



# Hanover Historic Courthouse

## Masonry Restoration

**Submitted to:**

**Hanover County Planning Department  
Hanover, Virginia 23069  
and  
Virginia Department of Historic Resources  
Richmond, Virginia 23221**

**Submitted by:**

**Architectural Preservation Services, LLC  
2100 Gable Avenue  
Baltimore, Maryland 21230**

**June 1, 2012**

The activity that is the subject of this report, the Hanover Historic Courthouse Masonry Restoration Project, has been financed in part with federal funds from the National Park Service, U.S. Department of the Interior. However, the contents and opinions do not necessarily reflect the views or policies of the Department of the Interior, nor does the mention of trade names or commercial products constitute endorsement or recommendation by the Department of the Interior.

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## TREATMENT REPORT

On February 22, 2012, the Hanover County Planning Department in Hanover, Virginia awarded Architectural Preservation Services, LLC (APS) the project to restore the Historic Hanover County Courthouse. Submittals for the project were provided in March, and the on-site work was carried out in April.

APS performed the following:

1. Conducted photo-documentation of the building prior to starting on-site work, showing conditions before any repairs were made. Documentation continued throughout the project, with images taken during construction activities and after completion of all treatments. A few representative images are included in this report, with the remaining images contained in the CD accompanying the report.
2. Removed samples of mortar for basic analysis and replication. The building contains at least three distinctive repointing campaigns, with a number of smaller areas repaired with different mortars and tooling. After thoroughly inspecting all existing mortars, APS selected what appears to be the most historic campaign for matching; it is also the most prominent. The samples were sent to de Gruchy's LimeWorks in Milford Square, Pennsylvania, where a basic mortar analysis was performed, involving acid digestion, analysis of aggregates and additives, and replicated mortar using natural hydraulic lime.

The piazza arches and jack arches above the windows contain a distinctively different mortar, and APS removed a representative sample from these areas, as well. The sample was analyzed in house by a conservator, who performed a basic mortar analysis by means of acid digestion. Laboratory analysis (such as XRD, XRF, and Petrographic) was not performed on any of the samples, given the high cost of these procedures and limited funding for the project.

3. Conducted a general cleaning of the building with a dilute solution of Orvus (Procter and Gamble), a non-ionic soap, and low-pressure washing using a garden hose. Areas containing biological growth, located mainly along the base of the building, were cleaned with EnviroKlean BioWash (Prosoco, Inc.), diluted in water 1:1. Before using the biocide, the heavy growth of moss was removed with the aid of a stiff nylon brush. The BioWash was then applied to a dry surface until it was thoroughly wet, and left on for approximately 3 minutes, lightly scrubbed, and rinsed away until there were no traces of cleaning residue.
4. Repointed the building using de Gruchy's custom blended mortar, containing 3 parts masonry sand to 1 part natural hydraulic lime. The arches were pointed with APS's own blend, also containing 3 parts masonry sand (conforming to ASTM C-144) to 1 part natural hydraulic lime, St. Astier NHL 3.5 (TransMineral USA, Inc.). The difference between the two mortars was in the type of sand used: de Gruchy's blend contained beige sand with a

larger and wider grain size distribution, while APS's blend contained white sand of finer and more uniform grain size.

While performing the repointing work, the difficulty was in matching adjacent areas, given the various past attempts at achieving the grapevine joint, in which a variety of mortar colors and tooling techniques were used. The color of the existing repointing mortar varies from white to beige to grey, and the grapevine joint tooling from a deep and thin indentation to a soft and round indentation, both running down the center of the joint.

APS experimented with a few repointing techniques, testing three different pointing tools to create a grapevine joint that would blend in with the rest of the wall. An attempt was also made to match the look of the exposed aggregate of the weathered joint, but it was not possible without altering the tooled indentation down the center of the joint.

The repointing was performed according to standard procedures, as follows:

