

# SHOP DRAWING REVIEW FORM AND TRANSMITTAL

**DATE:**     **October 25, 2021**

**TO:**        Carl Hendrickson  
              Project Manager  
              Veolia Water  
              825 West Water Street  
              Taunton, MA 02780

**FROM:**     Michael Andrus, P.E.  
              Project Manager  
              BETA Group, Inc.  
              701 George Washington Hwy  
              Lincoln, Rhode Island 02865

**RE:**        City of Taunton, MA  
              WWTF Solids Handling Improvements  
              Contract S-2020-3

Shop Drawing No. 02224 – Controlled Density Fill

---

## **BETA COMMENTS:**

| <u>Item</u> | <u>Action Code</u> | <u>Description/Comments</u>   |
|-------------|--------------------|---|
| 1           | 1                  | <b>Controlled Density Fill (Redi Mix)</b><br>1.    Acceptable as submitted. |

### Action Codes

- 1 - No Exception Taken
- 2 - Make Corrections Noted
- 3 - Amend and Resubmit
- 4 - Rejected, See Remarks

- a.    Installation shall proceed only when Action Code is ‘1’ or ‘2’.
- b.    Submittals action coded ‘3’ shall be resubmitted within time limit set in Contract.
- c.    Review does not relieve Contractor from responsibility of compliance with the Contract Documents.



PROJECT: 9722. - Veolia/Taunton WWTP Solids Handling Improvements

DATE: 10/04/2021

SUBMITTAL: 02224-01 - Controlled Density Fill
REVISION: A
STATUS: Eng
SPEC #: 02224

TO: Carl Hendrickson
Veolia North America
125 S. 84th Street, Suite 175
Milwaukee, WI 53214
carl.hendrickson@veolia.com

FROM: Ryan Murphy
Hart Engineering Corporation
800 Scenic View Drive
Cumberland, RI 02864
rmurphy@hartcompanies.com

Table with 6 columns: Item, Revision, Description, Status, Date Sent, Date Returned. Row 1: 02224-01, A, Controlled Density Fill, Eng, 10/04/2021, empty. Row 2: Notes:

Additional Notes:

Status Codes

- 1-APP - No Exceptions Taken
2-ANR - Make C
3-R&R - Revise a
4-REJ - Rejected
5-IPO - For Infor
6-NRR - Not Req
ENG - Submitted

SHOP DRAWING REVIEW
[Checked] 1 - Approved [ ] 2 - Approved as Noted
[ ] 3 - Revise and Resubmit [ ] 4 - Rejected
[ ] 5 - Record File Only - No Action Taken
(Above Check Designates Action Code - See Review Comments)
IMPORTANT NOTE FOR CONTRACTOR
Review is only for general compliance with the design concept and information provided in Contract Documents. Corrections and comments made on the Shop Drawings during review do not relieve the Contractor from compliance with the requirements of the plans and specifications. Review and/or approval of a specific item shall not include review or approval of an assembly of which the item is a component. No approval or correction of a Shop Drawing shall be construed as an order for extra work. The Contractor is responsible for: all quantities and dimensions to be confirmed and correlated; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all trades and subcontractors; and performing all Work in a safe and satisfactory manner.
BETA GROUP, INC. Checked By: TW
By: BN Date: 10/21/21

Sincerely, Hart Engineering

10/04/2021

# REDI MIX SERVICES INC

120 Berkley Street  
Taunton, Mass. 02780

Phone  
Fax

(508) 823-0771  
(508) 823-7305

**Project: Taunton WWTP**

**Contractor: Hart Engineering**

Presented below is a mix design proportioned to produce one cubic yard of concrete to meet the requirements of Section 033000 of this projects sepcifications.

