

# FREQUENTLY ASKED QUESTIONS

## QUESTION

## THE FACTS

Is it true that Irish Cement will burn 1 million tyres a month in its kiln?

No, this is not true – tyres are one of the Alternative Fuels (AF) we are looking for permission to use. Tyres will provide 10-15% of the total heat needed for our process which would be equivalent to approx. 10,000 tonnes of tyres per year or approx. 1 million tyres per year.

Won't burning tyres be harmful to public health and the local environment?

Because of the extreme temperatures inside the cement kiln (known as complete combustion) – there will be no smoke, no fumes and no increase in emissions.

Using tyres as fuel in cement kilns is known to be a safe and efficient solution for unwanted tyres.

Is Irish Cement going to be operating an incinerator in Mungret?

The Mungret cement factory will continue to make cement, we will simply be using these new fuels as an alternative to imported fossil fuel in the existing cement kiln on site. Under European Regulations this process is known as co-incineration.

Replacing fossil fuels will be achieved on a gradual basis, and the new fuels will be produced to an agreed specification before being delivered to site. No incinerator is being built at the cement factory.

I heard that the kiln is not suitable?

The kiln in Mungret is perfectly suited to using a range of fuels. It is part of a multi-stage dry process pre-heater production line that is recognised as Best Available Technology under European Commission guidance for the sector.

Many of the cement kilns throughout Europe already using alternative fuels are in fact older than kiln 6 in Mungret. This is now the only cement factory in Ireland that is totally dependent on fossil fuels. So this is an important project to ensure Mungret does not get left behind.

Will this project reduce our recycling rates?

No, using this residual waste in the cement kiln as fuel supports the recycling industry and in fact, Ireland's Regional Waste Management Plans, recognise the increasingly important role that cement factories play in the efficient recovery of residual waste.

For more than 40 years cement kilns all over Europe have been using alternative fuels to replace fossil fuels. Many of our European neighbours, like Switzerland and Germany, have achieved high recycling rates, very low landfill rates with the help of their local cement industry using residual waste as fuel.

Will this result in the emission of toxins and dioxins?

Cement factories have very low dioxin emissions because of the extreme temperatures inside the cement kiln (known as complete combustion) and rapid cooling of the exhaust air before the filter.

The evidence from elsewhere in Europe, where this is a very well-established practice, confirms that the levels of dioxins will remain very low. Hundreds of cement kilns throughout Europe are licenced and monitored by independent environmental authorities and the data over decades confirms that there will be no increase in dioxins.

## CEMENT FACTORY OR INCINERATOR?

There is sometimes confusion over the difference between a cement factory and a waste incinerator. The key differences are listed below. The best way to think about it is to consider their purpose; the purpose of an incinerator is to destroy waste which it does by combustion, while the purpose of a cement factory is to make cement using local raw materials which must be 'melted' inside the cement kiln at extreme temperatures, that's why fuel is needed.

	CEMENT FACTORY	INCINERATOR
<b>Purpose of the facility</b>	Cement Manufacture	Waste disposal (with energy recovery)
<b>Operating Temperatures</b>	>2,000°C	900 – 1,200°C
<b>Materials used</b>	Raw materials and Prepared fuels	Mixed waste
<b>Relative sizes of individual facilities in Ireland</b>	Up to 2.8 million tonnes of cement produced per year	Up to 600,000 tonnes of waste accepted per year
<b>EPA licence</b>	Industrial Emissions licence	Waste licence
<b>Ash production</b>	No ash	Bottom ash and fly ash requiring further treatment

## IRISH CEMENT LIMERICK

## FACTS ABOUT CEMENT PRODUCTION AND ALTERNATIVE FUELS

### MUNGRET CEMENT FACTORY 2017

<b>Product</b>	High quality cement for Irish and export markets
<b>Employment</b>	90 full-time people
<b>Manufacturing Method</b>	Modern Multi-stage Dry Process technology
<b>Raw Materials</b>	Locally available limestone, shale and clay
<b>Annual Raw Material Use</b>	Approx. 1 million tonnes
<b>Fuels Used in Process</b>	Petcoke – a by-product of the oil industry
<b>Source of Petcoke</b>	Imported from the Gulf of Mexico
<b>Annual Petcoke Use</b>	Approx. 100,000 tonnes



If you have any questions or would like to discuss any of the information contained within, please contact us.