- Deteriorated joints were raked by hand, with the aid of appropriately sized chisels and resilient mallets. Care was taken not to spall or chip the surrounding masonry edges during the process of mortar removal. Portland cement mortar was removed by carefully scouring the center of the bed joints (horizontal joints) using a grinder with a diamond metal blade. Again, care was taken not to spall or chip the edges of the surrounding masonry units, or to widen the existing mortar joints. Head joints (vertical joints) were not scoured with the grinder. Once the stress on the bed joint was relieved and the mortar loosened, the mortar in the bed and head joints was removed by hand, using a chisel and resilient mallet. The masons then cleaned the joints from top to bottom of all dirt and loose particles by brushing, applying low-pressure compressed air, and rinsing with a hose.
- The masonry was wet down thoroughly with clean, potable water before commencing the repointing work. At the time of repointing, the joint surfaces were damp but free of standing water. During hot weather, or when the masonry dried out before repointing, the walls were wet down again in advance of repointing.
- Mortar was applied to joints in lifts not greater than 3/8 inch. Each lift was fully compacted by applying firm pressure with the pointing tool and then allowed to become thumbprint hard before the next lift was applied. Large volumes of deep filling were avoided at all times. Before the mortar became thumbprint hard, the joints were tooled to match the appearance of the historic grapevine joint.
- The mortar was cured by periodic mist spraying and maintaining it damp for a period of 72 hours. Exposed masonry surfaces were cleaned of all excess mortar and

foreign matter, using wooden scrapers, stiff-fiber brushes, and clean water. Metal scrapers or brushes and acidic or alkaline cleaners were not used.

As mentioned previously, the building contains several repointing campaigns, some of which were carried out with Portland cement mortar blends. In a few cases, the repointing has been poorly executed and is aesthetically incompatible with the historic grapevine repointing. APS did not cut out and repoint these joints because they are stable and not causing harm to the masonry. Additionally, removing hard, Portland cement mortars may cause more harm than good, since the removal process can potentially damage the surrounding masonry. These joints should be monitored periodically to ensure that they remain stable and, more important, are not causing harm to the historic masonry.

5. Loose or displaced brick, located mainly along the base of the building, was reset, using 3 parts masonry sand conforming to ASTM C-144 and 1 part NHL 3.5. (Final repointing was performed with the de Gruchy custom blended repointing mortar.) Bricks that were damaged and unsuitable for reuse were replaced with new hand-made brick that matched the original as closely as possible in size, color, texture, and hardness. Given the variety of colors of the original brickwork, APS choose three colors of replacement brick to blend in with the existing walls (103 Georgian, 30 Rose Full Range, and 350 Virginia Blend; size Williamsburg; Cushwa, Redland Brick, Inc.).

Deteriorating brick units were removed and replaced from joint to joint, taking care not to damage the surrounding masonry. The masonry surrounding the area of removal was protected and supported when necessary. The area was cleaned of all mortar, dust, and loose particles in preparation for the replacement bricks. New brick was installed in the pattern of existing brick, with the joint width matching existing joints. Replacement bricks were laid with completely filled bed, head, and collar joints. Ends were buttered with sufficient mortar to fill head joints and shoved into place. Replacement and surrounding bricks were wet using methods that ensured that units were nearly saturated but surface dry when laid. Areas of new replacement brick were kept damp for a period of 72 hours to ensure proper curing of the mortar.

6. Patched cracked and damaged glazed headers with Jahn M100 Terra Cotta and Brick Repair Mortar (Cathedral Stone Products). To mimic the look of the glazing, Acryl 60 (BASF), an acrylic polymer emulsion, was brushed over the surface of the patching material after it had fully cured. Silin Lasur (Cathedral Stone Products), a mineral stain for masonry, gave the Acryl 60 depth, and helped to blend the faux glazing with the historic glazing.

The work was carried out under the supervision of a conservator, and performed by experienced masonry specialists who successfully completed similar projects. Each type of material for the masonry work (lime, sand, etc.) was obtained from one source in order to maintain consistent quality

in appearance and physical properties. The team proceeded only when existing and forecasted weather conditions permitted masonry restoration and cleaning work to be performed according to the manufacturers' written instructions and specified requirements.



*(Left and right) The main (west) elevation of the Historic Hanover County Courthouse, built in 1735. Photo taken before restoration.*



*The south (left) and north (right) elevations before restoration.*



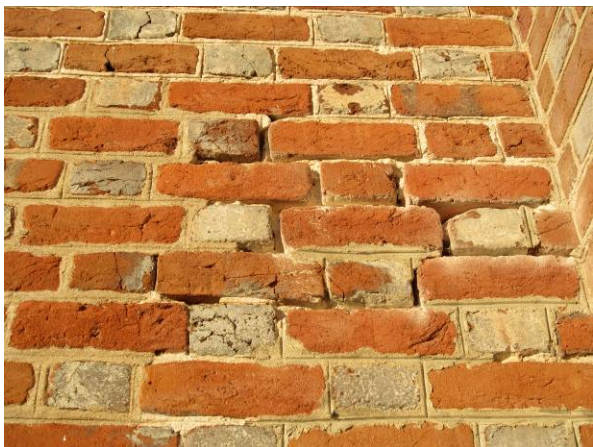
*(Left and right) Two views of the east elevation before restoration.*



