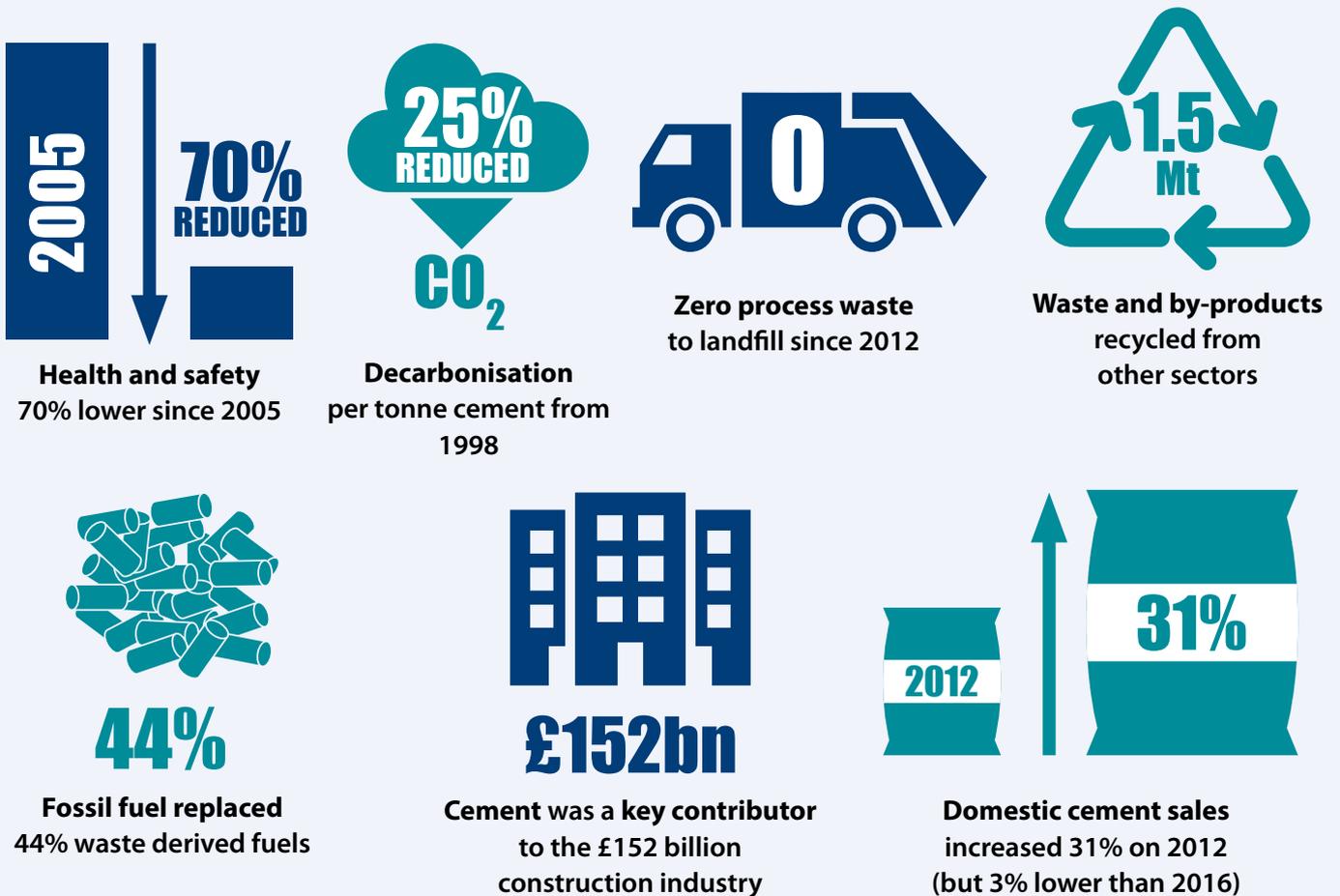




MPA Cement Sustainable Development Report 2018

SUMMARY OF PERFORMANCE



MPA STRATEGIC PRIORITIES

Following the launch of the MPA Charter in 2017, MPA Cement’s Sustainable Development Report is now set out to align with the 7 MPA strategic priorities. In particular, this report highlights the positive contribution the cement industry made in 2017 on Health and Safety, People, Resource Use, Climate Change and Energy, the Natural Environment, the Built Environment, and starts by Communicating Industry Value.



