

Plastics and EPDs—A Global Perspective

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You don't need to do an LCA to figure this one out – just ask Dilbert!

OUR COMPANY HAS REPLACED STYROFOAM CUPS WITH PAPER CUPS TO SAVE THE PLANET.



scottadams@aol.com

www.dilbert.com

THEY WORK JUST AS WELL IF YOU USE A DEAD SQUIRREL AS AN OVEN MITTEN.



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THIS ONE STILL HAS SOME FIGHT LEFT IN HIM.

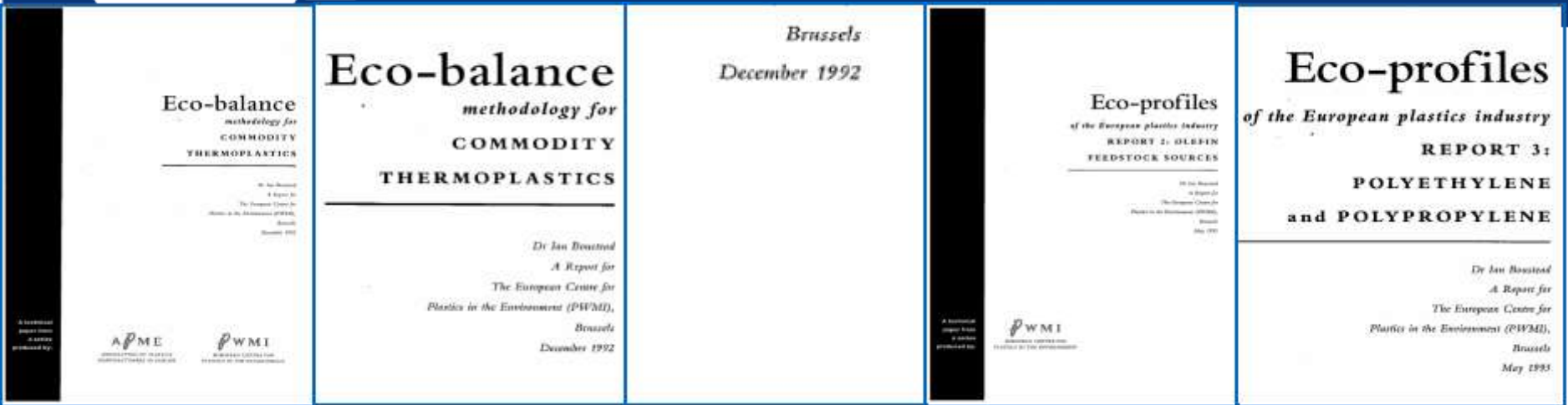




Presentation Highlights

- Overview of Eco-Profile Concept in Europe
- Evolution of LCIs in U.S., and global plastics LCA
- Path forward for global plastics industry harmonization of LCA and EPDs
- U.S. Activity on EPDs

1991: Plastics Industry Leads the Way



PlasticsEurope, under its former name of APME, was:

- The first industry-based organization in the world to assemble detailed LCI data on processes operated by its member companies:
- with the firm intention of making these data available for public use.



Industry Conceived -- Expert Developed

Industry Team

Developed the concept & context

Led by:

- **Dr. Vince Matthews**
PWMI of APME
(now LCTF of PlasticsEurope)

Independent LCA Expert Team

Developed the methodology:

- **Dr. Ian Boustead** (Chairman)
Open University, UK
(now Boustead Consulting)
- **Prof. Paul Fink**
EMPA, Swiss Federal Labs.
- **Dr. Horst Langowski**
Fraunhofer Institut, Munich
- **Civ. Ing. Gustav Sundstrom**
Mijobalans, Sweden





The Eco-Profile Concept

Provide the most robust European Plastics Industry cradle-to-gate life cycle data to the widest possible number of stakeholders

1. Plastics industry association member companies gather site specific manufacturing data and provide this directly to a 3rd party LCA consultant under the protection of their own secrecy agreements to ensure individual company confidentiality.
2. The 3rd party LCA consultant, knowledgeable in chemistry and the chemical industry, must check the reasonableness of the individual company data.
3. When satisfied with the quality of the company data, the consultant should combine these data proportionally, use reliable secondary data to compile credible cradle-to-gate life cycle inventory datasets.
4. The industry average datasets should be simple and convenient to use, and be publicly, widely and freely available.
5. There is an ongoing programme of industry average methodology development based on solicited feedback from data users.
6. Datasets are updated when significant changes in technology or data availability occur.

