



# Waste-derived fuels



**“Using waste from other industries as fuel for our cement kilns is an excellent way both of contributing to the circular economy and of reducing CO<sub>2</sub> emissions.”**

Dr Martyn Kenny, sustainability director

Using other people’s waste conserves natural resources and reduces the amount of waste sent to landfill, but it also allows us to replace fossil fuels with lower carbon alternatives.

Cement manufacture is energy intensive and has traditionally relied on coal and petroleum coke as a fuel source. The cement manufacturing process however is well suited to ‘co-processing’ waste-derived fuels. The use of waste-derived

fuels in cement is called ‘co-processing’ because not only is the energy from the fuel used to drive the chemical reaction that make cement but the minerals in the fuel that form ash are incorporated into the cement product as a valuable part of the cement chemistry. This is far preferable to landfilling, composting or energy from waste processes, due to the improved recovery of energy, with no waste residues that have to go to landfill.

Our aim is to replace up to 45 percent of the traditional fossil fuels with alternatives classed as fully or partially carbon neutral and we have made good progress. In 2020, we made use of over 106,000 tonnes of waste-derived fuel, representing 41 percent of the entire thermal input required in our cement business. This increase was mainly due to the new supply of solid recovered fuel (SRF) at Dunbar Cement Plant. SRF is

ideally suited to the energy and mineral needs of the cement production process by releasing high calorific energy value.

Some waste-derived fuels, such as waste wood chips, meat and bone meal and processed sewage pellets are 100 percent biomass and are regarded as carbon neutral. Others, such as tyres and solid recovered fuel, made from materials such as paper and cardboard, contain a proportion of biomass so have much lower carbon emissions than fossil fuels. Around 14 percent of the thermal input into our cement operations in 2020 was biomass. We have our own experts who are supporting our move to waste-derived fuels for use within cement plants by identifying and assessing sources of wastes suitable to be used as fuels.

An important additional advantage of using waste materials as fuel in the cement manufacturing process rather than in other energy recovery processes is that the resultant ash residues are incorporated into and form an important part of the final cement product (a process known as co-processing).