Communicating Industry Value



Continuous improvement in environmental, economic and social performance drives our competitiveness and innovation.

The cement industry is a vital component of the concrete supply chain. The five companies manufacturing cement in the UK, Aggregate Industries (operating as Lafarge Cement), Breedon Cement, CEMEX, Hanson, and Tarmac, together supplied 84% of the cement consumed in the UK.

Despite a slight drop in domestic production in 2017 compared to 2016 (3.4% reduction), cement production was 9.5 million tonnes and sales were 31% higher than in 2012 showing growth since the end of the recession period.

Health and Safety



The health and safety of our employees, contractors, neighbours and customers is our number one priority.

The cement industry is continually working to improve the health and safety of its employees, contractors and neighbours. Five areas for improvement have been identified in 2017: risk reduction during kiln shutdowns, improving knowledge on process safety techniques, better communication on health and safety issues and incidents, reducing dust exposure of employees and better quality root cause analysis of incidents.

Work on these areas includes regular peer reviews of health and safety and improved widespread sharing of information on incidents and near misses to try and prevent similar occurrences at other sites.

People



We play a key role in local communities, taking account of the needs and concerns of our neighbours.



2,210 Direct employees



42,371 employee training hours



£554k charitable donations made



2,103 voluntary hours worked by staff during normal working hours



15 local liaison meetings



2,898 visitors to cement plants

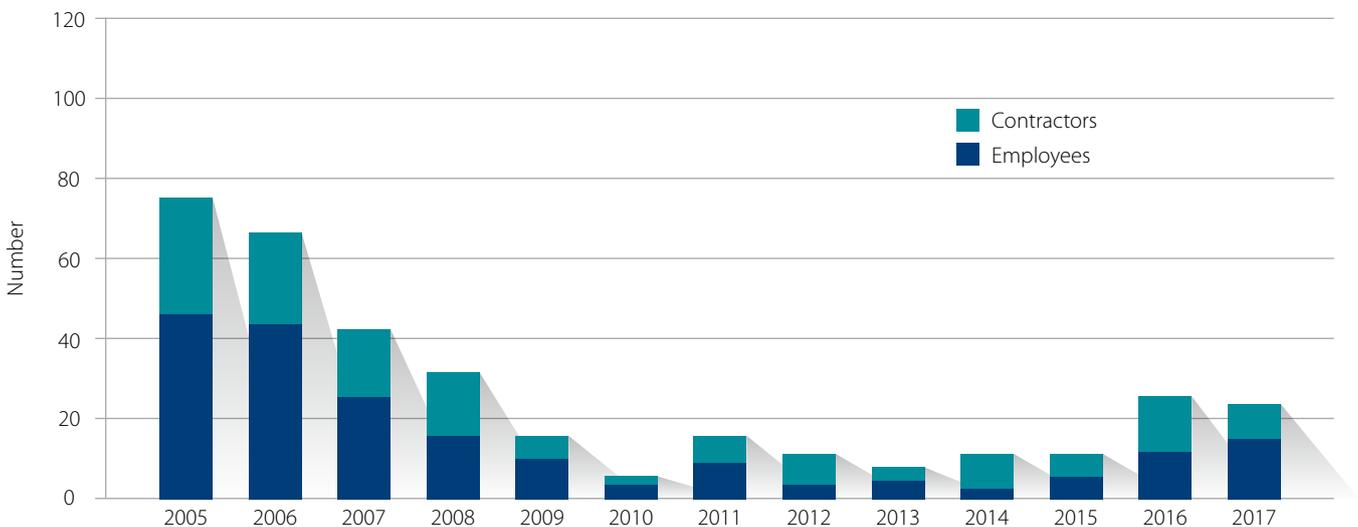


Figure 1: Lost Time Injuries 2003-2017

Resource Use

The UK cement industry is a net consumer of waste and is resource efficient. This places us at the heart of the circular economy.

In 2017, the cement industry used a huge 1.5 million tonnes of waste and by-products from other industries through a unique process called co-processing. Co-processing involves the simultaneous recovery of energy, minerals and metals from wastes, and therefore is material recycling and energy recovery in one unique simultaneous process.

