
Plan Overview

A Data Management Plan created using DMPonline

Title: Development of low carbon 3D printed concretes

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Template: Health Research Board DMP Template

Project abstract:

This project focuses on the development of sustainable 3D printed concretes with low carbon emissions by optimizing the use of supplementary cementitious materials (SCMs), nano-clays, and alternative binders. The research explores the impact of attapulgite, bentonite, and sepiolite clay in achieving printable, low-carbon concrete with improved rheological properties, strength, and buildability. This study aims to reduce Portland cement consumption while enhancing the fresh and hardened properties of 3D printed concrete, thereby contributing to greener construction practices.

ID: 169546

Start date: 01-04-2023

End date: 30-09-2025

Last modified: 07-02-2025

Grant number / URL: iCrag-Phase 2 – Grant Code: 13/RC/2092_P2

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Development of low carbon 3D printed concretes

Data description and collection or re-use of existing data

How will new data be collected or produced and/or how will existing data be re-used?

What data (for example the kind, formats, and volumes), will be collected or produced?

Documentation and data quality

What metadata and documentation (for example the methodology of data collection and way of organising data) will accompany data?

What data quality control measures will be used?

Storage and backup during the research process

How will data and metadata be stored and backed up during the research process?

How will data security and protection of sensitive data be taken care of during the research?

Legal and ethical requirements, codes of conduct

If personal data are processed, how will compliance with legislation on personal data and on security be ensured?

How will other legal issues, such as intellectual property rights and ownership, be managed? What legislation is applicable?

What ethical issues and codes of conduct are there, and how will they be taken into account?

Data sharing and long-term preservation

How and when will data be shared? Are there possible restrictions to data sharing or embargo reasons?

How will data for preservation be selected, and where data will be preserved long-term (for example a data repository or archive)?

What methods or software tools are needed to access and use data?

How will the application of a unique and persistent identifier (such as a Digital Object Identifier (DOI)) to each data set be ensured?

Data management responsibilities and resources

Who (for example role, position, and institution) will be responsible for data management (i.e. the data steward)?

What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?