Consequences of Feedback



Feedback from LCA experts

- Vertical averaging is the closest representation of reality and should be used whenever possible (Original LCA expert team).
- Transport is important and these data should be broken out (EMPA).
- Specific dataset age and number of plants (LCTF).

Plastics industry feedback

- It is unrealistic to expect that LCI data can be collected for every operation in a production chain at the same time.
- Use gross calorific (higher heating) value as this measures the total energy resource extracted from the earth rather than lower calorific values as these represent a practical limitation of old fashioned technology.
- Fuels used as feedstocks must be treated separately from fuels used for combustion:
 - resource not lost, but tied up;
 - cannot be substituted as fuels can;
 - calorific value of operation input (not of product).

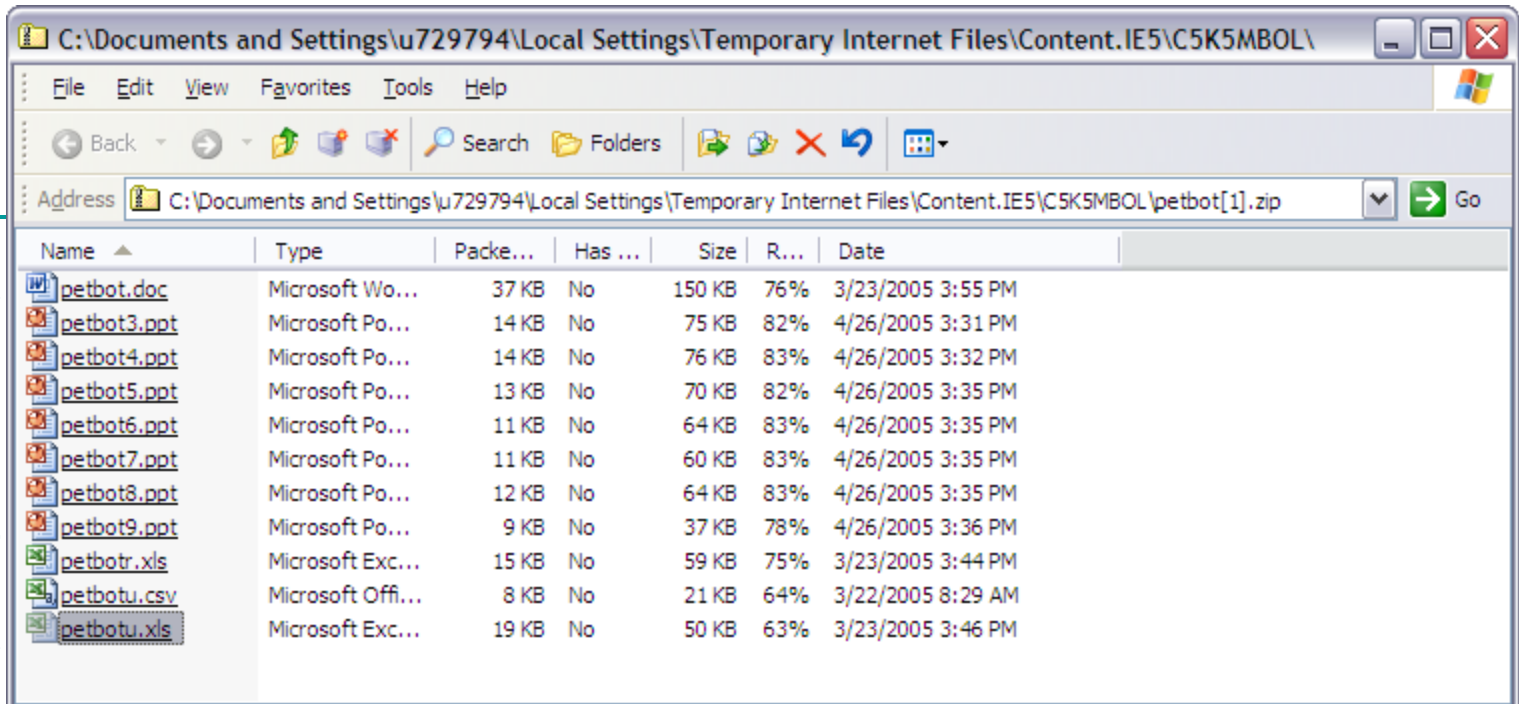
Other stakeholder feedback

- The provision of fuel data in units of weight (rather than only energy) would be helpful.
- Report biomass separately to support GHG accounting.
- Simple file downloads provide access to a broad range of stakeholders

