

## Using CSA Cement for Novel Waterway Repair Materials Dataset

Dataset available at: <https://doi.org/10.5281/zenodo.5607840>

(This dataset supports report **Using CSA Cement for Novel Waterway Repair Materials**)

This U.S. Department of Transportation-funded dataset is preserved by the Maritime Transportation Research and Education Center in the Zenodo Repository (<https://zenodo.org/>), and is available at <https://doi.org/10.5281/zenodo.5607840>

The related final report **Using CSA Cement for Novel Waterway Repair Materials**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/60554>.

### **Metadata from the Zenodo Repository record:**

Title: Using CSA Cement for Novel Waterway Repair Materials

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#### Description:

Many maritime structures (e.g., locks, dams, ports) in the US are either reaching or are past their design lives, and there are limited funds for necessary maintenance activities which can often lead to closures. These structures are not easy to detour and often require dewatering before repairs can be made. Closures can cause delays and business-related losses which can have a large economic effect. Thus, it is advantageous to reduce the repair time for maritime structures. BCSA (belitic calcium sulfoaluminate) cement is a promising repair material due to its properties. BCSA cement is a fast-setting hydraulic cement capable of reaching compressive strengths greater than 4000 psi (27.6 MPa) in less than 2 hours. BCSA also has low shrinkage and good long-term strengths. This research consisted of developing an optimal rapid-setting underwater repair mortar mixture design using BCSA cement. Properties such as compressive strength and workability were tested to select the best mix design. Additionally, soil-cements made with BCSA cement were compared to portland cement-based soil-cements. These soil cements have applications for the rapid repair of levees and earthen dams, but also for rapid soil stabilization. The results obtained proved that BCSA cement is a promising material for rapid underwater repairs and repairs of soil-based waterway structures.

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Communities: Maritime Transportation Research and Education Center

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Versions: Version 1

### **Recommended citation:**

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### **Dataset description:**

This dataset contains 1 .zip file collection, described below.

## Project Data.zip:

- Project Data Folder
  - Soil – Cement Testing Folder
    - Updated – Summary.xlsx
    - CSA Testing Matrix.xlsx
    - 7.5 just Soil.xlsx
    - 7.46 – Summary Time plot added.xlsx
    - 10 Just Soil.xlsx
    - Viktor CSA Folder
      - Test 1.tpm
      - Test 1.trx
      - WC10 - C0 0.5hr #1.tpm
      - WC10 - C0 0.5hr #1.trx
      - WC10 - C0 0.5hr #1.xlsx
      - WC10 - C6 1hr #1.tpm
      - WC10 - C6 1hr #1.trx
      - WC10 - C6 1hr #1.xlsx
      - WC10 - C6 1hr #2.tpm
      - WC10 - C6 1hr #2.trx
      - WC10 - C6 1hr #2.xlsx
      - WC10 - C6 1hr #3.tpm
      - WC10 - C6 1hr #3.trx
      - WC10 - C6 1hr #3.xlsx
      - WC10 - C6 1hr #4.tpm
      - WC10 - C6 1hr #4.trx
      - WC10 - C6 1hr #4.xlsx
      - WC10 - C6 3hr #1.tpm
      - WC10 - C6 3hr #1.trx
      - WC10 - C6 3hr #1.xlsx
      - WC10 - C6 3hr #2.tpm
      - WC10 - C6 3hr #2.trx
      - WC10 - C6 3hr #2.xlsx
      - WC10 - C6 3hr #3.tpm
      - WC10 - C6 3hr #3.trx
      - WC10 - C6 3hr #3.xlsx
      - WC10 - C6 3hr #4.tpm
      - WC10 - C6 3hr #4.trx
      - WC10 - C6 3hr #4.xlsx
      - WC10 - C6 7 day #1.tpm
      - WC10 - C6 7 day #1.trx
      - WC10 - C6 7 day #1.xlsx
      - WC10 - C6 7 day #2.tpm
      - WC10 - C6 7 day #2.trx

