

COMMUNITY OF PRACTICE ON CHEMICALS IN PRODUCTS

Organized by the SAICM Secretariat and the University of Cape Town

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Discussion digest

Topic of Discussion: Chemicals of concern in building materials

Building and construction is one of the largest end-markets for the chemical industry. Products used in this sector are diverse and include building materials, such as concrete, plastic, or wood, but also many other products, such as paints, adhesives, sealants, or construction elements made of composite materials. Many of these products are chemical-intensive and some contain chemicals that can have a harmful impact on human health and the environment along the products life cycle. Considering the importance of the sound management of chemicals and wastes for the 2030 Agenda and the expected growth of the building and construction sector following rapidly increasing urbanization, managing chemicals in building materials is key. Focusing on chemicals of concern in the building and construction sector provides significant opportunities to increase the sector's sustainability and circularity approach. This discussion engaged with questions from three dynamic presenters from UNEP, ISC3 and a social innovation organization.

ABOUT THE PRESENTER



Amélie Ritscher

An environmental chemist by training, Amélie is currently working as analyst on chemicals of concern in products for UNEP's Chemicals

and Health Branch. She is supporting the work on a GEF funded project which aims at increasing the ambition of different stakeholders to track and control chemicals in the supply chains of the building, electronics, and toy sectors. Amélie has multiple years of experience in environmental policymaking and consulting.



Oleg Ditkovskiy

Oleg Ditkovskiy is a project manager at the International Sustainable Chemistry Collaborative Centre (ISC3). He has a background in political

sciences with the focus on chemical policy. He has years of working experience on projects at BASF, ECCC and GIZ on chemicals management, building materials, pesticides, and international conventions. His ongoing project at ISC3 is devoted to sustainable chemistry and renewable energies and PtX-technologies.



Stewart Muir

Stewart is a Project Manager for Bioregional, leading work related to improving the sustainability of consumer products, appliances and building materials. Recent projects

include work with UNEP on their Eco-innovation supplement for building materials, and the home improvement retail chain Kingfisher. Prior to joining Bioregional, Stewart worked for 10 years at the Energy Saving Trust, including as part of the 'Efficiency for Access' Coalition, to support the market for super-efficient appliances to be used in off-grid settings in Africa and Asia, aiming to improve energy access under SDG7.

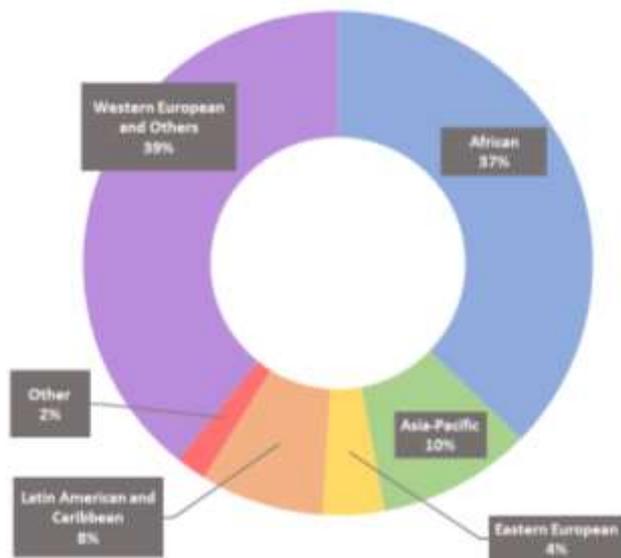
TOTAL ATTENDEES FOR 2021 DISCUSSION 2: 51

