

CONCENTRATED MORTAR COLORS



SOLOMON COLORS

TechDATA • Masonry Mortar 04060

1. PRODUCT NAME

Solomon Colors Concentrated Mortar Colors A, H and X Series

2. MANUFACTURER

Corporate Headquarters

Mailing Address:

Solomon Colors, Inc.
P.O. Box 8288
Springfield, IL 62791

UPS and Shipping Address:

4050 Color Plant Road
Springfield, IL 62702
Phone: 800-624-0261 or
217-522-3112
Fax: 217-522-3145

Western Facility

Mailing and Shipping Address:

Solomon Colors, Inc.
1251 West Durst Dr.
Rialto, CA 92376
Phone: 909-873-9444 or
866-747-2656
Fax: 909-874-9444

3. PRODUCT DESCRIPTION

Basic Use: Solomon Colors Concentrated Mortar Colors A, H and X Series are pure mineral pigments designed to be used with all cementitious material whether it may be a Type N, S, M or O strength masonry cement or portland and lime mixtures. The pre-measured units concept of Solomon Colors' colors provides uniform color control with the flexibility of utilizing local masonry and/or portland and lime cements to achieve the proper strength and mix design for brick, block, stucco or stone units construction.

Composition and Materials:

Solomon Colors Concentrated Mortar Colors are products of pure natural and/or synthetic iron oxides, which are finely milled (95-99% minus 325 mesh particle size) and blended under strict quality control procedures producing uniform and consistently strong tinting strength for maximum coloring power.

Packaging: All Solomon Colors Concentrated Mortar Colors are

packaged in sealed Color Unit bags; bag count and the approximate number of standard brick units laid per case, using a 3/8" (9.5 mm) mortar joint are:

- A Series case – 6 units bags / 900 brick
- H Series case – 12 units bags / 1800 brick
- X Series case – 18 units bags / 2700 brick

Each unit bag is clearly identified with color name, number, weight, plus complete mixing instructions.

Colors: Solomon Colors offers a wide color spectrum with A, H, and X Series Mortar Colors. In addition, the color development and matching services of the Solomon Colors' Color Laboratory can develop precise custom colors to complement the broad range of color shades found in brick, stone or colored block.

Limitations: To avoid strength reduction, do not use more color than 10% of the total weight of the cementitious materials. This includes the combined weight of the hydrated lime and portland cement utilized in a portland/lime mortar mix.

4. TECHNICAL DATA

Applicable Standards

American Society for Testing and Materials (ASTM)

- ASTM C91 – Masonry Cement
- ASTM C270 – Mortar for Units Masonry
- ASTM C979 - Pigments for Integrally Colored Mortar/Concrete

Physical / Chemical Properties:

Solomon Colors Concentrated Mortar Colors surpass the pigment requirements set forth by ASTM C979. Solomon Colors A, H and X Series Mortar Colors have been successfully tested in accordance with specifications detailed in ASTM C91 and ASTM C270. Tests were performed in a commercial Type S masonry cement as well as a Type S portland cement and lime mix. All colors exceeded the 28 day, 1800 psi (12.4 kPa) strength

requirement. Test results are available upon request. Solomon Colors colors are inert, stable to atmospheric conditions, sunfast, weather resistant, alkali resistant, water insoluble, lime proof, non-bleeding natural and synthetic iron oxides free of deleterious fillers and extenders.

Depending upon Solomon Colors' color index name and color number, the fineness of each ranges from 95-99% minus 325 mesh.

- Yellow/ General
Formula: $Fe_2O_3 - H_2O$
- Black/ General
Formula: $FeO - Fe_2O_3$
- Red/ General
Formula: Fe_2O_3
- Particle Shape: (Color dependent): Cubical, Acicular, Spherical
- Particle Size:
Generally less than 44 microns
- pH: 6-5 – 9.0

5. INSTALLATION

Preparatory Work: Solomon Colors color units packaging eliminates all job site weighing or measuring of colors, thereby achieving uniform color control for each mortar batch. In addition, the Solomon Colors' Color Units concept allows accurate color control regardless of the mortar type, strength, and mortar mixture utilized. As detailed in Table 1, select the proper ASTM C270 masonry mix design of Type N, S, M or O compressive strength for the masonry units construction. Then, depending upon the masonry mix design, select the appropriate Solomon Colors color and specify the number of A, H, or X series color units.

