The European voice of the **adhesive** and **sealant industry**

LESS COSTS, LESS BURDEN, MORE PRODUCTS COVERED

15 OCTOBER 2015 BRUSSELS 10:30 – 14:00

EU-Model Environmental Product Declarations (EPDs)
because less is more!

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FEICA

The European voice of the **adhesive** and **sealant industry**

FEICA European Model-EPDs

The Approach to Environmental Product Declarations for the Construction Market – and beyond

Why do we need them?

1. Why **EPDs**?
2. Why **Model**-EPDs?
3. The role of FEICA?

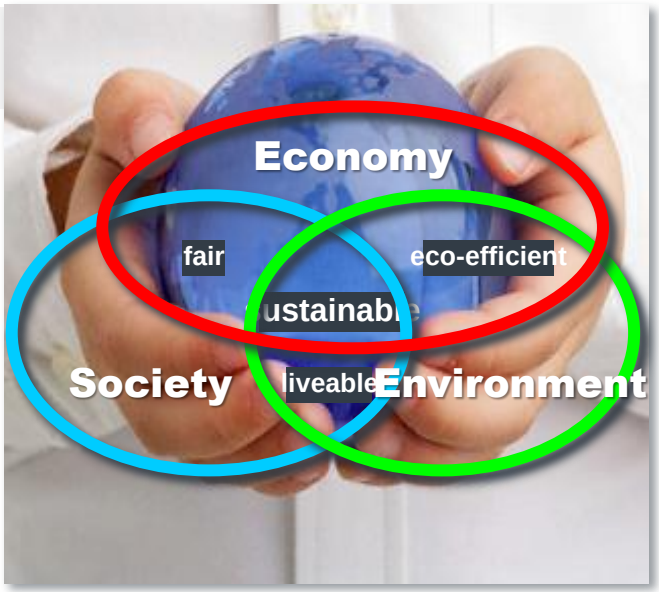
Heinz Werner Lucas

Sustainable Development (SD)

Planet, People, Profit have to be well balanced

FEICA vision: ‚The adhesive and sealant industry is committed to enabling a growing population to live a better life and to use the planet's resources more responsibly and efficiently'

