



# IRELAND'S CEMENT INDUSTRY AND ALTERNATIVE FUELS



# CEMENT MANUFACTURERS IRELAND

Cement Manufacturers Ireland was established as a business association in Ibec in 2003 and has three members in the Republic of Ireland; Irish Cement, Lagan Cement and Quinn Cement and an associate member in Northern Ireland - Lafarge Cement.

The members of CMI support 2,000 direct and indirect jobs in Ireland. The companies compete on the island of Ireland and are also involved in the export of cement products to other markets. The industry has invested in modern manufacturing facilities and operates to the highest international and European standards. CMI is a member of the European Cement Association CEMBUREAU.

## ALTERNATIVE FUELS

Alternative fuels are used to replace the fossil fuels required for cement clinker manufacturing. Traditionally in Ireland both coal and petroleum coke (from oil refining) have been imported to fuel the cement kilns. In recent years CMI members have invested in the equipment and systems to use locally available alternative fuels to reduce our dependence on imported fossil fuels. CMI members currently have licenced capacity to use 340,000 tonnes of alternative fuels. In 2014 over 30% of our fossil fuels have been replaced by alternative fuels and CMI has committed to achieving 50% replacement by the end of 2017.



# ALTERNATIVE FUELS THE FACTS



## RESOURCE RECOVERY

Irish Society has become increasingly aware of the need to be more resource efficient. Wasting resources is no longer acceptable and we are now encouraged 'to do more with less'. Many businesses are redesigning their products and processes to facilitate greater recyclability. However we consume many composite materials that can be difficult to recycle. Some materials are not recycled because they are contaminated or cannot easily be segregated. For these materials co-processing in cement kilns can be the perfect resource recovery option. In partnership with the waste management industry, cement kilns are ensuring that these resources are not wasted.



## SOLID RECOVERED FUELS (SRF)

SRF is the most common alternative fuel in use in Ireland. SRF is a shredded mixture of paper, plastics and fabrics derived from residual waste. In partnership with the waste industry the residual waste, which remains after the valuable recyclables have been removed, is processed to an agreed specification. The SRF is delivered to the cement kilns as a 'ready to use' fuel. The SRF is tested to ensure it meets the required specification and is then fired in the kilns.

## SAFE & EFFICIENT

Gas temperatures inside our cement kilns exceed 2000°C. These temperatures are required, to in simple terms 'melt' the crushed rocks we use as raw materials. The fuels used to fuel our kilns are fully consumed at these extreme temperatures. Fuels are only used when the kilns are manufacturing cement clinker. The kilns are highly efficient at capturing and reusing the energy from the fuels, as well as ensuring that the mineral fractions of the fuels become part of our cement products.



## QUALITY CONTROL

Carefully controlling the mineral balance inside the kiln is essential in the manufacture of high quality cements. Large quantities of raw materials are used in our process and they are subject to rigorous round the clock testing. Alternative fuels are delivered to the cement plants where they are sampled and tested to ensure compliance with the agreed specification. Close cooperation with our waste partners and investments made on both sides help to monitor and control the quality of the fuels.



## ALTERNATIVE FUELS TYPES

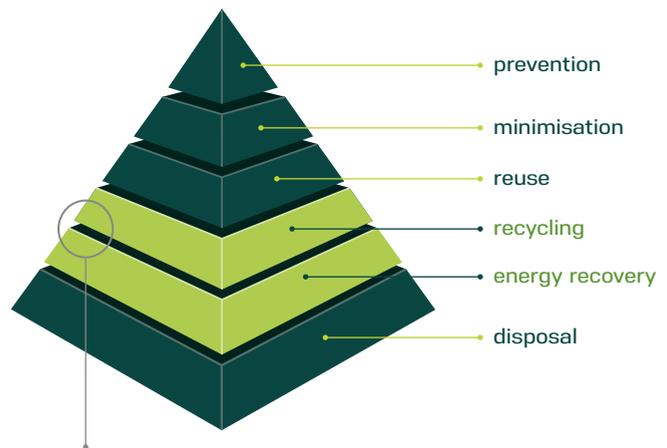
In addition to SRF a wide range of other fuels are suitable for use in the cement kilns. CMI members are licenced to accept liquid fuels like solvents and waste oils and solid fuels such as tyres, meat and bone meal, sewage sludge and biomass. As Ireland's waste management system continues to move away from a reliance on landfill and waste exports, the infrastructure available in Ireland's cement kilns will continue to play an important role as an efficient resource recovery option.

# CO-PROCESSING UNIQUE TO THE CEMENT INDUSTRY

The cement industry in Europe has contributed to the **circular economy**, through its use of alternative fuels, for more than 30 years. The use of alternative fuels, known as **'co-processing'** is the **simultaneous recycling of materials and recovery of energy** from residual wastes which would otherwise require disposal. Not only do these alternative fuels provide energy for the cement kiln but they also contribute raw materials to the process, a recycling element that is unique to the cement industry.

## WHERE DOES CO-PROCESSING FIT ON THE EU WASTE HIERARCHY?

**Co-processing** is unique because it overlaps both the energy recovery and material recycling tiers on the EU waste hierarchy. Energy is recovered **and** the fuel ashes are fully consumed to become part of the cement product.



**Co-processing = energy recovery (R1) +  
material recycling (R4/R5)**

**Co-processing** in cement kilns is a “win: win” scenario, not only does it contribute to improved resource efficiency, through reducing the use of primary resources, including fossil fuels, it also directly reduces the need for disposal options like landfill. In this way co-processing in the cement industry provides:

- local waste treatment option
- recycling of discarded resources
- diversion from landfill
- energy recovery

In many European countries the cement industry is considered an essential component of national waste infrastructure, enhancing resource recovery and recycling. In Switzerland, Germany and Sweden the local cement industries have actively contributed to the achievement of zero or near-zero landfill rates with high levels of recycling, energy recovery and composting.

## SUSTAINABILITY COMMITMENTS

Currently the cement industry in Ireland has replaced approximately 30% of fossil fuels with alternative fuels. We have made a commitment to achieve 50% by the end of 2017 and as we work towards that significant milestone we are continuing to invest and cooperate with the waste sector to identify further opportunities to recover and recycle resources in our cement kilns.

Alternative fuels are a critical element in the industry's long-term sustainability strategy which will help to ensure the resilience of our businesses long into the future.

For further information on the sustainability achievements and commitments of CMI please see the CMI brochure 'Building a Sustainable Future for Ireland' at [www.cement.ie](http://www.cement.ie)





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