The cement industry's valuable contribution to the circular economy was recognised for the first time in a 2017 Government report ("From waste to resource productivity"*) co-authored by Professor Ian Boyd, the Chief Scientific Adviser at the Department for Environment, Food and Rural Affairs (Defra) and Professor Sir Mark Walport (Government Chief Scientific Advisor). Now the cement industry is working to get co-processing recycling recognised in UK recycling statistics.

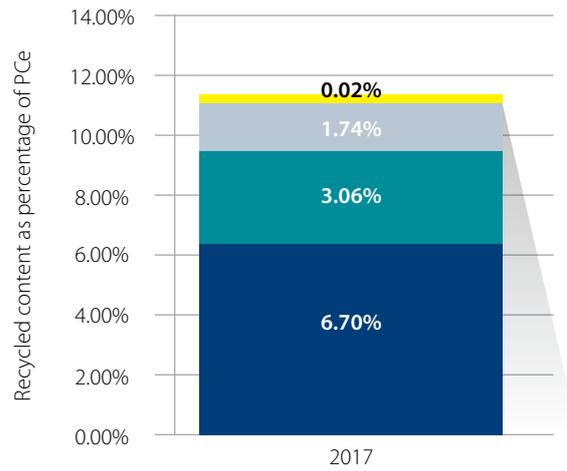


Figure 2: The total recycled content of UK produced cement - including kiln dust (KD) recovered on site, fuel ash recycled as mineral content, alternative raw materials (ARM) interground with clinker to produce cement and ARM fed to the kiln (kiln feed).