The mix quantities have been developed in accordance with ACI Standards 301 based upon the specific charectereistics of the material proposed use.

|                        |               |                  |
|------------------------|---------------|------------------|
| <b>MIX #</b>           |               | <b>17100</b>     |
| <b>STRENGTH</b>        | <b>PSI</b>    | <b>NON-EX</b>    |
| <b>C.A. SIZE</b>       | <b>INCH</b>   | <b>FINE</b>      |
| <b>USE</b>             |               | <b>FILL</b>      |
| <b>CEMENT</b>          | <b>LBS.</b>   | <b>100</b>       |
| <b>SLAG</b>            | <b>LBS.</b>   | <b>100</b>       |
| <b>FINE AGG</b>        | <b>LBS.</b>   | <b>2671</b>      |
| <b>WATER</b>           | <b>GAL</b>    | <b>36.0</b>      |
| <b>W/C RATIO</b>       |               | <b>1.5</b>       |
| <b>SLUMP</b>           | <b>INCHES</b> | <b>4-6" +/-1</b> |
| <b>AIR CONTENT</b>     | <b>%</b>      | <b>-</b>         |
| <b>SIKA LIGHTCRETE</b> | <b>LBS.</b>   | <b>1.5</b>       |

\* Slump at Point Of Placement

**Remarks:** The mix quantities stated are basic quantities for aggregates in a saturated surface dry condition. These quantities will be adjusted for specific moisture content, workability, slump, and yield at the time of batching.

**Notes:** Mid Range Water Reducer Included in Mix Deign. Pumpable Mix.

9/17/2021 TJH

# LEHIGH

## HEIDELBERGCEMENT Group

### Mill Test Certificate Report

Type: I-II ASTM, I-II AASHTO

Test Period: 02/10/21  
to: 02/10/21

Grind Number: Canakkale Import Cement, Lot 2

#### Certification

Lehigh Cement Company, LLC certifies that at time of shipment, the portland cement designated as Type I-II manufactured at the Akcansa, Canakkale, Turkey plant conforms to the standard composition and physical requirements of the current Standard Specification for Portland Cement of ASTM C 150 and AASHTO M85 for Type I and Type II portland cement. This certification carries no other express or implied warranties and Lehigh Cement Company LLC, is not responsible for improper use or workmanship of the described cement.

#### General Information

Supplier: Lehigh Cement Company LLC  
Address: 55 Field Point Dr  
Providence, RI 02905  
Telephone: 800-833-4157

Source Location: Canakkale, Turkey  
Contact: Sales Office

#### Test Data on ASTM "Standard" Requirements

| Chemical Requirements (ASTM C-150, Table 1) |         |          | Physical Requirements (ASTM C-150, Table 3) |           |         |
|---|---------|----------|---|-----------|---------|
| Item  | Limit   | Results  | Item  | Limit     | Results |
| SiO <sub>2</sub>                            | A       | 19.39    | Fineness:                                   |           |         |
| Al <sub>2</sub> O <sub>3</sub>              | 6.0 Max | 4.48     | % Passing 45µm (No. 325)                    | A         | 95.37   |
| Fe <sub>2</sub> O <sub>3</sub>              | 6.0 Max | 3.26     | Blaine Fineness (m <sup>2</sup> /Kg)        | 260 min   | 364     |
| CaO   | A       | 63.78    |   |           |         |
| MgO   | 6.0 max | 2.87     | Autoclave Expansion (%)                     | 0.8 max   | 0.01    |
| SO <sub>3</sub>                             | D       | 2.60     | Vicat Setting Time:                         |           |         |
| Loss on Ignition                            | 3.5 max | 2.16     | Initial Set (minutes)                       | 45 min    | 125     |
| Na <sub>2</sub> O                           | A       | 0.04     |   |           |         |
| K <sub>2</sub> O                            | A       | 0.60     | Air Content (%)                             | 12 max    | 7.3     |
| Insoluble Residue                           | 1.6 max | 0.58     |   |           |         |
| CO <sub>2</sub>                             | A       | 1.58     | Compressive Strengths Mpa:                  |           |         |
| Limestone %                                 | 5.0 max | 3.70     | 1-Day                                       | A         | 19.48   |
| CaCO <sub>3</sub> in Limestone              | 70% Min | 97.0     | 3-Day                                       | 12.0 min  | 30.05   |
|   |         |          | 7-Day                                       | 19.0 min  | 38.24   |
| Potential Compounds:                        |         | Adjusted | 28-Day                                      | A         | -       |
| C <sub>2</sub> S                            | A       | 62.48    |   |           |         |
| C <sub>3</sub> S                            | A       | 8.36     | Compressive Strengths, PSI:                 |           |         |
| C <sub>4</sub> A                            | 8.0 Max | 6.35     | 1-Day                                       | A         | 2822    |
| C <sub>3</sub> A                            | A       | 9.91     | 3-Day                                       | 1450 min  | 4357    |
| C <sub>2</sub> S+1.75*C <sub>3</sub> A      | <100    | 96       | 7-Day                                       | 2470 min  | 5545    |
|   |         |          | 28-Day                                      | A         | -       |
|   |         |          | Mortar Bar Expansion, C-1038, %             | Max 0.020 | -       |