*(Left and right) Detailed views of existing conditions of the west elevation before restoration, showing open mortar joints and eroded brick.*



*(Left and right) Detailed views of existing conditions of the south elevation before restoration, showing open mortar joints and biological growth. Note the weathered glazing on the headers (left) and biological growth on the masonry (right).*



*(Left and right) Detailed views of existing conditions of the east elevation before restoration, showing open mortar joints, biological growth, and loose and damaged brick.*





*(Left and right) Detailed views of existing conditions of the north elevation, showing biological growth, open joints, and damaged brick. Note the Portland cement repointing at the base.*



*(Left and right) Removing samples of mortar from the wall and arch of the south elevation.*



*(Left and right) Performing a basic mortar analysis in house by means of acid digestion.*



*(Left and right) Reviewing samples of brick and mortar for masonry replacement and repointing work.*



*(Left and right) Removing damaged brick and cleaning biological growth on the east elevation.*



*(Left) Installation of original and new brick on the east elevation. (Right) View of work after completion, east elevation.*



*(Left and right) Removing deteriorated mortar and cleaning the joints of all dust and mortar debris.*



*(Left) Removing deteriorated mortar from joints. (Right) Detail after removal and before repointing.*



*(Left) Wetting down the joints before repointing. (Right) Repointing with a natural hydraulic lime mortar.*



(Left) Using a level to provide a continuous strike across the joints. (Right) The grapevine joint is achieved using a slicker containing a raised bead that is pressed against the mortar, creating an indented u-shaped shadow line in the center of the joint.



(Left) Existing condition of the base of the building on the north elevation, before restoration work. (Right) Removing deteriorated and damaged brick.



(Left and right) Shaping and preparing new brick, which was sawn with a diamond blade and then hand finished.



*(Left) The new brick inserted in the wall, before setting and repointing. (Right) A damaged glazed header.*



*(Left) Two shades of brick patching mortar were used. (Right) Patching the glazed header with Jahn repair mortar.*



*(Left) The glazed header after patching. (Right) Blending in the patching material with mineral stains for masonry.*



*(Left) View of the various repointing campaigns, side by side. (Right) A non-original repointing campaign, in which a white mortar has been used, and the indentation is thin and deep.*



*(Left and right) Copper staining on the brickwork due to lightning protection located directly above. This is visible on all four elevations. A copper stain remover might reduce the staining, but should be tested before application.*



*(Left and right) Two views of the wall after repointing.*



*The main (west) elevation after treatment.*



*The south elevation after treatment (darker areas visible on the masonry walls are due to moisture from early morning rainfall).*



