion of resin into sheet with subsequent thermoforming of the sheet to form a rigid container.

The gate-to-gate data sets provided in this report begin and end with the fabrication steps. These new data on fabrication may be combined with other data sets – such as those for resin precursors, product use and end-of-life – to create full life cycle inventories for a variety of rigid plastics products. The report provides helpful examples of cradle-to-gate LCI results for thermoformed and injection molded parts to illustrate the how to combine resin and converting data to produce a full cradle-to-gate LCI for a plastic product.

Cradle-to-gate unit process results for energy, solid waste, atmospheric emissions including greenhouse gas (GHG) emissions, and waterborne emissions for injection molded polypropylene or linear low-density polyethylene parts are detailed in the report.

For thermoforming, the cradle-to-gate results are shown in four main process steps: (1) production of virgin resin, (2) production of ancillary materials used in the converting processes, (3) transportation for incoming materials, and (4) processing energy and emissions at the plastic fabrication step. Complete cradle-to-gate LCI results for thermoformed plastics products are presented in terms of energy requirements, solid waste, and atmospheric and waterborne emissions.
REPORT QUANTIFIES ENERGY AND EMISSIONS FOR INJECTION MOLDED AND THERMOFORMED PLASTICS

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The report was produced by Franklin Associates, A Division of Eastern Research Group.

The methodology used for this LCI study is consistent with the life cycle inventory methodology described in the International Standards Organization (ISO) 14040 and 14044 Life Cycle Assessment standards.

The sets of life cycle data developed for conversion processes in this report, along with data on virgin resin production, are available at (http://plastics.americanchemistry.com/LifeCycle-Inventory-of-9-Plastics-Resins-and-4-Polyurethane-Precursors-Rpt-Only). Data on the production of recycled resin data can be found at (http://plastics.americanchemistry.com/Education-Resources/Publications/Life-Cycle-Inventory-of-Postconsumer-HDPE-and-PET-Recycled-Resin.pdf). The injection molding and thermoforming data sets found in this report also will be made publicly available by the American Chemistry Council through the U.S. Life Cycle Database, found at (http://www.nrel.gov/lci).

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http://www.americanchemistry.com

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