#### Test Data on ASTM Optional Requirement

| Chemical Requirements (ASTM C-150, Table 2) |       |         | Physical Requirements (ASTM C-150, Table 4) |        |        |
|---|-------|---------|---|--------|--------|
| Item  | Limit | Results | Item  | Limit  | Result |
| Equivalent Alkalies                         |       | 0.44    | False Set                                   | Min 50 | 86     |
|   |       |         | Heat of Hydration, 3-day C-1702, cal/g      |        |        |

#### Additional Data

| Item                           | Limestone | Inorganic Processing Addition | Base Cement Phase Composition | Result |
|--------------------------------|-----------|-------------------------------|-------------------------------|--------|
| Amount                         | 3.70      | NA                            | C <sub>2</sub> S              | 64.88  |
| SiO <sub>2</sub>               | 1.45      | NA                            | C <sub>3</sub> S              | 8.68   |
| Al <sub>2</sub> O <sub>3</sub> | 0.58      | NA                            | C <sub>4</sub> A              | 6.59   |
| Fe <sub>2</sub> O <sub>3</sub> | 0.26      | NA                            | C <sub>3</sub> A              | 10.29  |
| CaO                            | 51.07     | NA                            |                               |        |
| SO <sub>3</sub>                | 0.04      | NA                            |                               |        |

#### Notes

Footnotes: A: no limit applicable  
D: if SO<sub>3</sub> exceeds 3.0%, C-1038 shall not be more than 0.020%

February 17, 2021  
Date

Quality Control Manager:



Brand: NewCem®  
 Material: Slag Cement  
 Type: Grade 120

# Material Certification Report

Test Period: 01-August-2021 to 31-August-2021  
 Lot Number: Multiple Lots

## Certification

This cement meets the specifications of ASTM C989 and AASHTO M 302 for Grade 120 slag cement.

## General Information

Supplier: Holcim (US) Inc. d/b/a LafargeHolcim US  
 Address: 8700 West Bryn Mawr Ave  
 Chicago, IL 60631

Source Location: Sparrows Point Plant  
 2001 Wharf Road  
 Baltimore, MD 21219

Contact: Brian Borowski (630) 561-1198

The following is based on average test data during the test period. The data is typical of product shipped from this source; individual shipments may vary.

## Test Data on ASTM Standard Requirements

| Chemical  |                    |        | Physical                                 |                    |             |
|---|--------------------|--------|--|--------------------|-------------|
| Item  | Limit <sup>1</sup> | Result | Item                                     | Limit <sup>1</sup> | Result      |
| Sulfide Sulfur (S) (%)                                  | 2.5 max            | 0.6    | +45 µm (No. 325) Sieve (%)               | 20 max             | 1.6         |
| Sulfate Sulfur (as SO <sub>3</sub> ) <sup>2</sup> (%)   | -                  | 0.3    | Blaine Fineness (m <sup>2</sup> /kg)     | -                  | 652         |
| Aluminum Oxide (as Al <sub>2</sub> O <sub>3</sub> ) (%) | -                  | 12.1   | Air Content (%)                          | 12 max             | 5.2         |
| Chloride (Cl) (%)                                       | -                  | 0.007  | Slag Activity Index (%)                  |                    |             |
| Equivalent Alkalies (%)                                 | -                  | 0.5    | Avg 7 Day Index                          | -                  | 103         |
|   |                    |        | Avg 28 Day Index (previous month's data) | 115 min            | 138         |
|   |                    |        | Compressive Strength MPa (psi)           |                    |             |
|   |                    |        | Slag + Reference Cement                  |                    |             |
|   |                    |        | 7 Day                                    | -                  | 34.7 (5030) |
|   |                    |        | 28 Day (previous month's data)           | -                  | 52.2 (7570) |

## Test Data on Reference Cement

| Chemical                |                    |        | Physical                       |                    |             |
|-------------------------|--------------------|--------|--------------------------------|--------------------|-------------|
| Item                    | Limit <sup>1</sup> | Result | Item                           | Limit <sup>1</sup> | Result      |
| Equivalent Alkalies (%) | 0.60 - 0.90        | 0.80   | 7 Day                          | -                  | 33.6 (4880) |
|                         |                    |        | 28 Day (previous month's data) | 5000 min           | 36.4 (5480) |

