

Project title: **Measuring pyrite reactivity in aggregates and its relationship with thermal/diagenetic maturation**

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Start Date: **August 2021, 18 month duration**

Abstract

The aim of this project is to measure the potential for pyrite to react and compare that with the thermal/diagenetic maturation of the lithologies investigated. This project aims to develop a new standard test to assess the potential for pyrite to react and inform the competent person to appropriately assess the levels of risk from pyrite in materials, without relying on assumptions based solely on total sulfur contents.

Pyrite reactivity will be assessed using a well-established approach for predicting the drainage chemistry of mine waste rock and colliery spoil but novel for aggregates. Acid Base Accounting (ABA) along with kinetic Net Acid Generation (NAG) testing and Accelerated Swell Tests will be completed to provide information on the reactivity of any pyrite present. This will be completed in conjunction with assessing the thermal maturation using illite crystallinity and vitrinite reflectance. In collaboration with our partners, SLR Consulting Ireland (SLR) aim to test samples (both from deleterious lithologies and current aggregates) from across the country and create a new methodology for accurately assessing pyrite reactivity.