Planet → Resource efficiency → Buildings → Construction materials

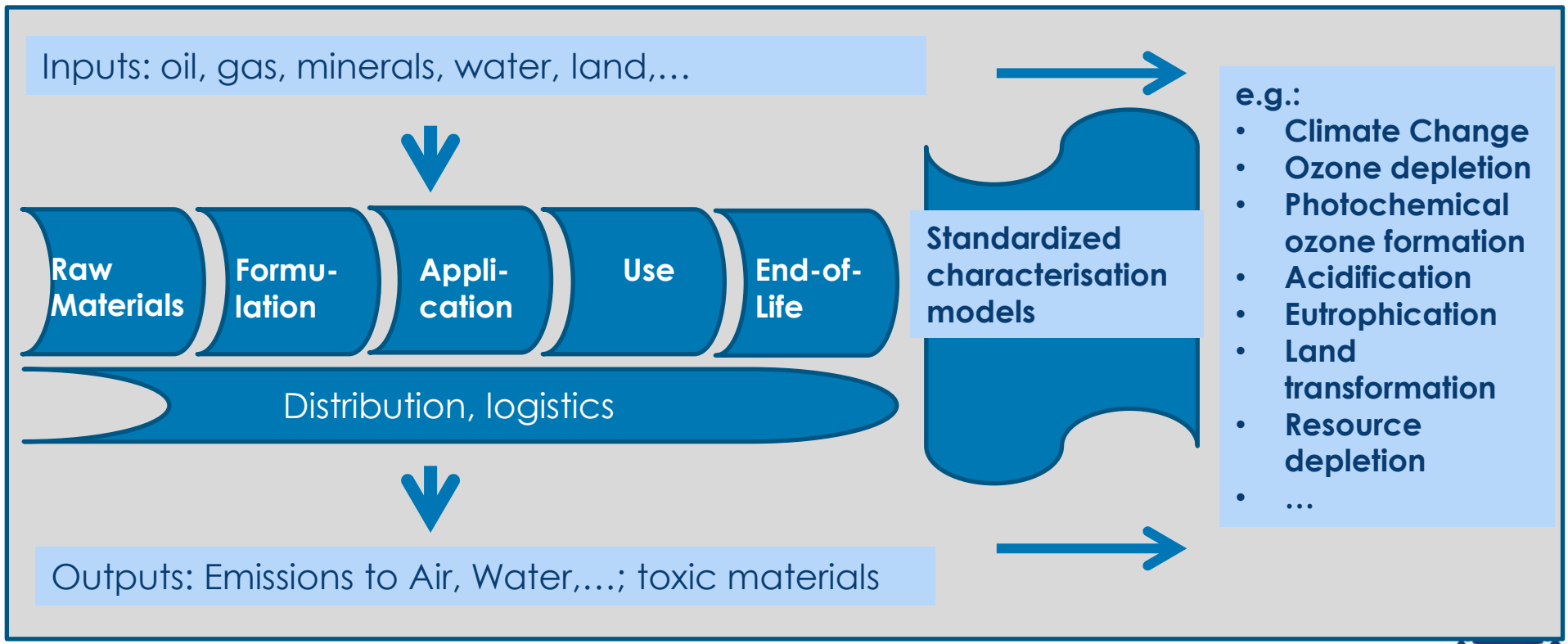


- → **High interest on measuring the environmental impact**
- → **Voluntary initiatives (green building certificates)**
- → **EU initiatives (e.g. Resource efficiency opportunities in the building sector)**

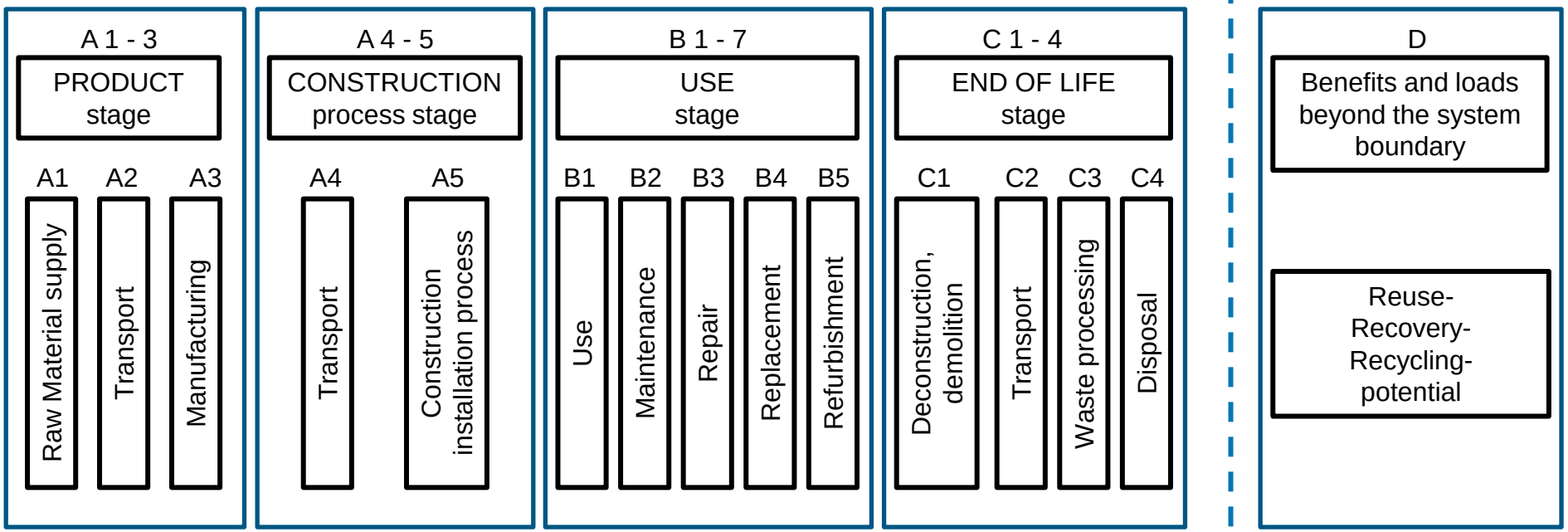
The FEICA Model EPD project is part of **the Sustainable Development and construction sector activities at FEICA**