Application: A mechanical mixer should be used and sufficient mortar should be mixed at one time for use within a 2-hour period. To provide uniform color and workability, load the mixer as follows:

- Load 3/4 amount of water.
- Load 1/3 amount of sand.
- Add masonry cement or portland and lime mixture.
- Add the appropriate number of Solomon Colors' Color Units to the mortar mix.
- Slowly add balance of sand and

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water, running machine for 5 minutes or more, until a uniform color and desired workability is achieved.

- DO NOT load the mixer beyond its recommended capacity. Overloading will reduce mixing efficiency.
- Re-tempering of colored mortar with the addition of water should be avoided. Water consistency should be maintained throughout the project. The more water, the lighter the color. The source, brand and color of sand and cement should also be consistent.

Finishing: The procedure used in the final finishing of colored mortar joints is very important. To ensure color consistent mortar joints, the following steps should ALWAYS be taken:

- Mortar joints should ONLY be tooled when the mortar reaches a "thumb print" consistency.
- Over-tooling mortar joints may "burn" or otherwise darken their appearance.
- Tooling mortar joints too soon can create a "smear" on the surface of the joint resulting in a lighter shade of color.

Precautions: Since the necessary conditions for the occurrence and recurrence of efflorescence is the presence of moisture in the masonry assembly, the following steps should be followed to inhibit moisture:

- During construction, the walls should be kept dry by covering with a strong waterproof tarp at the end of each day.
- Design should include proper planning for detailing and flashing to prevent penetration of wind driven rains and allow proper drainage.
- It is always best to tool (compress) exterior mortar joints to guard against the intrusion of moisture into the masonry wall.
- Avoid cleaning of the masonry wall with acid whenever possible. The application of acid opens pores in the cement, allowing water penetration and weathering.

Cleaning: The cause of efflorescence has been linked to soluble salts present in the masonry materials and water that migrates to the surface primarily during the curing process. In the event cleaning is required to remove masonry stains

and efflorescence, the cleaning operation should be undertaken after the colored mortar has sufficiently cured, generally 7-28 days after installation depending upon daily curing temperatures, atmospheric humidity and other seasonal weather conditions. A commercially prepared proprietary masonry cleaner such as Vana Trol by ProSoCo, or an equal product, should be applied at manufacturer's suggested dilution concentration. Cleaning too quickly or using hydrochloric (muriatic) acid or a highly concentrated masonry cleaner will cause a degradation of the surface mortar with the consequential release of color pigments from their masonry bond. This results in a porous exposed surface. A noticeable change in the original color of the mortar joint can also be expected. Insufficient or irregular washing during cleaning can produce streaky or blotchy areas in the masonry wall. A thorough wash down with water is important to remove all cleaning agents that have been applied.

6. AVAILABILITY AND COST

Availability: Solomon Colors Concentrated Mortar Colors A, H and X Series are readily available from stock carried by an extensive network of building material dealers throughout the United States and Canada. Solomon Colors dealers are also backed by reliable 24-hour factory services in processing and shipping of orders. Solomon Colors has local sales representatives covering each state within the continental United States. For names of local dealers, distributors and sales representatives, contact Solomon Colors' office in Springfield, IL.

Cost: Retail costs for Solomon Colors' colors are established by stocking or distributing building material dealers. Costs are influenced by the individual color and color shade desired. Budget installed cost information may be obtained from a local Solomon distributor or through the manufacturer at the listed phone number.

7. WARRANTY

Solomon Colors, Inc. warrants that their products conform to the description and standards as stated on the product packaging (specific

product literature). If properly mixed and applied, Solomon Colors warrants the Concentrated Mortar Colors A, H and X Series to be uniform, lime proof and sunfast. The exclusive remedy of the user or buyer and the limit of liability of the company shall be the purchase price paid by the user or buyer for the quantity of the Solomon Colors product involved. Because Solomon Colors has no control over the workmanship or other materials used along with our colors, Solomon Colors is not responsible for the finished job or method used.

8. MAINTENANCE

The primary cause of maintenance work for colored masonry is the formation of efflorescence. Should efflorescence appear in the masonry walls after construction, locate and remediate the source of moisture in the wall. Proceed with cleaning masonry following instructions given in section "5. Installation."