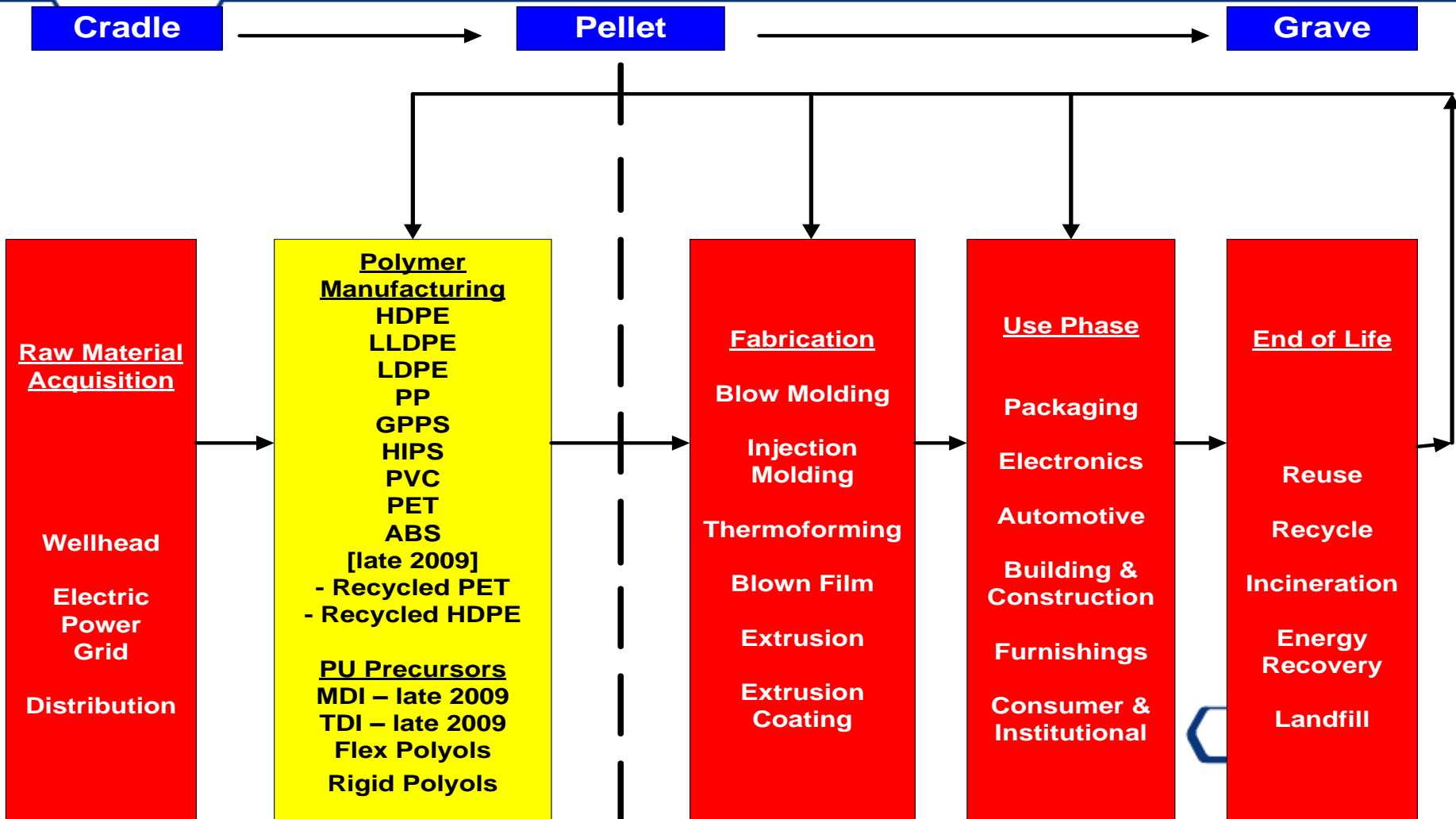


Stakeholders can download:

- **LCI eco-profile data in various formats**
- **Flow diagrams of the production chain**
- **A report on their selected product**