- ARM (Kiln Feed)
- ARM (Interground)
- Fuel Ash
- KD Recovered On-Site

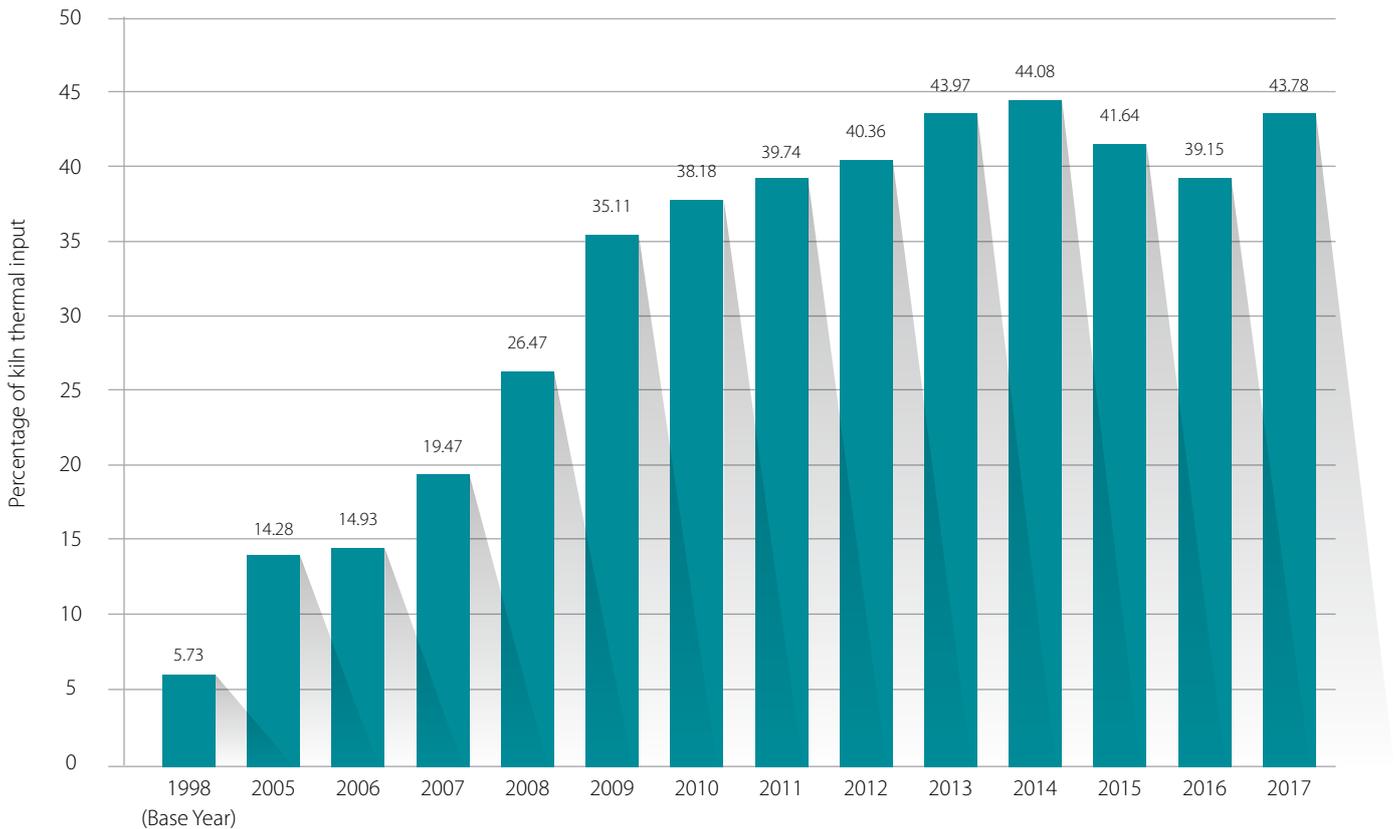


Figure 3: Waste derived fuel use in 1998 (base year) and from 2005-2017

*<https://www.gov.uk/government/publications/from-waste-to-resource-productivity>



Climate Change and Energy

Thanks to continuous investment, rationalisation and innovation, the UK cement industry is decarbonising faster than the UK as a whole.

The UK cement industry continues to be successful in reducing costs and improving its carbon footprint by increasing energy efficiency, using alternative fuels instead of traditional fossil fuels, and utilising renewable energy sources. In 2017 direct emissions of CO₂ per tonne PCe** from the UK cement industry were 25% lower than in 1998 and 0.4% lower than in 2016. Use of waste derived fuels increased to 44% of the thermal input, with waste biomass fuels composing 18.3% of the thermal input to the cement manufacturing process. The industry will continue to target lower carbon production via three main levers: replacing traditional fossil fuels; using lower carbon raw materials; and exploring innovative new technologies.

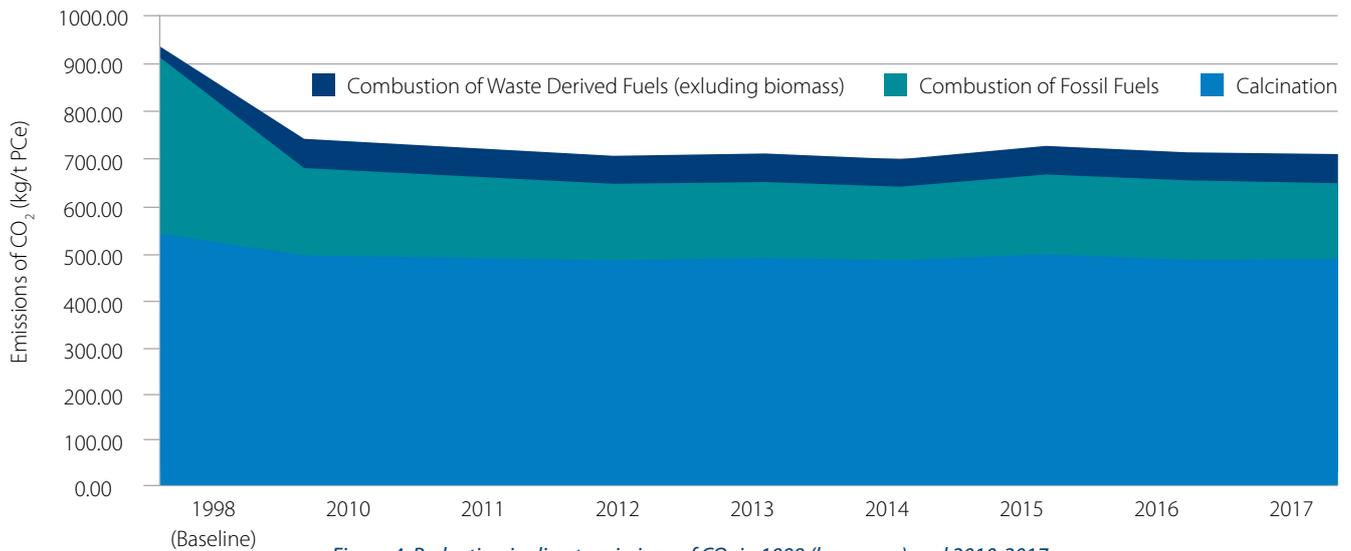


Figure 4: Reduction in direct emissions of CO₂ in 1998 (base year) and 2010-2017

Natural Environment

The cement industry has invested heavily and made considerable progress in reducing its impact on the natural environment.