## Notes (\*1-5)

- 1 - Dashes in the limits columns means Not Applicable
- 2 - If calcium sulfate is added to slag cement, measure in accordance with Test Method C1038/C1038M. Slag cement with added calcium sulfate will not develop expansion exceeding 0.020% at 14 days.
- 3 - Information on Reference Cement test data available upon request.
- 4 - Specific Gravity: 2.95
- 5 - This data may have been reported on previous Material Certification Reports. It is typical of the cement being currently shipped.

Date Issued: 9/17/2021

Brian Borowski  
 Quality Manager, US MPC



## PRODUCT DATA SHEET

# Sika® Lightcrete Powder

### FLOWABLE FILL ADMIXTURE

#### PRODUCT DESCRIPTION

Sika® Lightcrete Powder is a dry powdered surfactant packaged in a patented, ready to-use, water soluble bag. Sika® Lightcrete Powder produces controlled low strength material (CLSM), also referred to as flowable fill, controlled density fill (CDF), lean mix backfill, unshrinkable fill or flowable mortar. Sika® Lightcrete Powder is compatible with all conventional CLSM materials.

#### USES

Sika® Lightcrete Powder is recommended for use whenever the material for structural fill or backfill is requested. Sika® Lightcrete Powder is ideal for use in tight or restricted areas where placing and compacting soil or granular fill is difficult or even impossible. Typical CLSM applications are filling voids under existing pavements, buildings or other structures, backfilling narrow trenches, and filling abandoned underground structures such as culverts, pipes, tunnels, storage tanks, wells, sewers, etc.

#### CHARACTERISTICS / ADVANTAGES

- Water-soluble bag readily breaks down even in very fluid mixes. Reduces potential for exposure to chemicals in the bag.
- Easy handling and storage because Sika® Lightcrete Powder is a dry powder, not a liquid.
- No problems with leakage, heat damage, or freezing.
- Produces an extremely fluid material with minimal shrinkage or segregation.
- Eliminates the need for compaction of layered backfill.
- Produces very stable air contents.
- Significantly faster and less labor intensive than compacted soil fill.
- Sika® Lightcrete Powder is compatible with all conventional CLSM materials.
- Sika® Lightcrete Powder contains no calcium chloride or other corrosive agents.

#### PRODUCT INFORMATION

|                           |  |
|---------------------------|--|
| <b>Packaging</b>          | 1 lb. water soluble bag, 24 bags/case, 720 bags/pallet               |
| <b>Shelf Life</b>         | One year in unopened bag   |
| <b>Storage Conditions</b> | Store in dry warehouse conditions between 50 °F and 80 °F (10–27 °C) |

#### APPLICATION INFORMATION

## Recommended Dosage

Dosage rates will vary according to materials used, ambient conditions and requirements of a specific project. Sika® recommends use one 1 lb. (454 g) bag to produce 1 cubic yard of controlled low strength material (CLSM). Dosage rates outside the recommended range may be used when unusual project conditions require special consideration. In this case, Please contact your local Sika® representative or Sika® Technical Service Department 1-800- 933-7452 for more information and assistance.

## Mixing

Sika® Lightcrete Powder should be added to the drum with the primary mix water. Remove the outer bag. Add the inner bag to the central mixer or ready mix truck drum. After all ingredients are added, the drum should be turned at mixing speed for 5–7 minutes. Sika® Lightcrete Powder will increase the material volume 20–35 %. Controlled Low Strength Material (CLSM) can be placed directly from the ready mix truck.

## LIMITATIONS

Superplasticizers, water reducers and dispersants may reduce the effectiveness of Sika® Lightcrete Powder.

## BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

## OTHER RESTRICTIONS

See Legal Disclaimer.

## ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

## LEGAL DISCLAIMER

- KEEP CONTAINER TIGHTLY CLOSED
- KEEP OUT OF REACH OF CHILDREN
- NOT FOR INTERNAL CONSUMPTION
- FOR INDUSTRIAL USE ONLY
- FOR PROFESSIONAL USE ONLY

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at [usa.sika.com](http://usa.sika.com) or by calling SIKA's Technical Service Department at 800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product's shelf life. User determines suitability of product for intended use and assumes all risks. User's and/or buyer's sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Sale of SIKA products are subject to the Terms and Conditions of Sale which are available at <https://usa.sika.com/en/group/SikaCorp/termsandconditions.html> or by calling 201-933-8300.