Measuring the Environmental Impact: Life Cycle Assessment (LCA) → Environmental Product Declaration (EPD)

Assessment of **environmental aspects** and **potential impacts** associated with a **product**, **process** over its **entire life cycle**



EPDs According to EN 15804: Detailed and Complex Description on Product Level



Environmental impact

- Global Warming Potential
- Ozone Depletion Potential
- Acidification Potential
- Eutrophication Potential
- Photochemical Ozone Creation Potential
- Abiotic Depletion Elements
- Abiotic Depletion Fossil Fuels

Use of resources, e.g.

- renewable primary energy
- non-renewable primary energy
- secondary materials & fuels
- fresh water resources

Output flow and waste categories, e.g.

- Hazardous & non-hazardous waste
- Materials for recycling
- Materials for energy recovery

Why A&S Manufacturers Need EPDs?
1. Required by Building Rating Schemes in Europe

- Non-governmental organisations
- Objective is the Eco-design of a building
- Construction products are rated according to their environmental impact
- Environmental Life Cycle data on product basis are mandatory
- Verified EPDs are only mandatory by DGNB

	Environmental	Social	Health	Economy	Technology	Product life cycle information	Building life cycle assessment
BREEAM®	■	■	■			required	optional
DGNB	■	■	■	■	■	required	required
HQE	■	■	■			required	optional
LEED	■	■	■			Optional	optional

BREEAM: Building Research Establishment Environmental Assessment Method (BRE Trust)
DGNB: Deutsche Gesellschaft für Nachhaltiges Bauen
HQE: Association pour la Haute Qualite Enviromentale
LEED: Leadership in Energy and Environmental Design (U.S. Green Building Council)

Why A&S Manufacturers Need EPDs?
2. National Requirements: Belgium

Decree published in July 2014

Objectives

- A regulatory framework for green claims and single indicators (ISO 14021 & LCA/EPD):
  Voluntary but mandatory in case of environmental claim on the product
- A Federal database LCA/EPD for construction products: One database for the three regions,
  Federal Public Service as Program Operator :
  www.environmentalproductdeclarations.eu)

Characteristics

- conformity to NBN EN 15804 and EN ISO 14044.
- Representative for the Belgian market.
- Collective EPDs: possible, representative for every individual manufacturer

Perspective

- Harmonized EPD databases
- Extension to all environmental impact categories: CEN TR + PEF
- Specific EPDs

Details by **Dieter De Lathauwer**

Why A&S Manufacturers Need EPDs?
3. National Requirements: France

Decree N° 2013-1264 and order of Dec. 2013

- If e.g. a construction product is sold to consumers
- If an environmental claim is made

→ Environmental Declaration has to be posted in a regulatory database (INIES)

- 10 environmental impacts have to be declared (e.g. GWP, ODP, energy, waste)
- Third-party verification is required
- Declaration has to be updated every 5 years

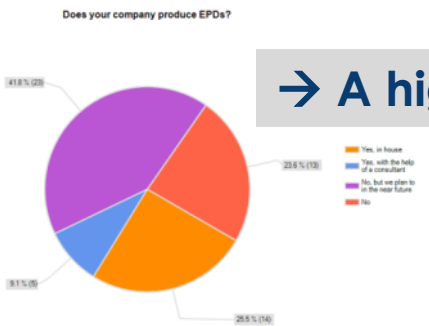
Declaration on the basis of a collective declaration is possible

Why A&S Manufacturers Need EPDs?
4. Result of the FEICA Survey Amongst Construction A&S Manufacturers

67 respondents, more than 90% agreed to:

- EPDs are becoming **more and more important** in the construction sector in Europe.
- A growing number of **customers demand EPDs** for products that will be used in sustainable building programmes, consequently the existence of EPDs already is or will be a **precondition for a certain portion of the business**.
- The combined administrative, technical and financial **efforts to create company specific EPDs for individual products or product groups are high** (formal requirements, data collection, need for consultant).

