



MANUFACTURER

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MASONRY CEMENT

White Type N and Type S

PRODUCT DATA SHEET



PRODUCT DESCRIPTION

Masonry Cement: White Type N and Type S

Federal White Type N and Type S masonry cements can be used to match, contrast, and complement the colors of various masonry units, enhance the aesthetic color of a wall, or coordinate other colors in a design. It may be used for any masonry application where a white or a very light colored masonry joint is desired.

APPLICABLE STANDARDS

- ASTM C91** *Standard Specification for Masonry Cement*
- CSA A3002** *Standard Specification for Masonry Cement*
- ASTM C270** *Standard Specification for Mortar for Unit Masonry*
- CSA A179** *Mortar and Grout for Unit Masonry*
- ASTM C144** *Standard Specification for Aggregate for Masonry Mortar*
- ASTM C780** *Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry*

Applications

- Clay brick
- Cast stone
- Tile
- Stucco
- Pavers
- Glass block
- Concrete masonry

Table 1 - ASTM C91 Masonry Cement

Physical Requirements of Masonry Cements			
Masonry Cement Type	28-Day Compressive Strength Min., psi (MPa)	Water Retention Minimum %	Air Content, %
N	900 (6.2)	70	8 - 21
S	2100 (14.5)	70	8 - 19

Table 2 – CSA A3002 Masonry Cement

Physical Requirements of Masonry Cements			
Masonry Cement Type	28-Day Compressive Strength MPa (Min., psi)	Water Retention Minimum %	Air Content, %
N	6.2 (900)	70	8 - 21
S	14.5 (2100)	70	8 - 19

Masonry Sand: Sand should meet the requirements of ASTM C144 or CSA A179 and be free of silt or clay fines and be from the same source. Buff or brown sands will impart an undertone of color to the mortar. This sand color may become more pronounced over time, or with cleaning, as sand particles are exposed on the surface of the mortar joint due to the erosion of the white mortar paste. To assure whitest mortar color, use only white sand.

USE

Federal White Masonry Cements are used to produce Type N and Type S mortars as defined within ASTM C270 *Standard Specification for Mortar for Unit Masonry* and CSA A3002 *Masonry and Mortar Cement* and meeting CSA A179 *Mortar and Grout for Unit Masonry*.

Federal White Masonry Cement when mixed with the recommended volumes of sand meeting ASTM C144 *Standard Specification for Aggregate for Masonry Mortar* will produce a mortar that will conform to the requirements of ASTM C270 for the *Proportion Specification* found in Table 3 and the *Property Specification* found in Table 5 (Note - The tables within this data sheet are numbered differently than the tables found within C270). Federal White Masonry Cement when mixed with the recommended volumes of sand meeting CSA A179 will produce a mortar that will conform to the requirements of CSA A179 for the *Proportion Specification* found in Table 4 and the *Property Specification* found in Table 6.

Table 3 - C270 Proportion Specification

(Parts by Volume)

Mortar Type	Masonry Type N	Masonry Type S	Masonry Sand*
N	1	-	2 ¼ - 3
S	-	1	2 ¼ - 3

* measured in damp, loose condition

Table 4 – A179 Proportion Specification

(Parts by Volume)

Mortar Type	Masonry Type N	Masonry Type S	Masonry Sand*
N	1	-	2 ¼ - 3
S	-	1	2 ¼ - 3

* measured in damp, loose condition

Under the *Property Specification* of ASTM C270, the cement-to-sand proportions are to be in the range of 1:2 ¼ to 1:3 ½, and should meet the requirements in Table 5.