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## KEY FACTS

Cement production	Approx. 900,000 tonnes each year
Number of kilns on site	One - known as 'Kiln 6'
Kiln flame temperature	>2,000°C
Length of the kiln	76 metres
Diameter of the kiln	4.65 metres
Residence time inside the kiln	Approx. 20 minutes
Total length of production line	3 kilometres from limestone quarry to bag of cement
Number of filters on site	42
Annual maintenance	The kiln is shut down for 3-4 weeks each year

## WHAT IS THE PLAN REGARDING ALTERNATIVE FUELS?

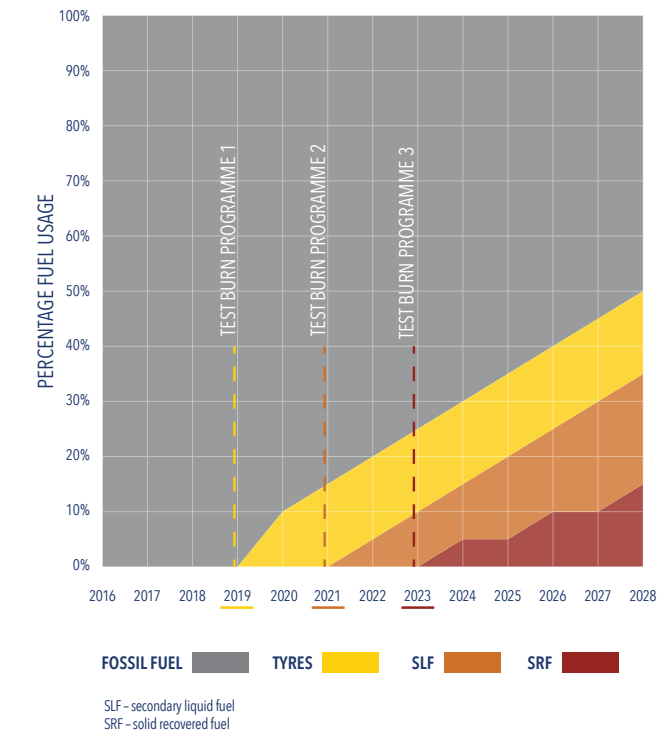
Alternative Fuels (AF) is the title given to a range of new fuels that we are seeking permission to use in the existing cement kiln as an alternative to imported fossil fuels. Fossil fuels are already being replaced in the three other cement factories in Ireland.

The use of AF in cement kilns is well known throughout Europe where it is considered 'best practice'. On average 41% of the heat needed by European cement factories now comes from fuels made from residual waste materials which are pre-prepared to agreed specifications before being delivered.

If we are successful with our application in Mungret we plan to gradually replace approx. 50% of the fossil fuels we currently import. Introducing one fuel at a time we will build up over 8 to 10 years to eventually reach 90,000 tonnes. The transition away from fossil fuels will not change the current industrial emissions profile of the factory in any way. The extensive experience from decades of data around Europe confirms the safety of cement kilns, irrespective of the fuel type.

Reducing our dependence on imported fossil fuel will help to secure the long-term future of the Mungret factory and not only lower our carbon footprint by up to 40,000 tonnes of CO<sub>2</sub> per year but also provide a recovery option for local residual waste materials.