9. TECHNICAL SERVICES

Color Development And Custom Matching Services: The Solomon Colors' Color Laboratory, with over 50 years of experience, is available at no charge to match existing colored mortar, develop special color tones and to provide expert color assistance to solve individual color needs. Since the color shades of cements and sands (coarse and fine) are different in each locality, it is recommended to send a minimum of 5 lbs. (2kg) of cement and 15lbs. (7kg) of sand or the equivalent proportions for portland and lime mixes, along with a sample or representation of the desired color that is to be produced. Please write or call the Solomon Colors' Color Laboratory and indicate the masonry mix design (Type M, N, S or O) required.

Send to:

Solomon Colors
Color Laboratory
4050 Color Plant Road
Springfield, IL 62702

Samples: Samples of Solomon Colors' A, H, and X Concentrated Mortar Colors and special blended mortar colors are available for submittals either in convenient mortar channels and/or for constructing job site mock-up panels.

Architectural Mortar Color Kits displaying Solomon A, H and X Series Mortar Colors are available upon request in standard Type N or S prepared masonry cement or equivalent portland and lime mortar mix.

10. FILING SYSTEMS

- Sweet’s Catalog Files
- Sweet’s Electronic Files
- Solomon Colors website
www.solomoncolors.com
- Solomon Colors Architectural Catalog 4 - Masonry



TABLE 1 SOLOMON COLOR UNITS REQUIRED FOR SPECIFICATION MORTAR MIXES

ASTM C270 Specification for Mortar	Number of Solomon Color Units to be added with mortar mix		
	“A” Series Color	“H” Series Color	“X” Series Color
<p>Prepared masonry cements, ASTM C91, Types N, S, or M: One 70-80 lb (32-36 kg) bag masonry cement ASTM C91, Type 1; 3 cu ft (.08 m³) sand, ASTM C144</p>	One A Unit	One H Unit	One X Unit
<p>Portland cement/lime mortars, Types N, 750 psi (5168 kPa): One 94 lb (43 kg) bag portland cement, ASTM C150; One 50 lb (23 kg) bag hydrated lime, ASTM C207; 6 cu ft (.17 m³) sand, ASTM C144</p>	Two A Units	Two H Units	Two X Units
<p>Portland cement/lime mortars, Types S, 1800 psi (12,400 kPa): Two 94 lb (43 kg) bags portland cement, ASTM C150; One 50 lb (23 kg) bag hydrated lime, ASTM C207; 9 cu ft (.25 m³) sand, ASTM C144; or</p> <p>Portland cement/lime mortars, Types S, 1800 psi (12,400 kPa): One 94 lb (43 kg) bag portland cement, ASTM C150; Two 70 lb (32 kg) bags masonry cement Type 1, ASTM C91; 9 cu ft (.25 m³) sand, ASTM C144</p>	Three A Units	Three H Units	Three X Units
<p>Portland cement/lime mortars, Types M, 2500 psi (17,225 kPa): Two 94 lb (43 kg) bags portland cement, ASTM C150; One 25 lb (11 kg) bag hydrated lime, ASTM C207; 6 cu ft (.17m³) sand, ASTM C144; or</p> <p>Portland cement/lime mortars, Types M, 2500 psi (17,225 kPa): One 94 lb (43 kg) bag portland cement, ASTM C150; One 70 lb (32 kg) bag masonry cement Type 1, ASTM C91; 6 cu ft (.17 m³) sand, ASTM C144</p>	Three A Units	Three H Units	Three X Units
<p>Portland cement/lime mortars, Types O, 350 psi (2412 kPa): One 94 lb (43 kg) bag portland cement, ASTM C150; Two 50 lb (23 kg) bags hydrated lime, ASTM C207; 9 cu ft (.25 m³) sand, ASTM C144</p>	Two A Units	Two H Units	Two X Units
<p>Portland cement/lime mortars, Types O, 350 psi (2412 kPa): One 94 lb (43 kg) bag portland cement, ASTM C150; Two 50 lb (23 kg) bags hydrated lime, ASTM C207; 9 cu ft (.25 m³) sand, ASTM C144</p>	Three A Units	Three H Units	Three X Units

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