The majority (86%) of cement producing sites including kiln sites, quarries, grinding and blending plants and depots are covered by biodiversity action plans that ensure all mineral working sites are restored after use, often enhancing local biodiversity.

Emissions of NO_x, Particulate Matter (PM) and SO₂ per tonne PCe were 69.0%, 85.5% and 85.1% lower than in 1998 respectively.

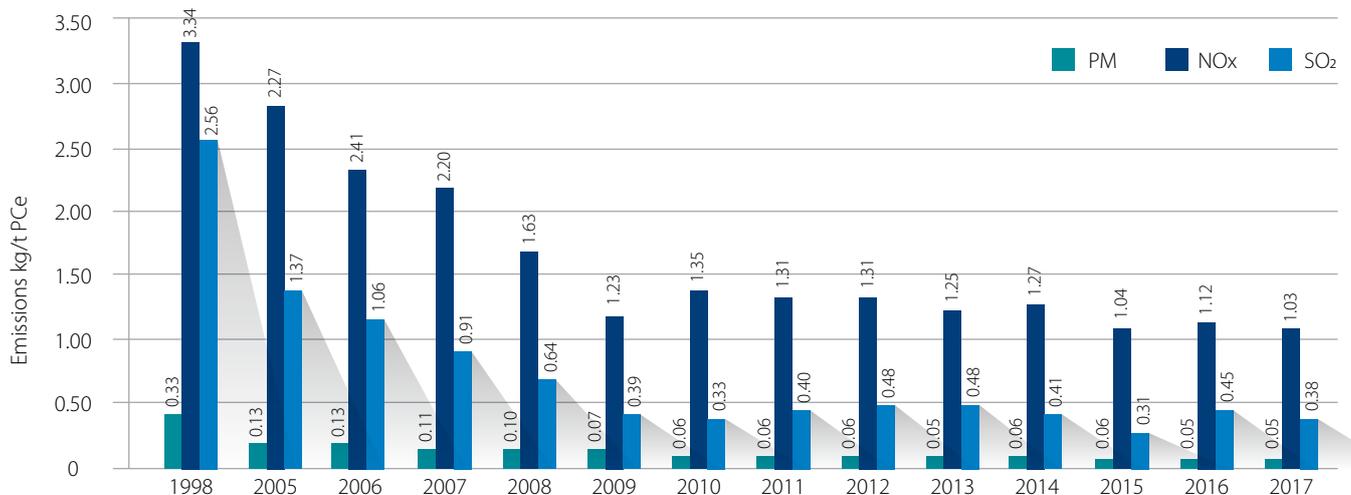


Figure 5: Emissions of NO_x, PM and SO₂ in 1998 (base year) and from 2005 to 2017 - since 2008, emissions have been at a steady low rate with only very minor fluctuations since 2009

**Portland cement equivalent (PCe) is a normalising factor related to cement output, which enables a comparison of impacts, such as environmental impacts, between sites whilst taking into consideration differing production methods, cement product types and movement of intermediate products.



Built Environment



Not only did cement and concrete contribute to the £152 billion construction industry, but the use of cement in concrete brings many environmental benefits:

Cement is a key ingredient of concrete, a robust material that is proven, safe and indispensable.

The high thermal mass of concrete helps to reduce the need for heating and cooling homes and buildings thereby reducing energy costs for occupants.

Cement based concrete absorbs significant amounts of CO₂ and therefore has the potential to offset a large portion of the emissions that are released during its production.