**Sika Corporation**  
201 Polito Avenue  
Lyndhurst, NJ 07071  
Phone: 800-933-7452  
Fax: 201-933-6225

**Sika Canada Inc.**  
601 Delmar Avenue  
Pointe Claire  
Quebec H9R 4A9  
Phone: 514-697-2610  
Fax: 514-694-2792

**Sika Mexicana S.A. de C.V.**  
Carretera Libre Celaya Km. 8.5  
Fracc. Industrial Balvanera  
Corregidora, Queretaro  
C.P. 76920  
Phone: 52 442 2385800  
Fax: 52 442 2250537



**Product Data Sheet**  
Sika® Lightcrete Powder  
November 2018, Version 01.02  
02140403100000011

SikaLightcretePowder-en-US (11-2018) 1-2.pdf





# REDI MIX SERVICES INC

120 Berkley Street  
Taunton, Mass. 02780

Phone  
Fax

(508) 823-0771  
(508) 823-7305

**Project: Taunton WWTP**

**Contractor: Hart Engineering**

Presented below is a mix design proportioned to produce one cubic yard of concrete to meet the requirements of Section 033000 of this projects sepcifications.

The mix quantities have been developed in accordance with ACI Standards 301 based upon the specific charectereistics of the material proposed use.

|                        |               |                    |
|------------------------|---------------|--------------------|
| <b>MIX #</b>           |               | <b>17200</b>       |
| <b>STRENGTH</b>        | <b>PSI</b>    | <b>EXCAV.</b>      |
| <b>C.A. SIZE</b>       | <b>INCH</b>   | <b>FINE</b>        |
| <b>USE</b>             |               | <b>FILL</b>        |
| <b>CEMENT</b>          | <b>LBS.</b>   | <b>90</b>          |
| <b>FINE AGG</b>        | <b>LBS.</b>   | <b>2407</b>        |
| <b>WATER</b>           | <b>GAL</b>    | <b>38.0</b>        |
| <b>W/C RATIO</b>       |               | <b>3.517</b>       |
| <b>SLUMP</b>           | <b>INCHES</b> | <b>10-12" +/-1</b> |
| <b>AIR CONTENT</b>     | <b>%</b>      | <b>-</b>           |
| <b>SIKA LIGHTCRETE</b> | <b>LBS.</b>   | <b>3</b>           |

\* Slump at Point Of Placement

**Remarks:** The mix quantities stated are basic quantities for aggregates in a saturated surface dry condition. These quantities will be adjusted for specific moisture content, workability, slump, and yield at the time of batching.

**Notes:** Mid Range Water Reducer Included in Mix Deign. Pumpable Mix.

9/17/2021 TJH

# LEHIGH

## HEIDELBERGCEMENT Group

### Mill Test Certificate Report

Type: **I-II ASTM, I-II AASHTO**

Test Period: **02/10/21**  
to: **02/10/21**

Grind Number: **Canakkale Import Cement, Lot 2**

#### Certification

Lehigh Cement Company, LLC certifies that at time of shipment, the portland cement designated as Type I-II manufactured at the Akcansa, Canakkale, Turkey plant conforms to the standard composition and physical requirements of the current Standard Specification for Portland Cement of ASTM C 150 and AASHTO M85 for Type I and Type II portland cement. This certification carries no other express or implied warranties and Lehigh Cement Company LLC, is not responsible for improper use or workmanship of the described cement.

#### General Information

Supplier: **Lehigh Cement Company LLC**  
Address: **55 Field Point Dr  
Providence, RI 02905**  
Telephone: **800-833-4157**