*The north elevation after treatment.*

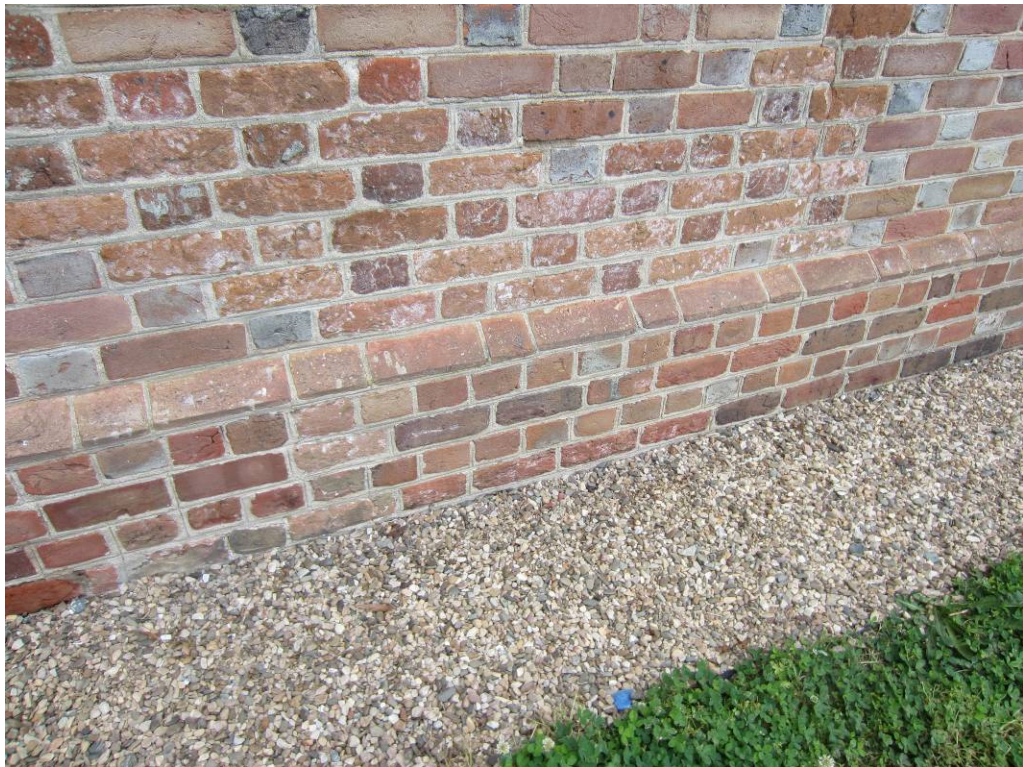


*The east elevation after treatment.*





*The east elevation after treatment.*



*Detail of the south elevation after treatment. A portion of the brickwork in this elevation exhibits efflorescence, which was present prior to performing any work. Its removal can be carried out with a poultice treatment.*



*Detail of the piazza arch on the south elevation after treatment.*



*Detail of brick infill on the east elevation after treatment.*



*Detail of repointing work on the north elevation after treatment.*



*Close-up of new repointing work next to historic repointing work on the south elevation.*

[Detergents & Soaps](#)
[Orvus WA Paste](#)

Orvus WA Paste is a near-neutral pH, anionic synthetic surfactant and wetting agent with excellent detergency, emulsifying, and dispersing properties. The primary component of Orvus WA Paste is sodium lauryl sulfate. It is a gentle detergent that is recommended for cleaning most fine textiles. Orvus is a neutral pH synthetic detergent with excellent detergency, emulsifying and dispersing properties. Orvus contains no phosphorus and is biodegradable. Orvus is soluble in hot or cold water and provides excellent sudsing across a wide range of water hardness conditions. Orvus lowers surface tension, providing fast wetting and penetration, and is effective in many cleaning tasks, such as cleaning rugs, upholstery and hand washing of delicate fabrics. At room temperature, Orvus is an amber colored liquid of honey-like consistency, but solidifies into a white colored soft paste form at about 55°F.

For reference, use 1 to 3 ounces by weight of Orvus Paste per gallon of water for hand washing of fine fabric and up to 4 ounces per gallon for rugs and upholstery. Rinse very well in order to remove all traces of Orvus from the fabric. When using this product as with all chemicals and cleaners, always wear gloves, safety glasses and protective clothing.

### MATERIAL SAFETY DATA SHEET

Catalog No.	Description	Price	Quantity
CL-18005-0016	Orvus WA Paste, Pint	\$0.00	
CL-18005-0032	Orvus WA Paste, Quart	\$0.00	
CL-18005-0100	Orvus WA Paste, Gallon	\$0.00	
CL-18005-0400	Orvus WA Paste, 4 x 1 Gallon	\$0.00	

Please Note: Prices and Ordering not currently available online. Please contact as listed below for price quotes and orders.

[Site Map](#)

 email: [info@conservationsupportsystems.com](mailto:info@conservationsupportsystems.com) phone: (800) 482-6299 fax: (800) 605-7503

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Commercial Products Group  
CPG TN 6  
2 Procter & Gamble Plaza  
Cincinnati, OH 45202

HMIS®  
Health 1  
Flammability 0  
Reactivity 0

## MATERIAL SAFETY DATA SHEET

Issue Date: 2/99

### SECTION I

Emergency Telephone Number: Procter & Gamble Operator 1-513-983-1100 or Local Poison Control Center  
Identity: **ORVUS WA Surfactant Paste**  
Ingredients/Chemical Name: Water, sodium lauryl sulfate and minor ingredients.  
Other: N.A.

### SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Ingredients as defined by OSHA, 29 CFR 1910. 1200.

NOTE: This product is not "hazardous" within the meaning of the OSHA Hazard Communication Standard.  
**DOT Classification:** Not regulated

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

<b>Boiling point:</b> 210°F	<b>Specific Gravity (H<sub>2</sub>O=1):</b> 1.04
<b>Vapor Pressure (mm Hg):</b> 17.535 (20.0°C)	<b>Percent Volatile by Volume (%):</b> N.A.
<b>Vapor Density (Air=1):</b> N.A.	<b>Evaporation Rate (nBuOAc=1):</b> N.A.
<b>Solubility in Water:</b> Complete	<b>Appearance and Odor:</b> White paste or amber liquid, faint detergent odor