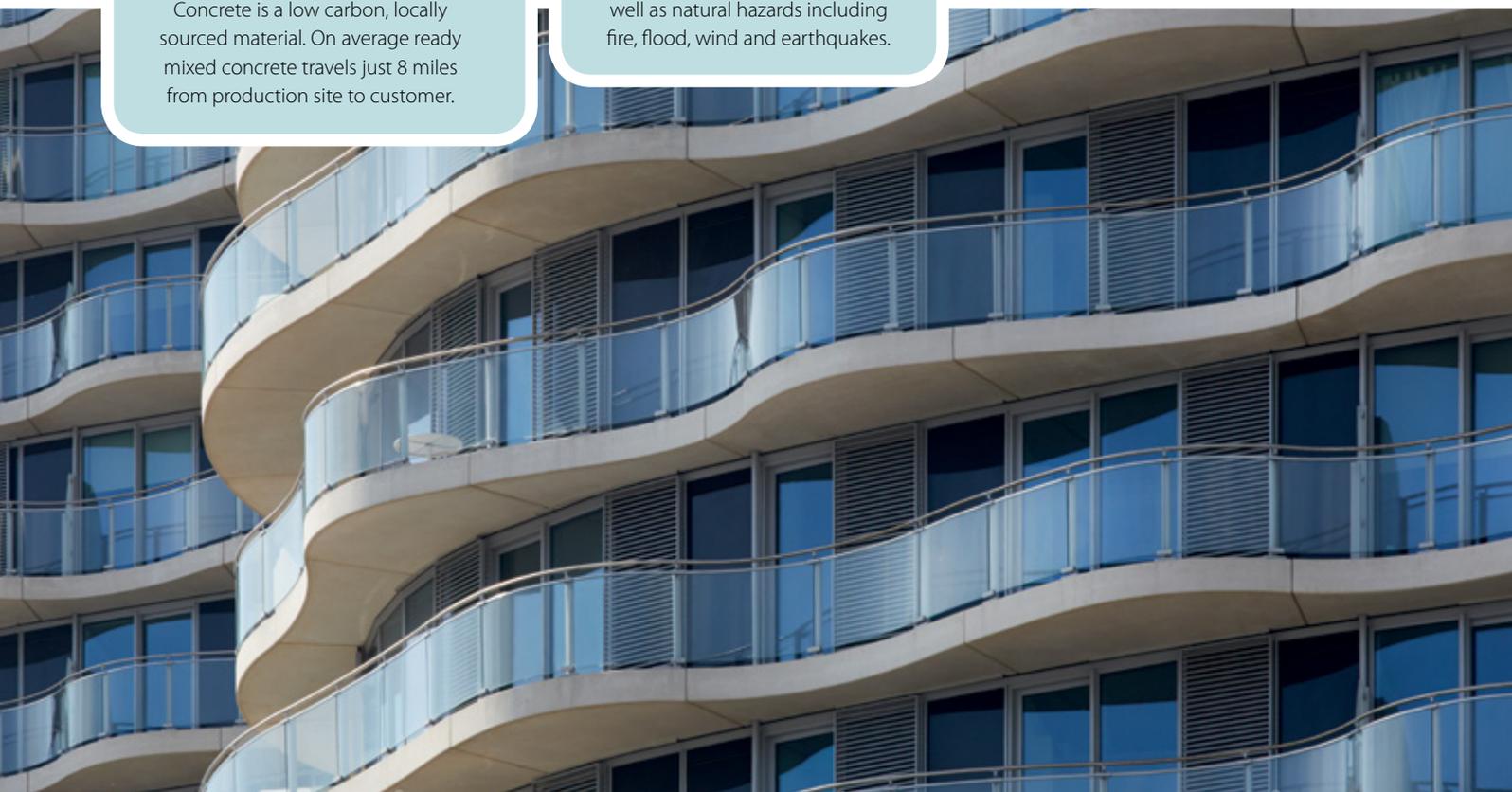
100% of cement produced in the UK was responsibly sourced to Very Good or Excellent level through the BES 6001 responsible sourcing certification scheme.



The UK has all of the raw materials needed to produce the cement and concrete that the UK requires. Concrete is a low carbon, locally sourced material. On average ready mixed concrete travels just 8 miles from production site to customer.

Concrete homes last longer, require minimal maintenance and are resistant to rot and infestation as well as natural hazards including fire, flood, wind and earthquakes.

Concrete is 100% recyclable.