Female – 63%

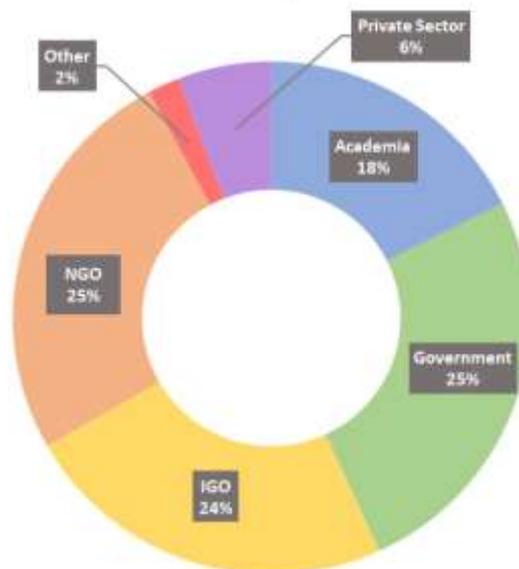
Male – 35%

Unknown – 2%

Regional Representation



Stakeholder Representation



Key:
IGO – Intergovernmental organisation
NGO – Non-governmental organisation

Chemicals in Products Community of Practice 2021 Discussion 2 Summary and looking ahead

1. While some information sources on chemicals of concern in building materials have been mentioned and the interest in sustainable design is growing in some countries, **the issue of chemicals of concern in building products often seem not to be considered** by actors in the building and construction sector. **Hindering factors** mentioned during the discussion include a **lack of awareness** on the issue by relevant actors from the sector and **lack of regulatory requirements or standards**. Where voluntary industry standards exist, they can help in providing information on material composition and chemical content but, certification schemes may not be widespread in use.
2. **Ensuring the transmission of information between installation and the end-of-life stages of a building product is very challenging**. Some companies are providing information in the form of labels on individual products, but these efforts appear to be rare and relatively early stages.
3. It is important to **distinguish between the formal and the informal building sector**. The informal building sector may use building materials that are often considered “non-traditional”, including re-used or re-purposed products, such as plastic bottles or clay and plastic composite bricks. This can pose different and largely unaddressed challenges, including challenges related to handling and disposal of these non-traditional materials at end-of-life.
4. The **UNEP Eco Innovation Manual** offers guidance on developing and applying business strategies and models that incorporate sustainability throughout all business operations. A supplement specifically tailored to the building sector is currently being developed. In the area of building materials and construction products there are many opportunities for innovation to increase sustainability based on life cycle thinking and consideration of the entire value chain.
5. There is a lot of interest in **biobased materials** and some current innovations were shared during the discussion.

ANNEX

DETAILED SUMMARY OF DISCUSSION: **THE DISCUSSION WAS STRUCTURED AROUND THREE QUESTIONS AND THE KEY DISCUSSION INPUTS FROM PARTICIPANTS ARE PRESENTED UNDER EACH:**

Q1. In your country or region, are aspects on chemicals of concern or material composition considered during the design phase of buildings, e.g. by architects during planning and/or the design phase of building products? In your country or region, how can actors from the building and construction sector (designers, architects, construction companies, construction & demolition waste handlers) find information on chemicals of concern in building products? If chemicals of concern are not considered in the planning phase, what is hindering this process?

Summary of comments from different countries and sectors, although not necessarily representative:

CAMEROON
(NGO)

French contribution:

- La question des produits chimiques dans la construction reste une préoccupation majeure et très peu connue par les concepteurs et réalisateurs de gros oeuvres.
- Ceci dû à l'inexistence d'une loi fixant les mesures de sanction.
- Aussi du manque de collaboration entre le ministère de l'environnement, le ministère des travaux publics et le ministère de l'urbanisme et aménagement du territoire.

English translation :

- The issue of chemicals in construction remains a major concern and very little is known by designers and builders of structural works.
- This could be due to the non-existence of a law setting the sanction measures.
- The lack of collaboration between the Ministry of the Environment, the Ministry of Public Works and the Ministry of Town Planning and Territorial Development is also a hinderance.

FINLAND
(Government)

- Chemicals of concern in construction sector are regulated by EU REACH regulations and controlled by several authorities including municipal building control authority.
- Recycling of construction materials seems challenging for the EU.
- Buildings constructed before the ban on hazardous substances like PBDEs, HBCDD etc, could contain these chemicals and recycling of such materials to close the loop is still questionable.
- Green Building Council Finland refines the know-how of sustainable development of the building and construction industry (<https://figbc.fi/en/>).