### SECTION IV - FLAMMABILITY AND REACTIVITY

<b>Flash Point (Method Used):</b> 200°F (PMCC)	<b>Explosive Limits:</b> LEL: N.A. UEL: N.A.
<b>Extinguishing Media:</b> Material is 70% water, not likely to burn.	
<b>Special Fire Fighting Procedures:</b> None Known	
<b>Unusual Fire Hazards:</b> None Known	
<b>Stability</b>	<b>Conditions to Avoid:</b> Decomposes above 140°F or if pH falls below 7.
<i>Unstable:</i>	
<i>Stable: X</i>	
<b>Incompatibility (Materials to avoid):</b> Avoid mixing with strong acids.	
<b>Hazardous Decomposition/By Products:</b> Sulfuric Acid, Sulfur Dioxide, Hydrogen Sulfide	
<b>Hazardous</b>	<b>Conditions to Avoid:</b> None Known
<i>May Occur:</i>	
<b>Polymerization</b>	<i>Will Not Occur: X</i>

ORVUS WA Paste Material Safety Data Sheet (continued)

**SECTION V - HEALTH AND SAFETY DATA**

**Route(s) of Entry:** Oral, skin contact, eye contact.

**Health Hazards (Acute and Chronic):** Orvus WA Paste may be irritating to skin or eyes.

**Signs and Symptoms of Exposure:** Expected to be emetic. Eye contact with the product or its aqueous solution may cause mild transient irritation.

**Medical Conditions Generally Aggravated by Exposure:** None

**Emergency and First Aid Procedures:** *Ingestion:* dilute with water or milk and treat symptomatically. *Eye Contact:* flush with water thoroughly for 15 minutes. *Skin Irritation:* discontinue use, apply cold compress to relieve irritation.

**Other:** N.A.

**SECTION VI - PRECAUTIONS FOR SAFE HANDLING AND USE**

**Precautions to be Taken in Handling and Storing:** Store well below 140°F and maintain pH above 7.0 to prevent decomposition.

**Other precautions:** If a spray or mist is generated, use a Bureau of Mines - OSHA approved respirator for organic mist.

**Steps to Be Taken in Case Material is Released or Spilled:** Neutralization not required. Flush surface with water.

**Waste Disposal Method:** Product is a biodegradable surfactant. If permitted, flush down sewer with large excess of water or dispose at landfill. Disposal is to be performed in compliance with all regulations.

**SECTION VII - SPECIAL PROTECTION INFORMATION**

**Respiratory Protection (Specify Type):** None required with normal use.

**Ventilation**      *Local Exhaust:* None required with normal use.      *Special:* None  
                         *Mechanical (General):* Acceptable                              *Other:* None

**Eye Protection:** None required with normal use. Safety glasses are recommended if eye contact is possible.      **Protective Gloves:** Plastic or rubber.

**Other Protective Equipment:** None required with normal use.

\*N.A. - Not Applicable

\*N.K. - Not Known

The submission of this MSDS may be required by law, but this is not an assertion that the substance is hazardous when used in accordance with proper safety practices and normal handling procedures. Data supplied is for use only in connection with occupational safety and health.

**Section 1: PRODUCT & COMPANY IDENTIFICATION**

Product Name: D/2 Biological Solution

*Exclusively Distributed By:*

**Cathedral Stone® Products, Inc.**  
 7266 Park Circle Drive  
 Hanover, MD 21076  
 Telephone: 410-782-9150  
 Fax: 410-782-9155

*Manufactured By:*

**Sunshine Makers, Inc.**  
 15922 Pacific Coast Highway  
 Huntington Harbour, CA 92649  
 Telephone: 800-228-0709  
 Fax: 562-592-3830

Emergency Phone: Chem-Tel 24-Hour Emergency Service: 800-225-3924

Use of Product D/2 Biological Solution is an easy-to-use liquid that aids in the removal of a broad spectrum of soils. It is designed for use on outdoor sculpture, monuments, decorative fountains, stone, brick, terra cotta, concrete, stucco, and other architectural surfaces.