- The costs of an EPD are in the range of 5 to 30 k€.



→ A high interest in a cost effective solution was expressed

Details by **Mark Schneider**

Structure of the Adhesive & Sealant Industry: Divers, Complex & Cross-sector

- 50 Large manufacturers (>250 mill € turnover)
- 100 Medium manufacturers (>50 mill € turnover)
- **1000+ Small manufacturers (<50 mill € turnover)**

A broad variety of materials and technologies:

- Raw materials: Acrylates, Epoxies, Polyurethanes, Polyolefines, Silicones, Natural rubber, Synthetic rubber, ….
- Additives: Fillers, thickeners, preservatives, adhesion promoters, ….
- Adhesive & Sealant type: Water based systems (dispersion/soluble), solvent based systems, 100% solids, tape, label, film, powder, ….
- Setting mechanisms: Physically setting, chemically curing, UV-curing, ….
- Application processes: Hot melt, spray, brush, roller, ….

Many different applications



A given bonding job can be fulfilled by different adhesive types formulated with completely different raw materials.

Options for the A&S Industry
Option 1: Product- / Company Specific EPD

- **Manufacturer selects a product**
- **Calculates the environmental impact (adding up the impacts of each component) by**
  - involves his own experts or
  - commissions a consultant
  + third party for verification (in any case)

→ **Resulting EPD valid only for the specific recipe, needs to be updated**
  - after 5 years
  - when the recipe/supplier is changed

→ **In special cases route is feasible for A & S manufacturers to react on market needs**

→ **Not feasible for A&S manufacturer with a broad product portfolio, in particular not for SMEs**
  → Broad product portfolio
  → Frequent change of product composition
  → Costs & resources involved

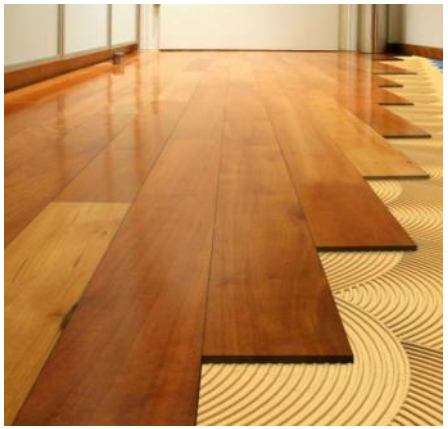
Options for the A&S Industry
Option 2: Average / Sector EPD

- Recipes of products and process data for defined applications / products are collected and their environmental impact calculated
- The average environmental impact data are reported as ‚industry average LCA'*

Challenges for A&S:

- Broad variation of formulations for similar applications → broad variation of environmental data
  → **no worst case data, can be misleading in communication, EPDs might not be accepted**
- 70% coverage of the market required (representativeness)
  → **Hardly to achieve in the case of an industry characterized by SMEs**
- EPD is only valid for products which contributed
  → **The system cannot be used for new products or by new participants**

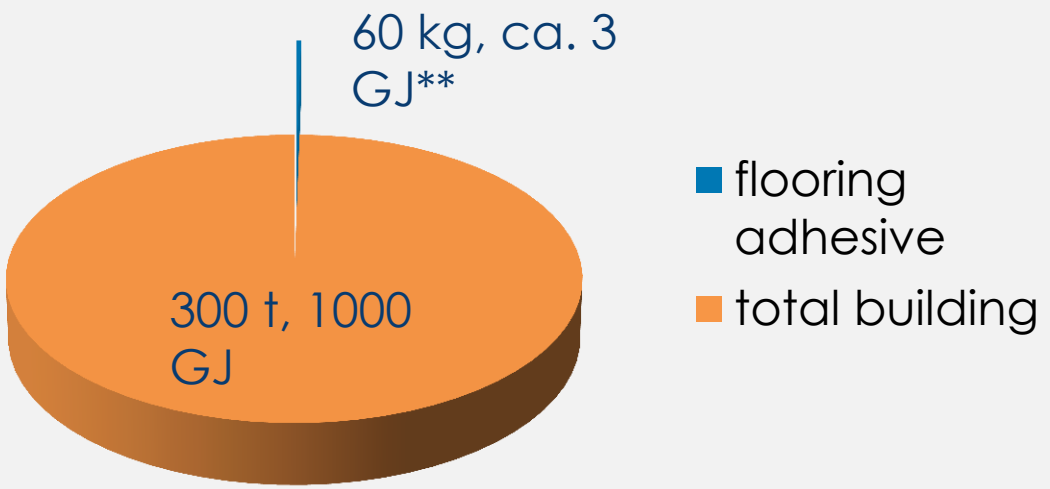
Adhesives & Sealants – small quantity – big impact on the building



