



Recovering waste into a resource

Sustainable waste flow solutions

HeidelbergCement co-processes waste-derived fuels and raw materials in a safe, transparent and ecological way, and applies strict internal guidelines:

1. **Waste treatment hierarchy:** we act to ensure that our process is considered and integrated into comprehensive waste management policies.
2. **Environmental responsibility:** we ensure strict observance of our air emission limits and other permit requirements. We keep watch over the environmental performance of our products throughout their lifetime.
3. **Health and safety management:** our employees and neighbouring communities deserve transparent information and appropriate training. Efficient documentation management and emergency plans are in place.
4. **Product quality:** our long-standing experience shows that waste co-processing has no negative impact on the quality of our products.
5. **Operational excellence:** our management systems ensure the traceability of waste, as well as full compliance with legal requirements and internal policies.
6. **Transparent communication:** we communicate in a transparent and consistent way, aiming for trustful and respectful dialogue with all stakeholders.

Waste co-processing reduces CO₂ emissions

Climate protection is at the heart of the environmental policy at HeidelbergCement. The use of waste as raw material and/or as fuel for our cement production process reduces global CO₂ emissions through three complementary effects:

- Lower emission factors for waste-derived fuels compared to primary fuels, such as coal and petcoke.
- Lower emissions from decarbonisation of waste-derived raw materials compared to limestone.
- Avoidance of emissions related to other waste treatment processes, such as incineration or landfilling.

As an energy intensive industry, we have been focusing on mitigation of our CO₂ emissions for many years. Compared to 1990, a reduction of about 18% of CO₂ emissions per tonne of cement was achieved in 2010 (or 640 kg CO₂ per tonne of cement). This performance is strongly related to our commitment towards waste co-processing.

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Waste: a valuable alternative to primary resource

If an industrial company is to be sustainable over the long term, it must work to minimize depletion of non-renewable resources. This is why HeidelbergCement regards waste materials and by-products as valuable alternative raw materials and fuels to be used in its manufacturing processes. Over the years, HeidelbergCement has been intensely involved in the recovery of waste, and has now achieved global leadership in this field.

HeidelbergCement uses waste-derived materials to replace natural mineral resources (such as limestone, chalk and clay) and fossil fuels (such as coal, petroleum and natural gas) for the production of cement. This process is known as waste co-processing.

In addition to preserving non-renewable resources, waste co-processing offers a sustainable solution for waste management to the local communities where we operate.



HeidelbergCement industrial ecology concept

In nature, an ecological system operates within a network where organisms live and consume each other and each other's waste. Nothing that contains energy or useful material is lost. The industrial world is replicating this to set up an industrial ecosystem. Finite resources must be returned, recycled and/or reused in order to close materials cycles and minimize energy consumption.

HeidelbergCement regards co-processing as the most important contribution to industrial ecology. Its main advantages are:

- Optimized use of resources: conservation of primary resources and reduced dependency on non-renewable natural resources.
- Closed material flows: dismantled building materials to be used as raw materials for clinker production.
- Minimization of pollution or wasteful emissions, and reduction of greenhouse gas emissions.
- Reduced environmental impacts from extraction, transport and processing of raw materials and fuels.
- Conservation of landfill space.
- Reduced pollution from disposal and incineration of waste.



A clear strategy based on 3 global waste streams

HeidelbergCement is the industry leader in use of alternative fuels and raw materials. In addition to other local opportunities, the Group's strategy focuses on three globally available waste streams:

- Sorted household waste,
- Sewage sludge,
- Hazardous waste.

Throughout the Group, the co-processing of waste derived fuels is subject to strict internal standards. Moreover consistent focus of our operations and efficient Group-wide knowledge exchange ensure continuous improvement of our performance and efficiency.

HeidelbergCement aims to increase its alternative fuels use rate to 30% by 2020, including approximately one-third from biomass-derived fuels.