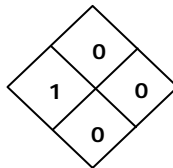
**Section 2: HAZARDS IDENTIFICATION**

**D/2 Biological Solution is a colorless liquid with a very faint detergent-like odor. It is non-flammable, non-combustible, non-explosive, and non-reactive.**

**Hazard Rating (NFPA/HMIS)**

Health = 1\*      Reactivity = 0  
 Fire = 0          Special = 0

\* Mild eye irritant, non-mutagenic and non-carcinogenic



**Rating Scale**

0 = Minimal      1 = Slight      2 = Moderate  
 3 = Serious      4 = Severe

**Eye Contact:** Eye Irritant.

**Skin Contact:** Prolonged skin contact with D/2 Biological Solution may irritate the skin. Repeated daily application to the skin without rinsing, or continuous contact of D/2 Biological Solution on the skin may lead to irritation.

**Ingestion:** Essentially non-toxic. May cause stomach or intestinal upset if swallowed.

**Inhalation:** No adverse effects expected under typical use conditions. Adequate ventilation should be present when using D/2 Biological Solution over a prolonged period of time. Open windows or ventilate via fan or other air-moving equipment if necessary. Mucous membranes may become irritated by concentrate mist.

**Carcinogens:** No ingredients are listed by OSHA, IARC, or NTP as known or suspected carcinogens.

**Medical Conditions:** No medical conditions are known to be aggravated by exposure to D/2 Biological Solution.

**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Ingredients</u>	<u>CAS Number</u>	<u>OSHA PEL ACGIH TLV</u>
Surfactants	Proprietary	None established
Wetting Agents	Proprietary	None established
Buffers	Proprietary	None established

**Section 4: FIRST AID MEASURES**

**If in Eyes:** Immediately rinse the eye with large quantities of cool water; if present, contact lenses should be removed after 5 minutes of rinsing; continue rinsing 10-15 minutes more. Both upper and lower lids should be lifted to facilitate thorough rinsing.

**If on Skin:** Minimal effects, if any, from diluted product; rinse skin with water, rinse shoes and launder clothing before reuse. - Reversible reddening may occur in some dermal-sensitive users; thoroughly rinse area.

**If Inhaled:** Use in well-ventilated area, or use adequate protection from inhaling mist during spray applications. Prolonged exposure of workers to concentrate-mist during spray application may cause mild irritation of nasal passages or throat. If this happens, relocate workers to fresh air.

**If Ingested:** Give several glasses of milk or water to dilute; do not induce vomiting. If stomach upset occurs, consult physician.

**Section 5: FIRE FIGHTING MEASURES**

Extinguishing Media: Not flammable/non-explosive. No special procedures required.

Special Fire Fighting Procedures: None required.

**Section 6: ACCIDENTAL RELEASE MEASURES**

**Personal Precautions:** Avoid contact with eyes. Do not rub eyes with hands during cleanup. No special precautions for dermal contact are needed. Wash hands thoroughly after cleaning up spill or leak.

**Procedure to follow in case of spill or leak:** Evacuate area. Identify source of leak or spill and contain with sand, earth, or containment bin. Then proceed to clean up spill or leak.

**Method for cleaning up:** Recover all usable material. Residual may be removed by wipe or wet mope. Rinse area with plenty of water and mop to sanitary sewer.

**Section 7: HANDLING AND STORAGE**

No special handling is required. Keep in a closed plastic container. Store at ambient temperature. Avoid contact with eyes. Wash hands thoroughly after handling. **This product is non-hazardous for storage and transport according to the U.S. Department of Transportation Regulations.**

This material does not meet the definition of a hazardous material according to 49 CFR, ICAO, IMDG and the UN Orange Book.

**Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

Precautionary measures: No special requirements under normal use conditions.

Exposure Limits: The D/2 Biological Solution formulation presents no health hazards to the user, other than mild eye irritancy.

Eye protection: Caution, including reasonable eye protection, should always be used to avoid eye contact where splashing may occur, such as during spray applications.

Respiratory Protection: No special precautions required.

Ventilation: No special ventilation is required during normal use.

Skin protection: No special precautions required; rinse completely from skin after contact.

General hygiene conditions: There are no known hazards associated with this material when used as recommended. The following general hygiene considerations are recognized as common good industrial hygiene practices:

- Avoid breathing vapor or mist.
- Avoid contact with eyes.
- Wash thoroughly after handling and before eating, drinking, or smoking.

**Section 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Clear Liquid	<b>Freezing Point:</b>	-9 °C (16 °F)
<b>Odor:</b>	Very faint detergent-like odor	<b>Boiling Point:</b>	98°C (209°F)
<b>pH:</b>	9.5	<b>Specific Gravity:</b>	1.011
<b>Evaporation Rate:</b>	0.4 (butyl acetate = 1)	<b>Vapor Pressure:</b>	20.7 mm Hg
<b>Water Solubility:</b>	100%	<b>Vapor Density:</b>	1.3 (air = 1)

**Section 10: STABILITY AND REACTIVITY**

Stability: Stable.