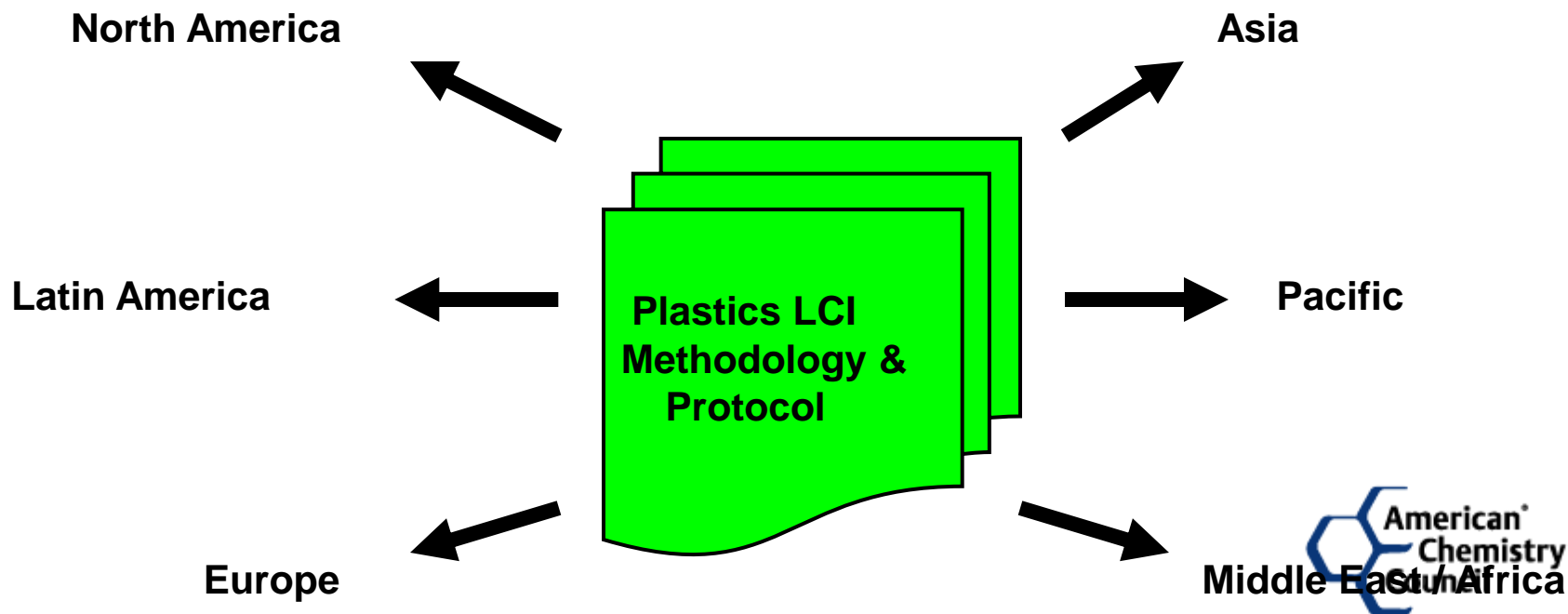
ACC Polymer & Polyurethanes Precursors LCI Database - in U.S. Life Cycle Database Project





Plastics Industry Vision

To have a globally agreed methodology and an accepted protocol in place for creating life cycle inventories for the plastics industry.





Goals of Brussels Sep 2008 Plastics Eco-Profile & EPD workshop

- Robust reproducible LCI method
 - independent of individual LCA consultant (practitioner)
 - subject to invitation to tender
- Accepted LCI method in plastics industry world-wide
 - solicit comments from other regions and plastics federations
 - propose (emerging) good practices
 - agree on way forward and next steps
- Maximum compatibility with LCI method for other materials
 - identify common standards and good practices
 - identify industry/material specific requirements





Methodology – combination Eco-Profiles & PCR for EPDs

Eco-profiles (focus on LCI)

- Goal & Scope
 - (implicit)
- Life Cycle Inventory
 - System modelling
 - Allocation
 - Vertical averaging
- Life Cycle Impact Assessment.
 - GWP provided for information

PCR for EPDs (focus on LCIA)

- Goal & Scope
 - Product category & declared unit
 - Product & producer description
- Life Cycle Inventory
- Data collection & data quality requirement
 - Reference to Eco-profile Methodology
- Life Cycle Impact Assessment
 - Selection of impact categories
 - Additional information



Take-Away Main Messages from Brussels workshop ...