GAMBIA
(Government)

- Chemicals of concern in construction materials are not really considered during design phases and a lack of awareness is greatly hindering the process.
- Chemicals of concern are not regulated in the country.

GERMANY
(NGO)

- A problem that currently exists is how to assess chemicals of concern in building materials that have necessary properties (like plasticisers, flame retardants) and are not acutely toxic.
- What is more important?
- In the EU, despite REACH, conventions and other regulations, the long-term consequences are often not really considered - like separation and recycling of materials.
- Some issues connected to building materials are new and not well-studied (for example, the exact impacts of microplastic in food-chain, the cocktail-effects)
- Green building credit systems like LEED, BREEAM, DGNB etc. are known in Europe, but not widespread.
- In Germany there are hardly initiatives for private buildings, but there are regulations (direction sustainability of materials) for new public buildings.

MADAGASCAR
(Government)

- There is no framework for the regulation concerning chemicals in construction.
- There will be a draft put in place for a regulation on lead in paint using in the construction.

MOROCCO
(Government)

- The absence of a framework law for the management of chemicals, in particular hazardous products, hinders the process of monitoring their uses, particularly in the planning phase.
- It is effective to go through the process of developing standards that regulate the use of each product.
- At the start, the application of each standard remains voluntary, but the Ministry of Health tries to convince the other departments to jointly draw up decrees to make their applications compulsory by producers and/or users – as was done to limit the use of lead-based paints.
- As a source of information, Morocco has a standardization institute that provides users with all the information useful (standards) for the safe use of chemicals.

NEPAL
(NGO)

- Chemicals of concern in building materials are not regulated.
- Hindering factors are negligence as well as lack of awareness.

- Government of Nepal has banned all forms of Asbestos and asbestos containing products since December 2014.
- There are green building guidelines, but it does not include chemicals issues.

SOUTH AFRICA
(Government)

- Chemicals of concern are not considered as most building materials are imported.
- There is a move towards green economy and building with safer products, but this is not necessarily covered by legislation in SA yet.
- An example is plastics and the unsafe disposal of used building materials as this is not considered hazardous waste.
- Many poor communities collect old building materials to re-use which also poses health risks to their communities.
- Hindering factors are a lack of awareness around proper disposal methods.
- When old buildings are renovated in SA, there may be asbestos being removed without the proper safety protocols or removal and proper disposal as hazardous materials putting the environment and human health at risk.
- Asbestos was banned in SA but the monitoring of old buildings and their renovation is not considered.

SWEDEN
(Government)

- There is a strong interest to design in a sustainable way, both climate and chemical aspects.
- Apart from Basta system, there is another similar system, Sundahus in Sweden.
- The EU Reach regulation includes obligations to inform on chemical content.
- Information on material to recycle can be difficult due to very long lifetime.
- Some flooring companies put a label on installed flooring in Sweden to facilitate recycling.
- The costs to handle already installed asbestos and PCB in sealants should serve as strong motivators to a preventive approach!
- Especially by those who will own the building and who will have that cost.

SWITZERLAND
(IGO)

- Information on chemicals today, will have evolved in 30-40 years.
- A challenge is how to find relevant information on chemicals in materials in buildings 30-40 years later.

UNITED KINGDOM
(NGO)

- Through experience from working with architects it seems that a base understanding of chemicals is not part of architect training and education.
- There can often be a lack of ownership of the issue of chemicals between the builder and the architect when designing the project.
- The culture in the construction sector is also hindering the process, as there is not enough connectivity and holistic approach to projects.
- Public sector building projects can have more control over what is specified.