Source Location: **Canakkale, Turkey**  
Contact: **Sales Office**

#### Test Data on ASTM "Standard" Requirements

| Chemical Requirements (ASTM C-150, Table 1) |         |          | Physical Requirements (ASTM C-150, Table 3) |           |         |
|---|---------|----------|---|-----------|---------|
| Item  | Limit   | Results  | Item  | Limit     | Results |
| SiO <sub>2</sub>                            | A       | 19.39    | Fineness:                                   |           |         |
| Al <sub>2</sub> O <sub>3</sub>              | 6.0 Max | 4.48     | % Passing 45µm (No. 325)                    | A         | 95.37   |
| Fe <sub>2</sub> O <sub>3</sub>              | 5.0 Max | 3.26     | Bleime Fineness (m <sup>2</sup> /Kg)        | 260 min   | 364     |
| CuO   | A       | 03.78    |   |           |         |
| MgO   | 6.0 max | 2.87     | Autoclave Expansion (%)                     | 0.8 max   | 0.01    |
| SO <sub>3</sub>                             | D       | 2.60     | Vicat Setting Time:                         |           |         |
| Loss on Ignition                            | 3.5 max | 2.16     | Initial Set (minutes)                       | 45 min    | 125     |
| Na <sub>2</sub> O                           | A       | 0.04     |   |           |         |
| K <sub>2</sub> O                            | A       | 0.60     | Air Content (%)                             | 12 max    | 7.3     |
| Insoluble Residue                           | 1.5 max | 0.58     |   |           |         |
| CO <sub>2</sub>                             | A       | 1.58     | Compressive Strengths Mpa:                  |           |         |
| Limestone %                                 | 5.0 max | 3.70     | 1-Day                                       | A         | 19.46   |
| CaCO <sub>3</sub> in Limestone              | 70% Min | 97.0     | 3-Day                                       | 12.0 min  | 30.05   |
|   |         |          | 7-Day                                       | 19.0 min  | 38.24   |
| Potential Compounds:                        |         | Adjusted | 28-Day                                      | A         | -       |
| C <sub>2</sub> S                            | A       | 62.48    |   |           |         |
| C <sub>3</sub> S                            | A       | 8.36     | Compressive Strengths, PSI:                 |           |         |
| C <sub>4</sub> A                            | 8.0 Max | 6.35     | 1-Day                                       | A         | 2822    |
| C <sub>3</sub> A                            | A       | 9.91     | 3-Day                                       | 1450 min  | 4357    |
| C <sub>2</sub> S+4.75%C <sub>3</sub> A      | <100    | 96       | 7-Day                                       | 2470 min  | 5545    |
|   |         |          | 28-Day                                      | A         | -       |
|   |         |          | Mortar Bar Expansion, C-1038, %             | Max 0.020 | -       |

#### Test Data on ASTM Optional Requirement

| Chemical Requirements (ASTM C-150, Table 2) |       |         | Physical Requirements (ASTM C-150, Table 4) |        |        |
|---|-------|---------|---|--------|--------|
| Item  | Limit | Results | Item  | Limit  | Result |
| Equivalent Alkalies                         |       | 0.44    | False Set                                   | Min 50 | 86     |
|   |       |         | Heat of Hydration, 3-day (C-1702, cal/g)    |        |        |

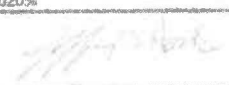
#### Additional Data

| Item                           | Inorganic Processing |          | Base Cement Phase Composition | Result |
|--------------------------------|----------------------|----------|-------------------------------|--------|
|                                | Limestone            | Addition |                               |        |
| Ammonia                        | 3.70                 | NA       | C <sub>2</sub> S              | 64.88  |
| SiO <sub>2</sub>               | 1.45                 | NA       | C <sub>3</sub> S              | 8.68   |
| Al <sub>2</sub> O <sub>3</sub> | 0.58                 | NA       | C <sub>4</sub> A              | 6.59   |
| Fe <sub>2</sub> O <sub>3</sub> | 0.26                 | NA       | C <sub>3</sub> A              | 10.29  |
| CaO                            | 51.07                | NA       |                               |        |
| SO <sub>3</sub>                | 0.04                 | NA       |                               |        |

#### Notes

Footnotes: A: no limit applicable  
D: if SO<sub>3</sub> exceeds 3.0%, C-1038 shall not be more than 0.020%

February 17, 2021  
Date

  
Quality Control Manager:



## PRODUCT DATA SHEET

# Sika® Lightcrete Powder

### FLOWABLE FILL ADMIXTURE

#### PRODUCT DESCRIPTION

Sika® Lightcrete Powder is a dry powdered surfactant packaged in a patented, ready to-use, water soluble bag. Sika® Lightcrete Powder produces controlled low strength material (CLSM), also referred to as flowable fill, controlled density fill (CDF), lean mix backfill, unshrinkable fill or flowable mortar. Sika® Lightcrete Powder is compatible with all conventional CLSM materials.