## FUTURE POSSIBLE FOSSIL FUEL REPLACEMENT SCENARIO



## CEMENT MANUFACTURING IN MUNGRET

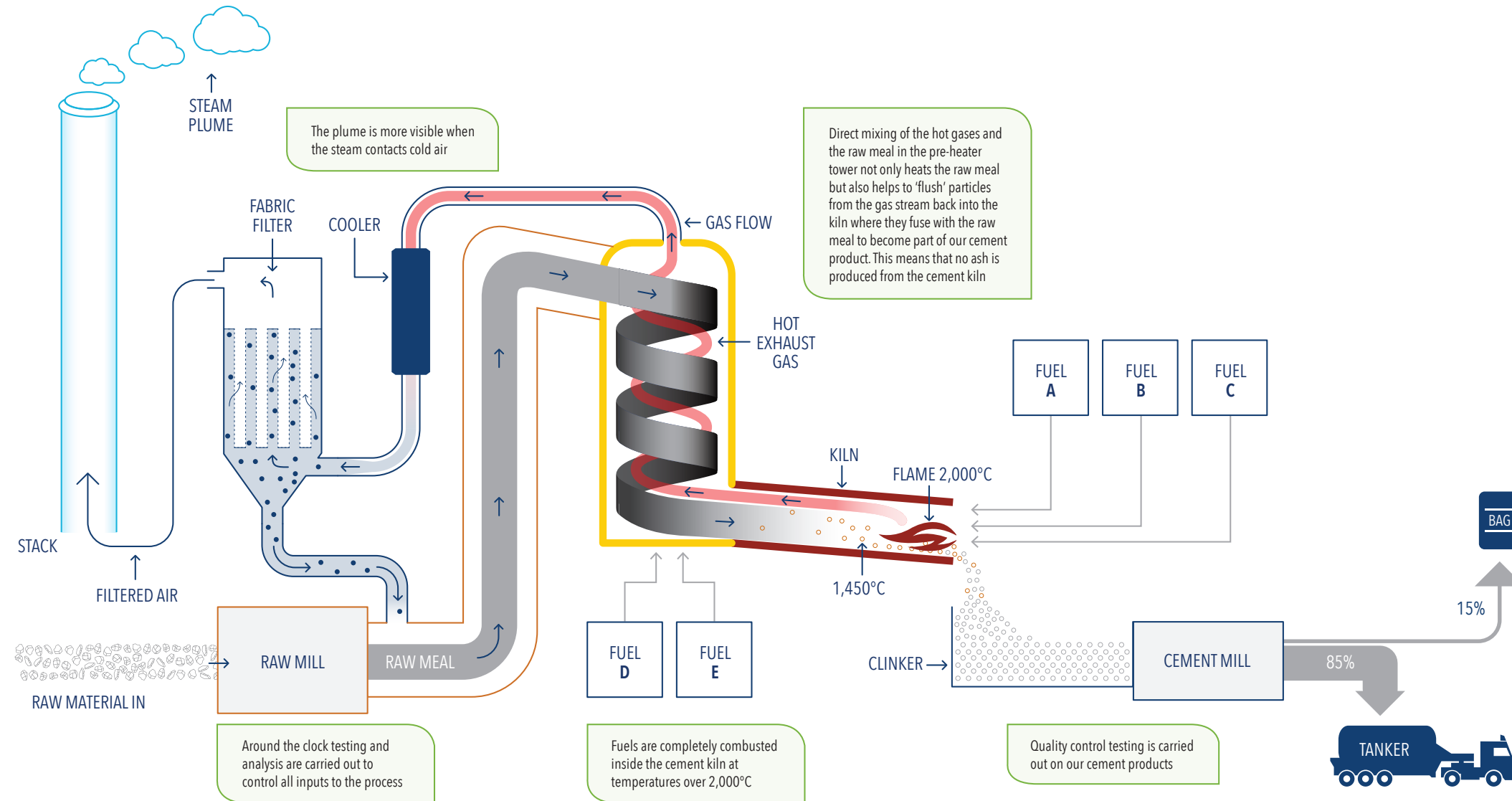
From start to finish, natural rock to final cement product, the raw materials travel 3 kilometres on site. Starting as solid rock, the raw materials are transported from the quarry, are crushed into a fine powder and then mixed and blended to a precise composition before being transformed at 1,450°C to molten rock.

The precise composition and carefully controlled temperature allow us to rearrange the natural chemistry of the rocks to form clinker inside the kiln. The clinker is cooled and is stored on site in silos as small solid spheres.

