

CiP Building Products Case Study: Analysis of Findings and Recommendations

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Overview of Presentation

- Review of sector definition
- Review of existing information landscape
- Highlights of survey findings
- Recommendations



Definition of Building and Construction Materials

Includes:

- Consumer products manufactured or processed with the intended or common end use as a component of a building or structure.
- Permanent components of buildings including fixed elements (ex., framing, sheathing, and decking)

Excludes:

- Paints, sealants, and adhesives unless used in manufacturing of another material
- Non-fixed elements such as drapery and furnishings.



Sector Definition, cont.

Also excludes:

- Materials extracted and used locally in raw form and with minimal processing
 - Example: Bamboo cured for use locally as a structural element vs. bamboo manufactured into flooring

Note: Exception is made where known hazards are associated with locally extracted and minimally processed materials



Chemicals of Concern in Building Materials

Volatile organic compounds (VOCs)

- Common Building Material Contents, including formaldehyde, acetaldehyde, toluene, isocyanates, xylene, benzene.

- Associated Concerns:

Human Health: Acute and Chronic - known or suspected contributors to cancer, leukemia, lymphoma, liver, kidney and nervous system damage; sick building syndrome

Environment: Photochemical reactions in atmosphere contribute to smog and global climate change



Chemicals of Concern in Building Materials

Persistent Bioaccumulative Toxicants (PBTs)

- Common Building Material Contents: phthalates, heavy metals, halogenated flame retardants (HFRs), perfluorochemicals (PFCs), polychlorinated biphenols (PCBs) and dioxins.

- Associated Concerns:

Human Health: known or suspected contribution to reproductive and developmental harm, chronic respiratory problems, cancer.

Environment: accumulation in rivers, lakes and streams.



Chemicals of Concern in Building Materials

- Other common chemicals/products of concern:
 - Asbestos
 - Fiberglass
 - Biocides, Pesticides, Herbicides. Fungicides
- Emerging Concerns:
 - Nanomaterials
 - Antimicrobials



Barriers to CiP Information Exchange

- Cross-referencing of product contents with disparate hazard identification and action lists.
- Differing regulatory requirements create further confusion in hazard identification lists.
- Lack for full disclosure of product specific chemical contents by manufacturers to identify potentially hazardous chemicals.
- Cross-referencing of product-specific performance and design data with CIP information.



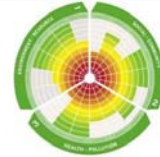
Examples of Information Resources

Pharos (USA)

- Expanding library of building products with comparative information about material contents
- Maintains a Chemical and Material Library compiled of published, third-party hazard identification and action lists.



Pharos
Signaling The Future of
Material Selection



Pharos Chemical & Material Library

The screenshot shows the website's main page for the Chemical and Material Library. At the top, the Pharos logo is on the left, and 'Pharos Project' is on the right. Below the logo is a navigation bar with links: 'building product library | chemical and material library | framework | about pharos | faq | comment'. The main header area has a red background with the text 'chemical and material library' and a breadcrumb trail 'home > chemical and material library'. The main content area is titled 'Chemical and Material Library' and states 'There are 10557 substances in the library.' Below this is a search box with the prompt 'Enter the name or CAS registry number of a chemical, polymer, plant species or other material:' and a 'Details' button. To the right of the search box is a sidebar with two sections: 'Chemical Hazard Lists' and 'Biobased Warning Lists'. The 'Chemical Hazard Lists' section lists several organizations: 'Total lists included: 20', 'APEC Antisweaters' (Association of Occupational and Environmental Clinics), 'CAL-CPA Prop65' (State of California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (EHHA)), 'Canada Living Building Red list' (Canada's Progressive Building Council and International Living Building Institute), and 'ECHA REACH SVHC' (European Union - European Chemicals Agency, European Commission Decision 2017/1011/EU, European Commission, Enterprise and Industry, DG European Commission Endocrine Disruptors Strategy). The 'Biobased Warning Lists' section lists 'Total lists included: 5', 'FLE Good Wood Guide' (Forest of the Earth), and 'Forest of the Earth'.

Pharos Material Contents

The screenshot displays the Pharos web application interface for a product profile. The main heading is 'Foam Insulation'. Below this, there are several tabs: 'Content & Transparency', 'Manufacturer's Description', 'Pharos Team notes', and 'CSI'. The 'Content & Transparency' tab is active, showing a 'Manufacturer Transparency' section with a status of 'Preliminary, Pending Further Data'. Below this is a 'Material Contents' table with columns for Material, Max, Min, Est, Frequency, Material Lifecycle, and Renewable. The table lists three materials: POLYMERIC MDI (PMDI), Isocyanate LD-R-50 Resin Component B, and CASTOR OIL. To the right of the main content, there is a sidebar with 'Attributes' and 'Certification and Standards' sections. The 'Attributes' section lists various unknown or present chemical concerns, and the 'Certification and Standards' section lists specific standards like CHPS Low Emitting Materials Table (2009) and CHPS Section 01350 Emission Test. At the bottom right, there is a 'Manufacturer Basic' section with contact information.