#### USES

Sika® Lightcrete Powder is recommended for use whenever the material for structural fill or backfill is requested. Sika® Lightcrete Powder is ideal for use in tight or restricted areas where placing and compacting soil or granular fill is difficult or even impossible. Typical CLSM applications are filling voids under existing pavements, buildings or other structures, backfilling narrow trenches, and filling abandoned underground structures such as culverts, pipes, tunnels, storage tanks, wells, sewers, etc.

#### CHARACTERISTICS / ADVANTAGES

- Water-soluble bag readily breaks down even in very fluid mixes. Reduces potential for exposure to chemicals in the bag.
- Easy handling and storage because Sika® Lightcrete Powder is a dry powder, not a liquid.
- No problems with leakage, heat damage, or freezing.
- Produces an extremely fluid material with minimal shrinkage or segregation.
- Eliminates the need for compaction of layered backfill.
- Produces very stable air contents.
- Significantly faster and less labor intensive than compacted soil fill.
- Sika® Lightcrete Powder is compatible with all conventional CLSM materials.
- Sika® Lightcrete Powder contains no calcium chloride or other corrosive agents.

#### PRODUCT INFORMATION

|                           |  |
|---------------------------|--|
| <b>Packaging</b>          | 1 lb. water soluble bag, 24 bags/case, 720 bags/pallet               |
| <b>Shelf Life</b>         | One year in unopened bag   |
| <b>Storage Conditions</b> | Store in dry warehouse conditions between 50 °F and 80 °F (10–27 °C) |

#### APPLICATION INFORMATION

## Recommended Dosage

Dosage rates will vary according to materials used, ambient conditions and requirements of a specific project. Sika® recommends use one 1 lb. (454 g) bag to produce 1 cubic yard of controlled low strength material (CLSM). Dosage rates outside the recommended range may be used when unusual project conditions require special consideration. In this case, Please contact your local Sika® representative or Sika® Technical Service Department 1-800- 933-7452 for more information and assistance.

## Mixing

Sika® Lightcrete Powder should be added to the drum with the primary mix water. Remove the outer bag. Add the inner bag to the central mixer or ready mix truck drum. After all ingredients are added, the drum should be turned at mixing speed for 5–7 minutes. Sika® Lightcrete Powder will increase the material volume 20–35 %. Controlled Low Strength Material (CLSM) can be placed directly from the ready mix truck.

## LIMITATIONS

Superplasticizers, water reducers and dispersants may reduce the effectiveness of Sika® Lightcrete Powder.

## BASIS OF PRODUCT DATA

Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions and curing conditions.

## OTHER RESTRICTIONS

See Legal Disclaimer.

## ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

## LEGAL DISCLAIMER

- KEEP CONTAINER TIGHTLY CLOSED
- KEEP OUT OF REACH OF CHILDREN
- NOT FOR INTERNAL CONSUMPTION
- FOR INDUSTRIAL USE ONLY
- FOR PROFESSIONAL USE ONLY

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at [usa.sika.com](http://usa.sika.com) or by calling SIKA's Technical Service Department at 800-933-7452. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product.

SIKA warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product's shelf life. User determines suitability of product for intended use and assumes all risks. User's and/or buyer's sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Sale of SIKA products are subject to the Terms and Conditions of Sale which are available at <https://usa.sika.com/en/group/SikaCorp/termsandconditions.html> or by calling 201-933-8300.

**Sika Corporation**  
201 Polito Avenue  
Lyndhurst, NJ 07071  
Phone: 800-933-7452  
Fax: 201-933-6225

**Sika Canada Inc.**  
601 Delmar Avenue  
Pointe Claire  
Quebec H9R 4A9  
Phone: 514-697-2610  
Fax: 514-694-2792

**Sika Mexicana S.A. de C.V.**  
Carretera Libre Celaya Km. 8.5  
Fracc. Industrial Balvanera  
Corregidora, Queretaro  
C.P. 76920  
Phone: 52 442 2385800  
Fax: 52 442 2250537



Product Data Sheet  
Sika® Lightcrete Powder  
November 2018, Version 01.02  
02140403100000011

SikalightcretePowder-en-US-(11-2018)-1-2.pdf