ZAMBIA
(NGO)

- Although regulations are there in some instances, especially from the Zambia Environmental Management Agency, it is quite a challenge to monitor and enforce standards that is coupled with low knowledge by the contractors and local builders and the communities on the chemicals in products.
- Building certification is done and given by the Local Authority and while the chemical administration and major enforcement is done by ZEMA.
- We have no voluntary standards.

PRESENTER'S COMMENTS:

Question: What is the best way for a consumer to find out what chemicals are in construction materials if they are involved in building for domestic use?

- Labels or certifications can be used to find information on chemical contents.
- For some products, (e.g. some paint strippers), some countries require manufacturers to provide information in the form of safety data sheets.

Throughout the discussion, informal polls were conducted to help encourage discussion among the participants. They do not provide any representative data.

Poll 1 Results (N=13):

In your country, how are chemicals of concern addressed by the building and construction sector currently?

- “Here in Colombia we have some regulations related to chemicals concentrations that include some CoC (not all), for example, asbestos is forbidden.”
- “Asbestos”
- “Voluntary systems within industry and pressure from those commissioning the building.”
- “In Europe there are REACH, ROHs that cover some of them.”
- “In Sierra Leone the building and construction sector does not pay any attention to this most specially being a new phenomenon.”
- “REACH ensures the finished product does not contain restricted substances, but best practice lacks drivers in the UK. It will be interesting to see how this changes post-Brexit as well.”
- “Not made clear to the ordinary consumer.”
- “Majority of large companies are using Basta to work with phase out of chemicals of concern.”
- “In Finland, chemicals of concern in construction sector are regulated by EU REACH regulations, controlled by several authorities including municipal building control authority.”
- “They are mostly not aware of the chemicals of concern as this training is not given to architects and engineers.”
- “In general, chemicals of concern are not really considered in The Gambia as there is no regulatory infrastructure regulating chemicals in construction materials apart from the banning of Asbestos as roofing materials. Awareness if also lacking.”
- “Through firstly identifying the type of chemicals, then through some regulatory decisions.”
- “Armenia: regulations of Eurasian Economic Commission on the safety of buildings and structures, building materials and products.”

Poll 2 Results (N=11)

Are there currently any voluntary initiatives coming from the construction sector in your country (e.g. building certifications).

- “Not aware.”; “No.”; “Not sure.”
- “LEED, SELLO CASA COLOMBIA, EDGE.”
- “Building rating tools like BREAAAM are fairly widespread in the UK, and Bioregional’s One Planet Living framework has been embedded by progressive builders. For example, Greenscore/Sassy property’s Springfield meadows development.”
- “There is a move toward Green building initiatives to link to the green economy.”
- “It is a long time that there is a building certificate in Iran and without it is impossible to start a building.”
- In the EU: initiatives like passive houses promoting e.g. insulation materials and saving energy and emissions.”
- “In Sierra Leone building permits are issued to allow the construction. This does not cover anything on chemicals of concern.”
- “Yes, eco label Svanen in Sweden for houses and products.”
- “Yes, here in Colombia we have national and international certifications “Lead”, “Edge” and “Casa Colombia”.”

Q2. What are effective ways to ensure there are no CoC in building plastics material? What kind of building materials are commonly used in your country and how are they controlled? Does plastic waste play any role in your country or region?

COLOMBIA (Academia)	- In Colombia there is a wide variety of materials, from aluminium, wood, concrete, bricks, even recycled materials.
FINLAND (Government)	- Concrete, wood, brick, insulation material are used for building construction. - EPS from insulation material contains additives like HBCDD. - After the ban on HBCDD other substitutes are now being used in insulation materials.
IRAN	- Buildings are made by cement or iron or wood.