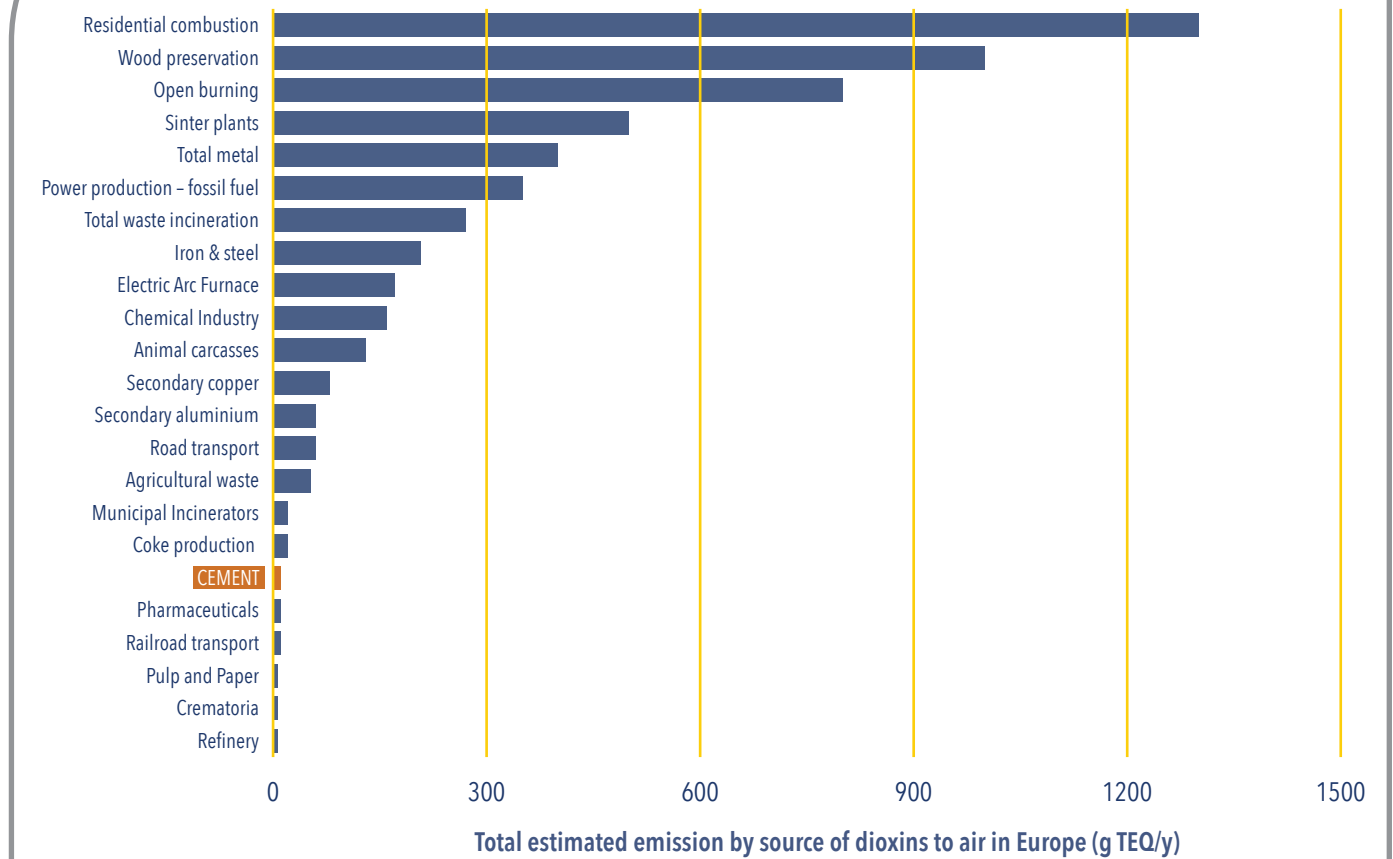
The clinker is transported to the cement mills where it is milled into a fine grey powder which is either packed in to 25kg bags or transferred to silos for loading into sealed road tankers. 85% of the cement leaves the factory by tanker.

This high tech, high temperature manufacturing process relies on trained and qualified personnel, complex mechanical equipment and sophisticated sensors and controls. Throughout the process samples are taken to ensure the quality of the process.

View cement production video  
<https://vimeo.com/219816861>



## HOW DOES THE CEMENT INDUSTRY COMPARE WITH OTHER SOURCES OF DIOXINS?



European data confirms that cement kilns generally emit very low levels of dioxins and furans irrespective of the fuel types being used. This graph shows that cement kilns rank well below other industrial and non-industrial sources for dioxin and furans emissions in Europe.

Source: European Commission, Brussels "Identification, assessment and prioritisation of EU measures to reduce releases of unintentionally produced/released Persistent Organic Pollutants" - 25 July 2006