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Plastics LCI Data Collection Project and the US LCI Database Project

Mike Levy, American Plastics Council (APC)
part of the American Chemistry Council (ACC)

How did LCA use in APC and ACC start?

- Plastics Industry (polymer LCIs)
 - 1990 (Council for Solid Waste Solutions – CSWS, later became APC)
 - Developed cradle-to-polymer limited LCI database, not publicly released (pre-ISO) – used in Canada & with USCar Program
 - 2006 (American Plastics Council – APC, part of ACC)
 - Completed LCI for 9 polymers and 4 polyurethanes precursors
 - Followed ISO Life Cycle Standards (14040 series)
 - Cradle-to-polymer data will be publicly released (aggregated rolled up process data) in U.S. Life Cycle Database Project October/November 2006 (www.nrel.gov/lci/)

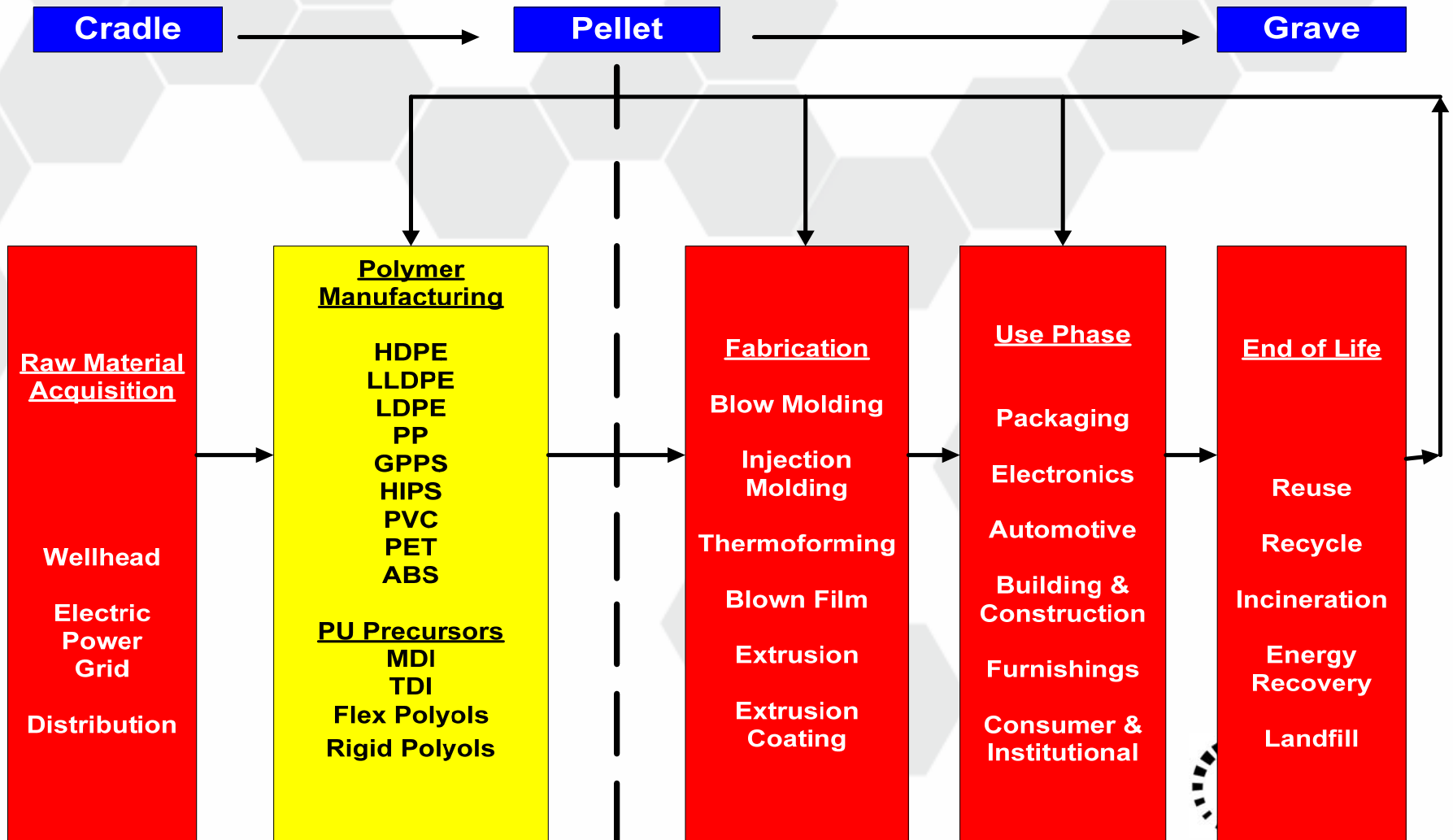
Why a Resurgence for Life Cycle?