(Academia)	- In recent years there has been good progress for fortification of cement with different materials to make it stronger.
NEPAL (NGO)	- In rural areas mostly local, renewable materials were used. - In urban areas many modern materials including plastics, prefabricated materials, etc are used. - Not much attention paid to CoC in both rural and urban setting. - Before banning of Asbestos, some corrugated asbestos sheets were used. - Similar sheets have been getting imported and has been called asbestos free but there is no checking and monitoring being done by concerned authorities.
SIERRA LEONE (Government)	- Various materials like bamboo, sticks, aluminium, metals, grass, tapollen, etc... are being used.
SOUTH AFRICA (Academia)	- There is an initiative to make "eco-bricks" out of plastic 2 litre bottles stuffed tightly with plastic bags!
SOUTH AFRICA (Government)	- There is a formal building sector as well as the informal building sector. - The informal building sector uses anything they can build with, timber, old building materials, invasive alien trees, old glass bottles, plastic, animal waste (cow patties), old plastic bottles filled with anything and then cemented together. - Clay and plastic composite bricks are made are also made by taking shredded invasive plants, mixed with recycled plastic to make composite bricks.
SWEDEN (Government)	- In Sweden plastic is recycled more and more, both in packaging, and also EPS from building. - Wood is used extensively, both traditionally and in new laminated products for large buildings. - The cost (financial and environmental) of transporting waste to recycling plant can be an issue.
UNITED KINGDOM (NGO)	- The UK has a large amount of concrete block and brick construction. - The concrete industry has made a low carbon roadmap, but there is not a large amount of drivers to move towards a lower carbon CEM grade, or something more innovative like limecrete or hempcrete.
ZAMBIA (NGO)	- Local materials like timber and plastics are used but may contain chemicals of concern. - There is a drive to ban single use plastics, as a result.
ZIMBABWE (Government)	- Plastics have a lot of roles in Zimbabwe's market and industry. - This includes packaging of most products (agricultural like fertilizers,) retail paper bags, plastic pipes, etc... - However, these plastics have a negative role that they play including polluting the environment after their initial use, pollution of water bodies like dams, lakes, and rivers, and polluting the air with increased carbon gases through burning of plastics.
PRESENTER'S COMMENTS:	- In the EU, plastics are used more and more together with minerals because it is cheap and has great functionalities, but there has been hardly any plan for the end-of-lifecycle. - There are many projects using plastic waste for composites with minerals or wood, but since the most of waste is contaminated with CoC or even worse people do not know what is inside - it is big problem for indoor air issues and also it is not possible to recycle the new products made of this waste.

Poll 3 Results (N=8)

What are Chemicals of Concern in plastics that need to be substituted in your country?

- "EU: the most flame retardants (due to the smoke toxicity in case of fire)."
- "BPA (Plastics and Endocrine Disrupting Chemicals), phthalate, brominated flame retardants."
- "Lead, formaldehyde, BFRs, HBCD, phthalates, per-fluorinated compounds, phenol."
- "Pthalates, PVC containing phthalates is widespread. Alternatives like linoleum or cork are not as common."
- "In Sierra Leone chemicals of concern in plastics that need to be substituted are dioxins and furans."
- "Unfortunately, PVCs are still present in plastic products in Latin America."
- "In South Africa we have no way of knowing what chemicals are in our plastics which may be CMRs."
- "In South Africa, there could be anything in our plastics..."

Poll 4 Results (N=8)

Is plastic waste regulated in any way in your country?

Yes: 63% (5)

No: 12% (1)

I don't know: 25% (2)

Poll 5 Results (N=4)

Are you aware of safe alternatives to chemicals of concern in plastics for construction?

Yes: 50% (2)

No: 50% (2)

Q3. Please share innovations in buildings material or in business models in the buildings sector, that is helping phasing out CoC (and supports circularity), from your countries and institutions. Have there been any related challenge in their implementation?