Materials to Avoid: **Contains ammoniated compounds – do not mix with bleach, tub & tile cleaner, mold/mildew removers, or chlorinated compounds.**

Hazardous Decomposition Products: None expected



**Section 11: TOXICOLOGICAL INFORMATION**

Toxicity Data: Available from relevant laboratory testing of ingredients or similar mixtures.

Acute Toxicity:	Oral LD <sub>50</sub> : >2.0 g/kg body weight	Dermal LD <sub>50</sub> : Not estimated
Eye Irritation:	With or without rinsing with water, the irritation scores in rabbits at 24 hours did not exceed 17 (mild irritant) on a scale of 110 (extremely irritating); all scores were normal at seven days.	
Dermal Irritation:	In a standard test on rabbits, mild irritation was found at 72 hours; well-defined reddening was observed at 7 and 14 days after exposure.	
Dermal Sensitization:	No allergic reactions occurred in guinea pigs treated with D/2 Biological Solution.	
Carcinogenicity:	D/2 Biological Solution contains no carcinogenic compounds as defined by the National Toxicology Program (NTP), the international Agency for Research on Carcinogens (IARC), or the Occupational Health and Safety Administration (OSHA).	

**Section 12: ECOLOGICAL INFORMATION**

Biodegradability:	All components are inherently biodegradable.
Ecotoxicity:	Not Tested.

**Section 13: DISPOSAL CONSIDERATIONS**

Unused Product:	* Dilute with water 1:10 (1 part D/2 Biological Solution to 10 parts water) and dispose by sanitary sewer.
Used Product:	*Used product may be hazardous depending on the cleaning application and resulting contaminants.
Empty Containers:	*Triple-rinse with water and offer for recycling if available. Otherwise, dispose as non-hazardous waste.

\*Dispose of used or unused product, and empty containers in accordance with the local, State, Provincial, and Federal regulations for your location. Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

**Section 14: TRANSPORT INFORMATION**

IATA Proper Shipping Name: Detergent solution

Hazard Class: Non hazardous

**Section 15: REGULATORY INFORMATION**

**\*Reportable components:** None. The U.S. Environmental Protection Agency (EPA) has determined that propylene glycol ethers are not included within the listed category "glycol ethers" under either EPCRA §313 Toxic Release Inventory or Clean Air Act §112 Hazardous Air Pollutants (both lists include only ethylene glycol ethers). Nor are propylene glycol ethers included in the various EPA Resource Conservation and Recovery Act, and Clean Water Act lists, nor the California Proposition 65 lists.

All components are listed on: EINECS and TSCA Inventory

No components listed under: Clean Air Act Section 112

RCRA Status: Not a hazardous waste.

CERCLA Status: No components listed

TSCA TRI Reporting: Not required / Not listed

CA PROP. 65 Status: No components listed

**Section 16: OTHER INFORMATION****For Safety Information, Sales Applications and Availability contact:**

CATHEDRAL STONE® PRODUCTS, INC.

7266 Park Circle Drive, Hanover, MD 21076

Telephone: 410-782-9150 Fax: 410-782-9155

**DISCLAIMER:** All information appearing herein is based upon data obtained by the manufacturer and recognized technical sources. Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of this information, Sunshine Makers, Inc. or its distributors extends no warranties, makes no representations and assumes no responsibility as to the suitability of such information for application to purchaser's intended purposes or for consequences of its use.



# BioWash®

*biological soiling remover for masonry*

## OVERVIEW

Growth of bacteria, fungi, algae, lichens, and mosses disfigures and degrades many types of construction materials. Enviro Klean® BioWash® is a highly efficient alternative to aggressive cleaners traditionally used on interior and exterior masonry, stone and tile surfaces.

BioWash® helps remove a broad spectrum of biological deposits from vertical or horizontal masonry, stone and tile surfaces. BioWash® can also be applied safely to non masonry substrates such as wood, painted surfaces, metal, plastic and glass. Simply dilute with clean water as directed, and apply BioWash® to the surface. A short contact time, gentle scrubbing and a water rinse are normally enough to remove light-to-moderate deposits of fungi, algae, lichen and bacteria typically encountered on building surfaces and monuments.

## SPECIFICATIONS

For all PROSOCO product specifications visit [www.prosoco.com](http://www.prosoco.com) and click on "SpecBuilder" or "Solution Finder."

