



## How sustainable chemistry can help the building sector in light of global megatrends

A workstream report on 'Sustainable Building & Living, Focus on Plastics'

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### Workstream report

New and recycled plastic materials can play an important role in reaching Sustainable Development Goals (SDGs). But they must be used responsibly. Experts, public authorities, NGOs, and industry leaders discuss various questions about the sustainability of plastics as building materials in a report coordinated by International Sustainable Chemistry Collaborative Centre (ISC<sub>3</sub>).

### The facts

- About 20 % of building materials are made from plastics. The plastic building materials industry is now the second pillar in the plastics industry, after packaging.
- The global population will increase by 40 % by the end of the century. As a result, more than two billion homes will need to be built worldwide. In the regions with the largest growth, urban development is largely dominated by the informal sector (self-builders).
- Decades of linear, toxic, and wasteful production of building materials are the building sector's legacy.
- Additives in plastic materials have serious health consequences, such as cancer or negative effects on the reproductive, cognitive, or immune systems. Burning polymers release toxic fumes and residues. There are no regulations on the emission of smoke in the majority of cases.

### Impact on the SDGs

Plastic materials have become an important resource in the building industry in the past decades. Yet, the impacts of the current life cycle of plastic building materials are not in line with the 2030 SDG Agenda. While plastic building materials can help to reach some goals, such as the reduction of the energy consumption of buildings, they can at the same time conflict with other goals, such as the protection of health.

### Our solutions

- **Develop sustainable solutions specific to each region**, based on climate, available raw materials, and other local conditions.
- **Support the informal sector** in developing and emerging economies through regulations, financial incentives, social programmes, and training.
- **Incorporate life cycle analysis** in the design and planning phase, which helps to estimate the impacts of a material's extraction of natural resources, production, and transportation.
- **Deconstruct – not demolish – buildings**. This is essential for a closed-circle building economy, together with take-back systems and a market for deconstructed materials.
- **Limit the amount of hazardous additives**. And for substances of high concern, replace hazardous additives with non-hazardous additives.
- **Use materials made from residual biomass or secondary raw materials**, which have a low rate of pollution when they are disposed of.

Read our [summary](#) or our [full report](#) for more information. | [www.isc3.org](http://www.isc3.org)

### About ISC<sub>3</sub>

ISC<sub>3</sub> is an international centre that promotes the transition of the chemical and related sectors to sustainable chemistry. The Centre takes a multi-stakeholder approach, targeting policy makers, the public and private sectors, academia and civil society. ISC<sub>3</sub> contributes to international chemicals policy, develops professional and academic trainings, offers advisory services, fosters innovations, supports entrepreneurship and conducts research. Its international activities are focused on Europe as well as on selected developing and emerging countries. The ISC<sub>3</sub> is hosted by the German GIZ (Gesellschaft für Internationale Zusammenarbeit) in cooperation with Leuphana University Lüneburg as ISC<sub>3</sub> Research & Education Hub and DECHEMA e. V. (Society for Chemical Engineering and Biotechnology) as ISC<sub>3</sub> Innovation Hub. The centre was founded in 2017 on the initiative of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU now BMUV) and the Federal Environment Agency (UBA).

#### Contact:

Claudio Cinquemani  
Director Science & Innovation  
M + 49 228 90 241 130  
E [claudio.cinquemani@isc3.org](mailto:claudio.cinquemani@isc3.org)

Oleg Ditkovskiy  
Workstream Manager  
M + 49 175 447 64 86  
E [oleg.ditkovskiy@isc3.org](mailto:oleg.ditkovskiy@isc3.org)