CANADA (NGO)	- A non-combustible asbestos-free material capable of withstanding heat up to +1100°C has recently been invented in Russia.
COLOMBIA (Academia)	- One example is the implementation of recycled materials in constructions processes.
GERMANY (NGO)	- Innovations like insulation materials made from residual biomass or secondary raw materials like jute or hemp mats (as alternative to synthetic materials). - The challenge here is renewable sources are competing with food security and agriculture. - Polymeric-flame retardants have been used after the ban of HBCD in the EU.
NEPAL (NGO)	- A new kind of building material, like prefabricated one, which is much lighter but stronger is increasingly available. - No one is concerned about their CoC. - This is the very much the challenge now.
UNITED STATES (Government)	- While sustainability and circularity terms are more and more spoken about, used, and abused, it matters to know that there is/are community of experts trying to focus, present projects, and, provide guidance and systemic reference systems for actors in the field, toward greater support and commitments.
ZIMBABWE (Government)	- Adopting of measure that will minimise chemicals effects in work structures.
PRESENTER'S COMMENTS:	- Question: is there a process of costing the innovations, particularly for resource poor countries and communities? - Biobased materials is one area that is seeing more attention (paints/plastics) but it seems to still be early days. - Innovation in ceramic tiles has been seen from connecting up with waste glass, requiring less virgin clay extraction.

Poll 6 Results (N=8)

Please provide any examples you know of where chemicals of concern have been successfully addressed through substitution or innovation.

- "Insulation materials made from residual biomass or secondary raw materials (jute, hemp mats) or self-healing materials (polymer-based)."
- "The main example in Colombia is asbestos. Regarding this material is forbidden the construction sector needed to innovate in its substitution. Also old construction that have this material needs to be managed with care, such as norms establish."
- "It is hard to get access to this information."
- "Move to Chromium II from Chromium VI. Example of Savroc Triplehard as a new plating technique."

Helpful resources:

- **Global Chemicals Outlook Tool II**
<https://www.unep.org/resources/report/global-chemicals-outlook-ii-legacies-innovative-solutions>
- **Basta Online (provides tools to help choose non-hazardous materials)**
<https://www.bastaonline.se/?lang=en>
- **ChemSec SIN (Substitute It Now!) List**
<https://sinlist.chemsec.org/what-is-the-sin-list/>
- **Report on Sustainable Building and Living, Focus on Plastics – ISC3 report**
<https://www.isc3.org/en/activities/collaboration/foresight-workstreams.html>
- **Draft updated technical guidelines on the identification and environmentally sound management of plastic wastes and for their disposal**
[http://www.basel.int/TheConvention/OpenendedWorkingGroup\(OEWG\)/Meetings/OEWG12/Overview/tabid/8264/ctl/Download/mid/23551/Default.aspx?id=20&ObjID=23541](http://www.basel.int/TheConvention/OpenendedWorkingGroup(OEWG)/Meetings/OEWG12/Overview/tabid/8264/ctl/Download/mid/23551/Default.aspx?id=20&ObjID=23541)
- **Bioregional Eco-Innovation manual**
<http://unep.ecoinnovation.org/>
- **Bioregional Eco-Innovation manual: Supplement on building materials draft**
<https://saicmknowledge.org/sites/default/files/meterial/Eco-i%20Building%20Materials%20V2%20APR%202021.pdf>
 - This is the current draft of the manual. If you would like to provide comments on this draft, please send an email to the following address: stewart.muir@bioregional.com

CiP CoP: The Secretariat of the Strategic Approach to International Chemicals Management (SAICM) and the Environmental Health Division at the University of Cape Town (UCT) created this Community of Practice (CoP) to foster online discussions and address key issues on Chemicals in Products (CiP) among stakeholders from governments, international organizations, industry, academia and civil society.

This CoP is contributing to the SAICM/GEF project on Emerging Chemicals Policy Issues Knowledge Management Component. This activity is supported by the Global Environment Facility (GEF) project ID: 9771 on *Global Best Practices on Emerging Chemical Policy Issues of Concern under the Strategic Approach to International Chemicals Management (SAICM)*.

If you have any question or require clarification on this initiative, please contact the SAICM Secretariat at saicm.chemicals@un.org or UCT at uctcops@outlook.com.

Join the CiPs CoP at: <https://saicmknowledge.org/community>

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