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Managing microplastics from construction projects

Guidance to avoid the pollution of soil and water

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About CIRIA

CIRIA is the Construction Industry Research and Information Association, a neutral, independent and not-for-profit member organisation.

Our vision is to be the leading enabler and preferred partner for performance improvement, to drive collaboration across the built environment and construction sectors to research, develop and transfer knowledge.

CIRIA Products

CIRIA delivers robust, authoritative and independent good practice guidance applicable across sectors and designed for a range of users, from policy makers to practitioners.

Our guidance is developed collaboratively with industry and academic experts. Our methods ensure consensus, quality and the latest thinking underpin everything we do. Our work contains case studies to share knowledge and illustrate practice through examples.

We raise awareness of our good practice guidance through training, events, communities of practice, social media, blogs and press releases. Key messages from our projects are widely disseminated to help embed good practice into industry.

CIRIA Research Ambitions

CIRIA's 60+ year history and future purpose are aligned to our ambitions, designed to make a tangible difference to the sectors in which we work. We take a holistic, systems-based approach to critical industry challenges within our 5 core research ambitions.

Embedding Sustainability

Achieving Net Zero Carbon

Increasing Resilience

Improving Delivery

Harnessing Innovation

Managing microplastics in construction projects

Justification

Plastic pollution is a serious problem. The construction industry is the second largest user of plastic, with 20% of plastic waste coming from the construction sector. There is increasing concern of microplastic (fragments of plastic that is between 1 µm to 5 mm) in aquatic environments due to the ecotoxicological risks microplastics pose. Microplastics are also known to cause harm to humans via the food chain. This can be via:

- Direct ingestion of microplastic by beach-dwelling and marine organisms like crustaceans and molluscs. These can be passed up the food chain to birds, fish, and mammals who feed on those organisms. Some microplastics are endocrine disrupters that can affect human health
- Environmental pollutants such as pesticides, pharmaceuticals, heavy metals, and polychlorinated biphenyls (PCB) tend to attach themselves to microplastics.

Microplastics can be divided into primary and secondary groups. Primary microplastics are the particle waste products generated throughout the production process. Secondary microplastics are the small debris generated from the degradation of larger plastic materials as a result of mechanical strain, hydrolysis, oxidation and weathering effects from UV light, heat and microorganisms.

The construction and built environment sectors, including fabric or textile in construction sites, fibre reinforcement in concrete, paint, plastic beads and insulation sheet, etc. can be secondary source of microplastics.

Recent research carried out by National Highways indicated that tyre, road and wear particles (e.g. road paint markings), as well as roadside plastic litter, were the main sources of microplastics from road projects.

Currently, guidance on managing microplastics is not consolidated in a single source reference. One of the more comprehensive guidance documents has been developed by the Interstate Technology Regulatory Council in the US. In the UK, CIRIA Environmental Good Practice Site Guide Edition 5 highlighted at a broad level the need to reduce the reliance upon single-use plastics.

There is an urgent need to understand the risk of microplastics in air, water and soil and how construction projects can contribute to reducing their spread through appropriate choices and applications of products.

Scope

This proposal will deliver a good practice guide to help construction professionals manage the generation and spread of microplastics in different types of construction projects.

Stage 1: Understanding the problem

- What are the different types of microplastics generated from construction projects and their impacts?
- What is their source, fate and transport ?
- What are the current regulations on microplastics in construction projects?
- How is the industry currently dealing with microplastics in different types of construction projects? What are the benefits of current approaches and what could be improved?
- What additional work or guidance is needed to address gaps in the current approach?

Stage 2: Develop good practice guidance

- How can different types of construction projects generate less microplastics in their site activities?
- How can appropriate selection and application of products reduce the source of microplastics in construction?
- What can we reduce the spread of microplastics on site?
- Provide good practice examples to demonstrate good practice

Indicative Timeline

Why invest in a CIRIA project?

The benefits to your company from contributing to our projects

Our reputation

Our reputation in the industry is long established and widely recognised. The principles of quality, sustainability and collaboration have been a foundation for what we do for many years.

Our downloads

Our Guidance is downloaded over 50,000 times per year

Our reach

Our members and downloads span over 50 countries worldwide

The benefits of being involved in a CIRIA project are various:

- Deliver significant corporate value for modest levels of investment.
- Raise awareness of your corporate brand through logo on outputs and submission of case studies and content.
- Network with peers, clients and thought leaders in the sector.
- Get your message heard and influence industry direction.
- Demonstrate tangible leading contribution to improvement in the sector, fulfilling ESG goals
- Provide CPD for your staff, aiding routes to chartership and personal career growth
- Assist future work winning though involvement with industry leading good practice

Want to know more?

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