- WC10 - C6 7 day #2.xlsx
- WC10 - C6 7 day #3.tpm
- WC10 - C6 7 day #3.trx
- WC10 - C6 7 day #3.xlsx
- WC10 - C6 7 day #4.tpm
- WC10 - C6 7 day #4.trx
- WC10 - C6 24hr #1.tpm
- WC10 - C6 24hr #1.trx
- WC10 - C6 24hr #1.xlsx
- WC10 - C6 24hr #2.tpm
- WC10 - C6 24hr #2.trx
- WC10 - C6 24hr #2.xlsx
- WC10 - C6 24hr #3.tpm
- WC10 - C6 24hr #3.trx
- WC10 - C6 24hr #3.xlsx
- WC10 - C6 24hr #4.tpm
- WC10 - C6 24hr #4.trx
- WC10 - C6 24hr #4.xlsx
- WC10 - C6 24hr #5.tpm
- WC10 - C6 24hr #5.trx
- WC10 - C6 24hr #5.xlsx
- WC10 - C6 Data and Graphs.xlsx
- UC Data Folder
  - Stress S-C 3 Points (2).xlsx
  - June23-June26.xlsx
  - July 21 (7 days).xlsx
  - Data from July 2.xlsx
  - Axial Comp. Stress June 9.xlsx
  - Axial Comp. Stress June 18.xlsx
  - Axial Comp. Stress June 10.xlsx
- Soil Cement 6% cement content Folder
  - Soil\_w9\_S1.csv
  - Soil\_w8%\_S1.csv
  - Soil\_w7%\_S1.csv
  - Cement\_6%\_w9%-S1.csv
  - Cement\_6%\_w8%-S1.csv
  - Cement\_6%\_w7%-S1\_6TH\_TRY.csv
  - Cement\_6%\_w7%-S1\_2ND\_TRY.csv
- Moisture Content Folder
  - Moisture Content Data.xlsx
- MC 7.5 OPC Folder
  - 7.5-7days-PC-(2nd).xlsx
  - 7.5-1day-OPC.xlsx
  - 7.5-14days-OPC.xlsx

- 7.5 PC.xlsx
- 7.5 PC.pptx
- 7.5 OPC 1 hr.xlsx
- 7.5 OPC – 30 min.xlsx
- 3 hours.xlsx
- MC 7.5 BCSA (Re-do) Folder
  - BCSA- 7.2.pptx
  - Aug 26-3 hours.xlsx
  - Aug25-1 day-re-do.xlsx
  - Aug 24 – 1 hour-Redo included.xlsx
  - Aug 21-7days Re-do.xlsx
  - Aug 12-7.5(30min)-redo.xlsx
  - 7.5 BCSA.xlsx
- MC 7.46 Data (Using the Mixer) Folder
  - Aug 26-3 hours.xlsx
  - Aug 25-1 day.xlsx
  - Aug 24-1 hour.xlsx
  - Aug 21-7days.xlsx
  - Aug 12 Data (3 Points).xlsx
  - 7.46-Summary.xlsx
- MC 10 OPC Folder
  - 3 hrs.xlsx
  - 10-7days-OPC.xlsx
  - 10-30-OPC.xlsx
  - 10-1hr-OPC.xlsx
  - 10-1day-OPC.xlsx
  - 10 OPC.pptx
- MC 10 BCSA Folder
  - 10 CSA 7days.xlsx
  - 10 CSA 30 minutes.xlsx
  - 10 CSA 3 hours.xlsx
  - 10 CSA 1 day.xlsx
  - 10 CSA 1 hr.xlsx
  - 10 BCSA.xlsx
  - 10 BCSA-2.pptx
- Mortar Testing Folder
  - Mortar Flow Results.xlsx
  - Compressive Strength Summaries.xlsx
  - All Mortar Data.xlsx

#### File Type Descriptions:

- The .xlsx and .xls file types are Microsoft Excel files, which can be opened with Excel, and other free available software, such as OpenRefine.

- The .trx file extension is associated with the Passolo a specialized software localization tool for Microsoft Windows that speeds up the translation of user interfaces. The .trx file contains translation data (for more information on .trx files and software, please visit <https://www.file-extensions.org/trx-file-extension-passolo-translation-file>).
- The .tpm file extension is related to Microsoft BitLocker , a program from Microsoft Windows operating system used to encrypt sensitive data and used for files that contain encrypted password data (for more information on .tpm files and software, please visit <https://www.file-extensions.org/tpm-file-extension-microsoft-trusted-platform-module-password-data>).
- The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit <https://www.file-extensions.org/csv-file-extension>).
- The .pptx file extension is related to Microsoft PowerPoint. PowerPoint is worldwide most popular powerful tool you can use to create and edit dynamic and great-looking presentations. The pptx files are used for editable slide shows, which are very often used for presentations (for more information on .pptx files and software, please visit <https://www.file-extensions.org/pptx-file-extension>).

**National Transportation Library (NTL) Curation Note:**

As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (<https://ntl.bts.gov/public-access>) Section 7.4.2 Data, the NTL staff has performed *NO* additional curation actions on this dataset. NTL staff last accessed this dataset at <https://doi.org/10.5281/zenodo.5607840> on 2022-04-20. If, in the future, you have trouble accessing this dataset at the host repository, please email [NTLDataCurator@dot.gov](mailto:NTLDataCurator@dot.gov) describing your problem. NTL staff will do its best to assist you at that time.