

## **IAgrE members visit the CEMCOR cement production plant at Cookstown**

IAgrE Northern Ireland branch members recently enjoyed a visit to the CEMCOR cement manufacturing plant at Cookstown, Co Tyrone where they were welcomed by Mr David Millar (Managing Director) and his team. Following introductions and description of the plant's origin, history and transformation we were taken on conducted tours to discover, how all of the precisely managed processes (from raw material selection, preparation and blending, processing in the high temperature kiln and subsequent cooling, grinding, storage and packing for transport to customers throughout the UK and Ireland) are organised and run.

### **Origin and developments.**

The original plant was opened on the site in 1968 by Associated Portland Cement Manufactures (APCM) and became known as Blue Circle from 1978. Lafarge owned it from 2014 until it was purchased in 2022 by the local private company who now trade as CEMCOR. Mr Millar has been personally involved in the plant from 1970 and served with its various owners since then. Mr Millar is now its Managing Director. He and his fellow directors/joint owners (from the local Cookstown based LCC group) are now implementing their high investment programme of continuous development with high tech, efficient, environmentally friendly production services. Their CEMCOR plant now employs 113 people and can produce more than 450,000 tonnes of cement per year.

The LCC groups other business interests in fuel/energy supply, HGV transport, recycling and other sectors are complementary to the cement manufacturing plant business.

As a mechanical engineer, Mr Millar has spent his entire professional career in the cement production industry both at the present Cookstown base and at other postings abroad in places including Nigeria and Norway.

### **Raw materials supply**

CEMCOR owns and operates its own large adjacent limestone quarry and its shale quarry which is just 8 miles away. Quality of the rock from both is continuously monitored before the materials are extracted to be taken for grinding and blending. Their mixture is prepared in nodular form and preheated in an energy efficient Lepol moving grate system to sinter at 1050°C prior to being sprayed into the high fusion temperature (more than 1450°C) rotary kiln which operates on a 24 / 7 basis. The kiln is currently fired using a coal dust mixture supplied from the coal grinding plant. There is interest in other fuel options with a project commenced to add a multi-fuel burner capable of using high biomass materials.

The temperature conditions must be maintained over a sustained period so rapid-

start standby power systems are incorporated to avoid interruption of this continuous process in the event of an outside power failure. When the kiln process is complete the resulting clinker is cooled and milled to be stored as the final product. Cement, in its simplest terms, is a mixture of calcium oxides and silicates. When a customer adds the appropriate proportions of water and aggregates a relatively slow chemical reaction setting process will occur to form the rigid concrete matrix, which is the familiar basis for the weather resistant structures used in our living and work environments. By adjusting the type and amount of inputs, a range of cement types can be made to suit routine or specialist applications.

### **Control**

Two operators based in the specialist control room maintain 24 / 7 monitoring of the plant operation through furnace cameras and other remote detection sensors and cameras. They can shut off problem items and summon the appropriate technical support crews immediately. A new hi-tech laboratory is now also available to analyse material from the technical processes and support on-site research for new product development ventures.

### **Cooling**

The cooling process and associated dust control now uses an improved dust bag filtration system. The collected dust is then recycled within the cement manufacturing process.

The clinker output from the completed combustion process is cooled and the waste heat recycled to the pre-heating facility.

When cooled to  $<100^{\circ}\text{C}$  it is transferred for grinding to the fineness specified for the final product. When quality checking is complete, the product goes from bulk storage to the packing plant where paper, or recyclable plastic bags, are automatically filled, sealed and loaded onto wooden pallets. They are stored under cover in readiness for loading on HGV trucks and delivery on to customers. A significant percentage of the cement is stored in bulk for transport by road tankers to customers involved in ready mix supplies or the manufacturing of pre-cast concrete products. Currently CEMCOR have customers in Northern Ireland, Republic of Ireland and mainland GB. For the latter trade CEMCOR has its own storage and transfer facilities at the Belfast docks.

Cement is classified within several codes for customers to choose the one best suited to their needs. CEM I (Ordinary Portland Cement) is the most popular used in general construction work and CEM II (Portland Limestone Cement) has lower embodied carbon than CEM I while retaining very similar performance properties, becoming a more popular choice for customers.

## **Standards**

CEMCOR actively manages its systems to ensure compliance with the official product quality standards including BS EN 197 and ISO 9001, certified by BSI.

## **Staff**

The continuous-improvement staff development programme operates in accordance with ISO 9001. There is a strict health and safety policy with specified procedures for all of its routine processes. If a potential risk is identified, the procedure concerned will be suspended until it is resolved. The detail of any resulting change in procedures is made known to the relevant staff teams during their health and safety update briefing at the beginning of each work shift.

## **Environmental issues**

CEMCOR runs its business within the environmental recommendations of the Northern Ireland Environmental Agency (NIEA). This includes all aspects of its acquisition of raw materials, its energy use, the control of emissions in the manufacturing processes and the logistics of transporting the finished product to the customers.

The company has a stated aim for carbon neutrality by 2050.

## **Local issues**

Development training within CEMCOR has a high priority and local school and college student classes are encouraged to visit for educational information and job experience purposes.

CEMCOR regards itself as an integral part of the local community and supports ventures to encourage innovation and environmentally friendly practices. A topical example is their direct involvement with the Mid-Ulster Biomethane Cluster plans to build a large scale specialist 10 MW bio-refinery unit for central collection of animal manures from farms in the mid Ulster region. It will produce biomethane with other potential products including bio-fertiliser and materials suitable for the production of low carbon cement and concrete products. Mobile slurry separation services will produce the feedstock for transfer to the anaerobic digestion unit. This will support the plans to reduce the amount of excess phosphorus coming from livestock slurry and help to address the current concern about risk of excessive nutrient pollution to river catchment areas and lakes.

## Thanks

At all stages during the tours of the production processes CEMCOR staff supervised the groups, explained the processes in detail and answered all of our many questions. Their obvious knowledge, pride and enthusiasm around their involvement in the whole operation was impressive and we feel privileged to have been there to see it all in action.

The evening concluded with formal thanks being expressed to Mr Millar and all his staff by Branch member Harry Barr for such a warm welcome and a very impressive visit. We wish the CEMCOR team continuing success.

More details about CEMCOR's products and its services can be viewed at <http://www.cemcor.com>

Photographs of the visit may be found below:

1. The CEMCOR Team
2. The CEMCOR Control Room
3. The CEMCOR Team with the IAgRE visitors

1.





2.



3.