Adhesive
5-50 (500) g/m²

Adhesives and Sealants – low negative impact on the environment

Primary energy of a building compared to the flooring adhesive*



→ From experience the negative environmental impact of A&S is typically < 1%

- **for all environmental indicators**
- **in all sectors of adhesives & sealants**

*Forschungsstelle für Energiewirtschaft, Wege zum Niedrigenergiehaus, 1999, approx. Data, low energy building, floor space 150 m²
**Dispersion adhesive

Situation and Consequences

Situation of Adhesive & Sealant Manufacturers

- Foresees an increasing importance of EPDs
- Have a broad product portfolio with very different and complex formulations
- Face potentially high burden (special expertise / high costs)

But: The environmental impact of A&S in comparison to the whole building is rather low

→ **Area where trade associations can support the industry**

→ **Need for a pragmatic solution**

→ **Similar situation for formulating industry supplying into the construction industry**

→ **IVK, VdL, DBC* started joint initiative in 2011**

* Industrieverband Klebstoffe, Verband der Lackindustrie, Deutsche Bauchemie = Adhesives, Paints, Construction Chemicals association

The Selected Route: Verified Model EPD

- Recipes of products are collected, most relevant indicators identified, single scores for each raw material and for products calculated, product groups & classes defined scores for products and their environmental impact calculated
- LCA data for the worst case product per class are reported in the respective Model EPD

Details by **Johannes Kreißig**

- Structured according to the chemical composition with defined scope of validity
- Worst case approach
- Third-party verified

Advantages for A&S:

→ **High flexibility for new entries, change in recipes and it is easy to use**

→ **Creates trust at authorities and programme operators**

Challenge:

High effort in development phase

→ **Support by association and co-operation with consultant necessary**

German Model-EPD Project → FEICA Model-EPD Project

- All Model-EPDs developed in the German project were published in 2013/2014: http://epd.klebstoffe.com/
- EPDs can be used
  - for products from member companies
  - produced in Germany
  - for building construction projects requiring an IBU certified EPD (for DGNB)

→ Can not be used for products produced outside Germany / non-German programme operators and certification systems

→ Need for European system

→ **FEICA initiated roll-out to European level: Start of FEICA Model-EPD Project**

Structure of the FEICA Model-EPD Project

Basis: German Model EPD System

- Collection of relevant formulations
- Methodology developed by Thinkstep

FEICA Project

1. Benefit analysis
2. Feasibility phase: cost and acceptance
3. Development phase

Acceptance of the FEICA Model-EPD System

1. By privately organized national construction EPD programme operators

- Institut Bauen und Umwelt (IBU, Germany):
- The International EPD System (Sweden)
- Milieu Relevante Product Informatie (MRPI, Netherlands)
- Building Research Establishment Limited (BRE, UK)

→ **FEICA should support the ECO platform** (European Construction Product Organisation)

Details by **Eva Schmincke**

Aims at creating a common framework and a EU wide mutual recognition of national EPDs

2. By EU and national authorities

- DG Environment
- DG Enterprise
- Belgium: Belgian Federal Public Service Public Health
- France: Centre Scientifique et Technique du Bâtiment (CSTB)

Thank you for your participation !

TF EPD team:

FEICA:
Jana Cohrs