DATA TABLES

RESOURCE USE										
	Units	1998	2010	2011	2012	2013	2014	2015	2016	2017
Total waste and by-products used as fuel and raw materials	tonnes	446,511	1,528,315	2,481,106	1,811,200	1,452,553	1,612,584	1,619,766	1,454,354	1,549,393
Proportion of raw material comprising waste	%	4.0	7.2	7.6	7.6	7.0	7.7	7.4	5.9	6.9
Proportion of fuel comprising waste material	%	5.7	38.2	39.7	40.4	44.0	43.0	41.6	39.2	43.8
Biomass fraction of fuel input (100% and part biomass fuels)	%	Not available	16.7	16.8	17.2	18.9	19.9	18.5	16.7	18.3
Process waste recovered on-site	tonnes	Not available	11,379	9,195	2,819	10,390	1,513	11,009	4,086	2,270
Process waste recovered off site	tonnes	0	36,945	47,796	57,471	47,238	33,988	35,103	49,238	43,273
Process waste sent to landfill	tonnes	289,207	14,021	4,631	0	0	0	0	0	0

CLIMATE CHANGE AND ENERGY										
	Units	1998	2010	2011	2012	2013	2014	2015	2016	2017
CO ₂ emissions from calcination (process emissions)	kgCO ₂ /tPCe	520	471	468	459	468	462	476	464	465
CO ₂ emissions from combustion of fossil fuels	kgCO ₂ /tPCe	387	187	177	169	164	158	172	172	164
Indirect CO ₂ emissions from electricity use	kgCO ₂ /tPCe	Not available	55	61	56	44	58	57	48	36

NATURAL ENVIRONMENT										
	Units	1998	2010	2011	2012	2013	2014	2015	2016	2017
Emissions of NO _x	kg NO _x /tPCe	3.34	1.35	1.31	1.31	1.25	1.27	1.04	1.12	1.03
Emissions of PM	kg PM/tPCe	0	0.06	0.06	0.06	0.05	0.06	0.06	0.05	0.05
Emissions of SO ₂	kg SO ₂ /tPCe	2.56	0.33	0.40	0.48	0.48	0.41	0.31	0.45	0.38
Mains water use	m ³ /tPCe	Not available	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.07
Licensed abstraction	m ³ /tPCe	Not available	Not available	Not available	0.04	0.04	0.05	0.07	0.10	0.05

MPA Cement site locations

Key



Kiln sites



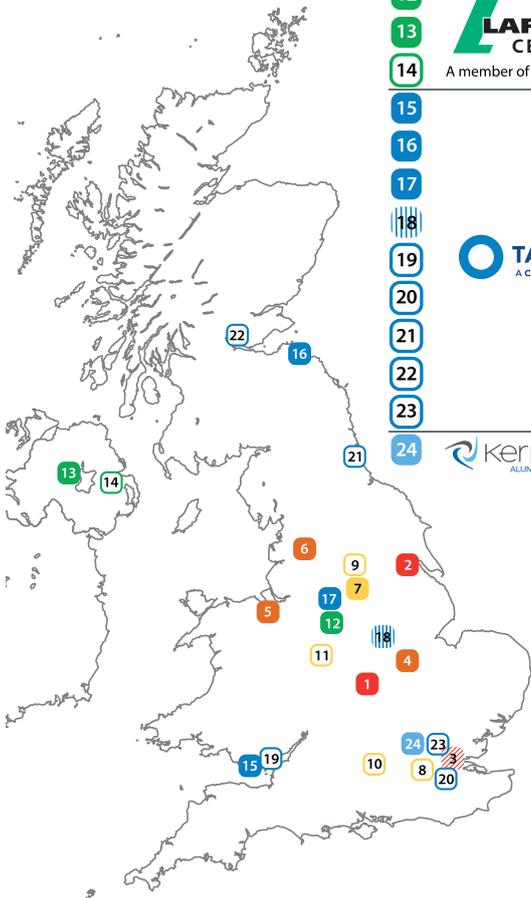
Grinding and blending sites



Grinding only sites



Blending only sites



1		Rugby
2		South Ferriby
3		Tilbury
4		Ketton
5		Padeswood
6		Ribblesdale
7		Hope
8		Dagenham
9		Dewsbury
10		Theale
11		Walsall
12		Cauldon
13		Cookstown
14	A member of LafargeHolcim	Belfast
15		Aberthaw
16		Dunbar
17		Tunstead
18		Barnstone
19		Celtic Ash
20		Northfleet
21		Seaham
22		Scotash
23		West Thurrock
24		Purfleet



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This report has been titled as 2018 to follow the general MPA nomenclature to use the year of data collection rather than the year of performance.

*Kerneos are members of MPA but data from their operations has not been included in this report because they produce calcium aluminate cements rather than Portland cement.

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MPA Cement is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.