



Cement systems solutions
– creating customised
products and more
efficient, sustainable
process technologies for the
construction industry

The IRL Cement Systems group conducts world-leading research on cementing systems and related materials. We have the **experience and expertise** to create the next generation of construction materials, more energy-efficient manufacturing processes and a reduced carbon footprint.

Whether it be traditional Portland cement binders or contemporary alternatives, we can investigate and advise on application and formulation issues to develop tailored solutions. The IRL Cement Systems group also promotes the use, where applicable, of local raw materials and industrial bi-products as functional components of new formulations.

Key expertise

- ▶ Internationally recognised researchers in cementing systems and materials science with a proven track record of achievement
- ▶ Development of process aids to improve the efficiency of cement and alternate binder manufacture
- ▶ In-depth knowledge of the chemistry of concrete admixtures to improve properties such as workability, curing temperature range, set time or colour
- ▶ Expert design of water reducers/retardants to advance the workability of concrete materials without compromising the strength of the placed material
- ▶ Specialist cement chemistry expertise in the design of grouts, mortars, flooring products and other products
- ▶ Resin and polymer systems tailored to specific construction needs
- ▶ Comprehensive knowledge of waterproofing materials, coatings, sealants and other proprietary products.

Specialised knowledge and facilities

- ▶ Comprehensive and up-to-date construction materials testing facilities and services, including assessment of the shrinkage characteristics of new formulations, compression tests and bond strength measurements
- ▶ Complete analysis capability using state-of-the-art NMR, X-ray diffraction, scanning electron microscopy, light microscopic petrological examination and particle size measurement
- ▶ Extensive experience in formulation and mix design including inorganic polymer concrete, geothermal and oil well cementing
- ▶ Innovative design of non-conventional binder systems for specific situations i.e. high temperature and geothermal applications
- ▶ Enhancement of environmental sustainability by the conversion of waste streams or industrial by-products into inexpensive construction materials, or for safe disposal in landfill
- ▶ Sophisticated milling techniques to produce particle fractions that will optimise cement particle size distribution and performance
- ▶ Continuous appraisals and updates of new technologies applicable to the construction industry.

For all enquiries please contact the Industry Engagement team on 0508 CALL IRL (0508 225 5475). If calling from overseas phone +64 4 931 3000 or visit the *Contact Us* page on our website.

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