- Government Regulations
 - Clinton Exec Order 1997 -EPA's Environmentally Preferable Purchasing program for procurement
 - Farm Security & Rural Investment Act of 2002 – USDA's Biobased Product Preference Guidelines (BEES/LCA)
 - National Institute of Standards & Technology – BEES
- Standardization of Life Cycle Methodology –
 - International standards adopted for LCA by 2000 (ISO 14040)
- Transparency of Data –
 - LCI databases now available, U.S. National Life Cycle Database Project (private/public partnership)
- Private Sector Use of LCA with Life Cycle Costing –
 - Automotive, Building & Construction sectors using LCA for cost reduction, sustainability

What interest is there in customers of the plastics industry for LCI data?

- Responding to stakeholders
 - Customers (auto, packaging, building & construction)
 - Government Agencies – EPA EPP program, USDA Biobased Products Procurement Preference Program
 - U.S. Green Building Council “LCA in LEED” Program
 - Critics
- North American plastics industry credibility
 - Responsible Care® principles
 - Allows plastics industry to show what is important & what is not
- Tool to promote plastics role in a sustainable future
 - Allows sound sustainability decisions to be made
- Benchmarking within the plastics industry
 - Areas for improvement compared to the industry

APC Polymer & Polyurethanes Precursors LCI Database



APC Contribution to US LCI Database Project

www.nrel.gov/lci

- Develop unit process data for all steps from raw material extraction through production of resin or precursor
 - Primary data provided by member companies and suppliers
 - Secondary data from public sources
- Utilize fuels and energy data developed under NREL contract
- Cradle-to-resin linked process trees will be developed
- APC LCI data converted to “Ecospold” for ease of integration
- Elements of US LCI Database
 - Common processes (energy production, energy use, end-of-life modules)
 - Commodity level manufacturing for commonly used materials and products (unit process data; cradle-to-gate scope)
 - Standard transformation processes (casting, stamping, pressing, painting, etc.)

Why an LCI Program for the Plastics Industry?

- Allows development of fabrication and use-phase data to complete full product life cycles
- Along with regional plastics LCI databases in Europe and Asia (Japan), provides opportunities to benchmark energy efficiency and product life cycle improvement
- Supports benefits claims, e.g., energy savings and emission reductions
- Enables the development of new business and technologies:
 - More plastic foams for insulation (energy savings)
 - More plastics packaging applications
 - Alternative propulsion systems in automobiles

What LCA Tools are Being Used?

- Company studies for benchmarking
- Government Agency programs
 - EPA Environmentally Preferable Products
 - USDA Biobased Products Procurement (stipulated BEES LCA software – Building for Energy and Environmental Sustainability)
 - State Agency building guidelines
- NGO (Non Governmental Agency) programs
 - U.S. Green Building Council (USGBC) “LCA in LEED” Project
 - Green Globes (GBI – Green Building Initiative)
- Certification and Audit Programs
 - ISO EMS (Environmental Management System) audits, including use of ISO LCA standards
 - Ecolabel programs (SCS forest certification programs)

American Center for Life Cycle Assessment (ACLCA)
LCA/LCM (Life Cycle Management)
Education/Training/Seminars
APC Exec Committee Role

Database Users and Uses
LCA Practitioners (GaBi, SimaPro)
Non-practitioners (Athena EIE)
Policy Makers/Plastics LCI Data

US Green Building Council (USGBC) "LCA in LEED" Project & Green Building Initiative
Green Globes Commercial Building Assessment

American Plastics Council (APC)
Polymer/Polyurethanes Precursors
Life Cycle Inventory (LCI)
Database Project

UNEP-SETAC Life Cycle Initiative
Global Plastics Sponsorship
APC/PlasticsEurope/PWMI (Japan)
Plastics LCI Database Capabilities

Building for Environmental and Economic Sustainability (BEES)
LCI/LCC Database - BEES 3.0,
Next Version

U.S. LCI Database Project
Publicly Available
Private/Public Partnership
& NAHB Research Center
NAHB Model Green Homes
Building Guidelines