BASTA (Sweden)



- Maintains database of materials which **do not contain** chemicals prohibited under European Community Regulation on chemicals and their safe use (REACH)
 - Carcinogens, Mutagens, or Reproductive Toxins
 - Persistent, bioaccumulative substances
 - Ozone depleting substances
 - Heavy metals, etc
- Includes numerous prioritized product groups including wood products, building materials, others
- Requires manufacturer assessment (not 3rd party) and declaration, and is audited by BASTA



BASTA registered products with links to manufacturer websites

Phasing out dangerous substances from construction products

BASTA Svenska | English

Home About BASTA Build with BASTA Sign up as a supplier Contact Login Press

BASTA-registrerade produkter
The following products meet the BASTA criteria and are registered in the BASTA register.

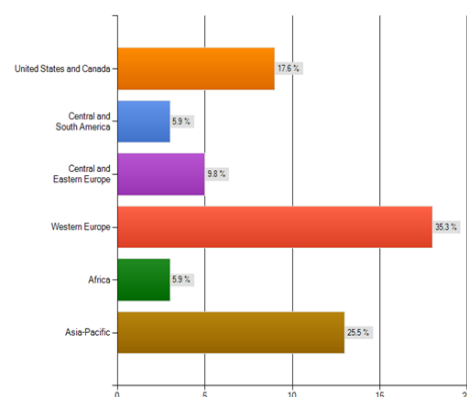
Product group	Trademark	Product name 1	Supplier
Fönster	Elifönster	Elit Extreme (1 st)	Elifönster AB
Fönster	Elifönster	Elit Objekt, fast karm (1 st)	Elifönster AB
Fönster	Elifönster	Elit Objekt, köpplåt 2+1 (1 st)	Elifönster AB
Fönster	Elifönster	Elit Original Alu (1 st)	Elifönster AB
Fönster	Elifönster	Elit Original Trä (1 st)	Elifönster AB
Fönster	Elifönster	Elit Tradition (1 st)	Elifönster AB
Fönster	SSC	SA 100 EFI (1 st)	SSC Skellefteå AB
Fönster	SSC	SA 100 KFI (2 st)	SSC Skellefteå AB

Sök produkt
Sök bland 54 119 produkter som klarar kraven med avseende på miljö- och hälsosäkerhet.
Vad söker du?
Din sökning av varugruppen Fönster gav: 12 träffar
Detaljerad sökning
[Sök via varugrupp](#)
Additional information

winfire.se/LogIn.aspx

Survey Findings— Distribution of Responses

- 52 surveys received to date, representing all geographic regions.
- 35 surveys from developed / 16 from developing countries.
- Excellent distribution across stakeholder categories



Survey Findings, cont.

- 68% of respondents report seeking/using chemical information to **identify building materials meeting regulatory standards** set for their region or industry sector.
- Respondents rank a “high” or “very high” priority for additional information related to “**scientific data on the health impacts of materials and chemicals**” and “**chemical and material content of products.**”



Survey Findings, cont.

- 38% of respondents report being able to **find information about chemicals in specific building products**. However, more than half of those respondents (54.5%) say that the **information found is inadequate**, and generally not specific enough.
- 77% of respondents feel that existing information systems **do not provide balanced chemical information across the life-cycle stages** of the product,



Survey Findings, Cont.

- Products ranked highest priority for chemicals information include:
 - interior finishing (including paints),
 - flooring,
 - structural materials (e.g. wood, metal and concrete),
 - insulation, and
 - material feedstocks/ingredients for material production.
- Indicated research priorities for chemical information include: use (occupation, performance), product/material manufacturing, and end-of-life (demolition, reuse, recycling).



Survey Findings: Needs/Constraints

- Perceived lack of data / lack of data that is specific enough;
- Available information is more germane to European and North American countries;
- Time-consuming nature of finding CiP information, particularly amidst shifting regulatory requirements at local and regional levels;
- Time-consuming nature of cross-referencing performance data with CiP data;
- Potential gaps in data from existing chemical reporting mechanisms, such as MSDSs; and
- Poor CiP information for end-of-life disposition of materials.



Recommendations

- 1) Leverage the Role of Green Building Standards & Certification Programs



Recommendations, cont.

- 2) Promote Standardized Reporting of Environmental Data
 - expansion of the use of GHS
 - “FAQs” of what stakeholders should expect from information sources such as MSDSs or EPDs



Recommendations, cont.

- 3) Support development of additional life-cycle research
 - Centralized support to “mine” past research



Recommendations, cont.

- 4) Provide ways for architects, designers and specifiers to cross-reference performance and application data with CiP information



Merci beaucoup!

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