Table 5 - C270 Property Specification

Mortar Type	Compressive Strength Min., psi (MPa)	Water Retention Minimum %	Air Maximum %
N	750 (5.2)	75	20*
S	1800 (12.4)	75	18

(* C270, Footnote D of Table 1, lowers air content to 18% if there is structural reinforcement incorporated)

Table 6 - A179 Property Specification

Compressive Strength of Mortar Cubes

Preparation		Type N	Type S
Job prepared or manufactured off site in a batching plant, mixed to a flow suitable for use in laying masonry units	7-day test	2 MPa (290 psi)	5 MPa (725 psi)
	28-day test	3.5 MPa (510 psi)	8.5 MPa (1240 psi)
Laboratory prepared, mixed to a flow of 110 ± 5%	7-day test	3 MPa (435 psi)	7.5 MPa (1090 psi)
	28-day test	5 MPa (725 psi)	12.5 MPa (1815 psi)

Under the *Property Specification* of CSA A179, the cement-to-sand proportions are to be in the range of 1:2 ¼ to 1:3 ½, and should meet the requirements in Table 6.

Note: ASTM C780 is a test method which provides a standard procedure for sampling and testing mortars for composition and plastic and hardened properties, either before or during actual construction.

No changes should be made in the field to the laboratory established proportions for mortar that has been tested and accepted under the property specification, except for the amount of mixing water.

Materials with different physical characteristics than those used in the laboratory should also not be used in the field without testing for compliance with the property specifications.

INSTALLATION

White masonry mortar is applied using the same methods as any other ASTM C270 or CSA A179 mortar. Machine mixing should be used whenever possible. First, add most of the water and half of the sand. Next, add the masonry cement and the rest of the sand. After one minute of continuous mixing, slowly add the rest of the water. Mixing should continue for a minimum of five minutes* which improves mortar color consistency and qualities.

(*Over mixing can change air content)

No admixtures should be used without the written approval of the architect or engineer of record.

Water: All water should be clean and free from organic material and deleterious amounts of dissolved acids, alkalis and salts. The amount of water added should be the maximum that is consistent with adequate workability.

Retempering: To minimize the need for retempering, mortar should not be mixed more than 15 minutes prior to use. Retempering will not adversely affect mortar quality if only evaporated water is replaced. Retemper white or colored mortar cautiously or not at all to avoid color changes.

Tooling of Joints: Tooling of mortar joints increases the density, durability and water tightness of the mortar surface. The moisture content of the mortar when tooled will affect the color; the drier the mortar, the darker its final color.

Special care should be taken with white or very light-colored mortars to assure that joint surfaces are not discolored with metallic deposits from the jointer. It is recommended to use ceramic, stainless steel, or plastic jointers when working with such mortars.

Sample Panel: Final selection of mortar color should be determined on the basis of evaluation of a sample or mockup panel constructed using the units, mortar materials, mixing procedures, workmanship, tooling technique, and cleaning procedure that is proposed for use in the final project.

To assure consistent color on a project when using white or colored masonry mortar, the variables that determine mortar color such as materials, materials preparation, installation, and cleaning must be carefully controlled.

WARRANTY

Federal White Cement warrants that the products identified is in accordance with the appropriate current ASTM or CSA specifications. No one is authorized to make any modifications or additions to this warranty. Federal White Cement makes no warranty or representation either expressed or implied with respect to this product and disclaims any implied warranty of merchantability or fitness for a particular purpose.

As Federal White Cement has no control over the other components mixed with this product or the final application, Federal White Cement does not and cannot warrant the finished work. The user is responsible for following industry standards and recommended practices. In no event shall Federal White Cement be liable for direct, indirect, special, or incidental or consequential damages arising out of the use of this product, even if advised of the possibility of such damages. In no case shall Federal White Cement liability exceed the purchase price of this product.

PRECAUTIONS

Freshly mixed cement, mortar, grout, or concrete may cause minor skin irritations. Avoid direct contact with skin and eyes and if contacted, wash exposed areas promptly with water. Refer to the applicable Federal White Cement product Safety Data Sheet (SDS) prior to use, which may be obtained at 1-800-265-1806 or at www.federalwhitecement.com.

AVAILABILITY

Federal White Masonry Cement can be shipped to most destinations in the United States and Canada from our manufacturing plant or terminals located near most major cities. Bag weight will vary by type.