- Present document is a good basis for developing a harmonized methodology:
 - About 10-15 recommendations for improvement recorded, amongst them:
 - Globally harmonized methodology will still support the creation of regional datasets
 - The methodology will provide guidance on how to handle data gaps (e.g., through horizontal averages) so that regions where the amount of data are limited will still be able to create, and transparently report, credible data sets



Take-Away Main Messages from Brussels workshop ...

- Harmonized LCI eco-profile methodology for plastics is:
 - Key for each global plastics **region** to thrive competitively in today's environment, yet allow for regional differences and approaches
 - Opportunity for global plastics industry participation in the UNEP (United Nations Environment Programme) SETAC (Society of Toxicology & Chemistry) Life Cycle Initiative to meet sustainable development goals for cleaner production technologies
- PlasticsEurope methodology document based on criteria in the ILCD (International Reference Life Cycle Data System)
- Global plastics association resources can be shared to help new regions develop & utilize life cycle thinking

Methodology – Current Status: Version 1.1 May 2009



Eco-profiles and environmental declarations
LCI methodology and PCR for uncompounded
polymer resins and reactive polymer precursors

PlasticsEurope
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Eco-profiles and environmental declarations
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Plastics Industry Globalization – Next Steps

- Building on 2008 Eco-Profile & EPD workshop, PlasticsEurope has improved protocol and testing it with new updates
- ACC/PlasticsEurope collaborating on unified methodology and approach
- Global plastics organizations (including ACC, PlasticsEurope) will evaluate methodology & protocols for use in their regions
- Goal is to harmonize methodology for plastics globally, yet allowing for regional differences



Global Plastics Trade Associations/LCA

- Australia – Plastics and Chemical Industries Association of Australia (PACIA)
- Argentina – Plastivida Argentina
- Brazil – Plastivida Brazil, now part of The Brazilian Chemical Industry Association (ABIQUIM)
- Canada – Canadian Plastics Industry Association (CPIA)
- China – Assn of International Chemical Manufacturers (AICM)
- Europe – PlasticsEurope (formerly APME)
- Japan – Plastics Waste Management Institute (PWMI)
- S. Africa – Plastics Federation of South Africa
- U.S. – American Chemistry Council (ACC) Plastics





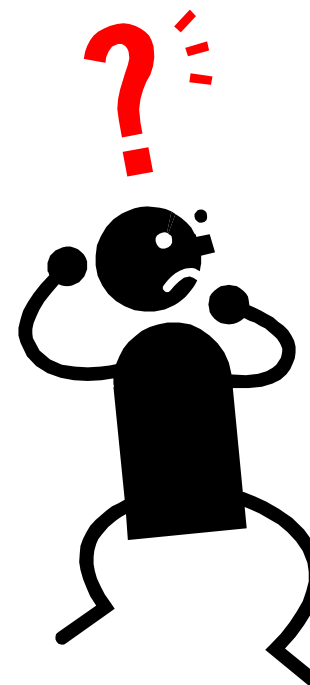
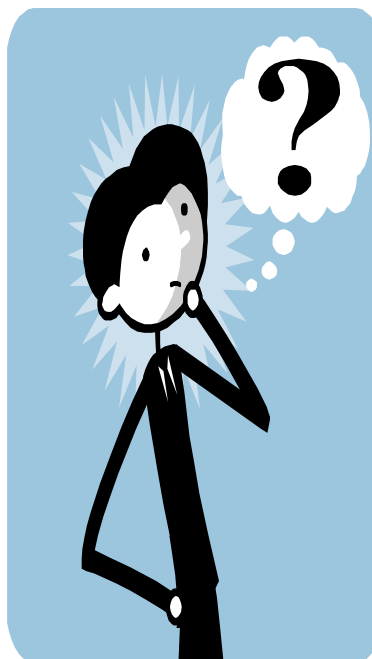
Recent U.S. Activity on EPDs is now Growing ...

- ASTM E60 draft standards (Standard Practice for PCRs for Environmental Declarations for Building Products & Systems)
- Green Standards EPD System – development of PCRs and publishing of EPDs
- Green Yardstick – EPD certification program produced by the IEC (International EPD Consortium)
- LCA & EPD Webinars – Oct 8th, Oct 15th, Oct 26th - http://yosemite.epa.gov/R10/ECOCOMM.NSF/Programs/lca_epd
- EPA Region 10 (Seattle)/ACLCA Nov 4th/5th workshop to put in place infrastructure to develop PCRs for EPDs for building components.



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Thank you - and have a great
LCA 9 experience here in Boston



Any questions?