## ADVANTAGES

- Safe for landscape plantings and grass.
- Safe for interior use in occupied buildings.
- Effective on all types of stone, concrete and brick masonry.
- Non-fuming, low-odor formulation.
- Needs no substrate neutralization.
- Minimal precautions required for handling and storage.
- Easy to apply with brush, roller or coarse spray.
- Biodegradable.
- Concentrated for economy.
- Safe and effective on wood, painted surfaces, metal, glass and plastic.

## Limitations

- For removal of heavy biological or atmospheric soiling, consult your PROSOCO representative, or call Customer Care - technical support, toll-free at (800) 255-4255.

## REGULATORY COMPLIANCE

### VOC Compliance

Enviro Klean® BioWash® is compliant with all national, state and district regulations

## TYPICAL TECHNICAL DATA

FORM	Clear, low-odor liquid. Slight amber color
SPECIFIC GRAVITY	1.00
pH	5.5–6.5
WT/GAL	8.34 lbs
ACTIVE CONTENT	Not applicable
TOTAL SOLIDS	Not applicable
VOC CONTENT	Not applicable
FLASH POINT	Not applicable
FREEZE POINT	32°C (0°C)
SHELF LIFE	3 years in tightly sealed, unopened container
SOLUBILITY IN WATER	Complete

## PREPARATION

Protect people, vehicles, property and all surfaces not set for cleaning from product, splash, rinse, residue, fumes and wind drift. Protect and/or divert traffic if needed.

Drain water from architectural structures (such as fountains) before application. Carefully brush or scrape loose surface debris, and heavy growths of moss, ivy, or other contaminants from the dry surface.

## Fragile or Deteriorated Surfaces

Fragile or deteriorated stone may require reduced rinsing pressure, or even stone consolidation to avoid further damage.

Severely deteriorated limestone and marble may be strengthened enough for thorough cleaning by treatment with Conservare® HCT. HCT also prolongs the service life of acid-soluble stone by dramatically increasing its resistance to acid rain. Consult your PROSOCO representative, or call Customer Care - technical support, toll-free at (800) 255-4255 for more information on use of HCT in conjunction with BioWash®.

## Surface and Air Temperatures

Cleaning effectiveness is reduced when surface and air temperatures fall below 50°F (10°C). Do not apply at temperatures below 40°F (4°C). If freezing conditions exist before application, let masonry thaw.

## Equipment

Apply using a soft-bristled brush, roller or coarse spray. Rinse with enough water and pressure to flush spent cleaner and dissolved soiling from the masonry surface and surface pores without damage. Inadequate rinsing leaves residues which may stain the cleaned surface.

Masonry-washing equipment generating 400–1000 psi with a water flow rate of 6–8 gallons per minute is the best water/pressure combination for rinsing porous masonry. Use a 15–45° fan spray tip. Heater water (150–180°F; 65–82°C) may improve cleaning efficiency.

Use adjustable equipment for reducing water flow rates and rinsing pressure as needed for sensitive surfaces. Rinsing pressures greater than 1000 psi and fan spray tips smaller than 15° may permanently damage sensitive masonry. Water flow rates less than 6 gpm may reduce cleaning productivity and contribute to uneven cleaning results.

## Storage and Handling

Store in a cool, dry place. Always seal container after dispensing. Do not alter or mix with other chemicals. Published shelf life assumes upright storage of factory-sealed containers in a dry place. Maintain temperature of 45–100°F (7–38°C). Keep from freezing. Do not double stack pallets. Dispose of in accordance with local, state and federal regulations.

## APPLICATION

Before use, read “Preparation” and “Safety Information.”

**ALWAYS TEST** for suitability and results before overall cleaning. Test using the following application procedures. Let test area dry thoroughly before inspection.

**NOTE:** Many types of biological soiling change color when exposed to BioWash®. Most surface discoloration will disappear soon after thorough water rinsing and weathering.

## Dilution

Adjust dilution rate based on testing. Always pour cold water into empty bucket first, then carefully add product.

Type of Soiling	Concentrate : Water
• Light biological deposits	1:10
• Moderate biological deposits	1:5
• Heavy biological deposits	use in concentrate

## ALWAYS TEST

**ALWAYS TEST** a small area of each surface to confirm suitability and desired results before starting overall application. Test with the same equipment, recommended surface preparation and application procedures planned for general application.

## Coverage Rates

One gallon of diluted BioWash® treats 80–240 square feet based on surface texture, weather conditions at the time of application, and the severity of soiling.

## Application Instructions

1. Working from the bottom to the top, apply generously to dry surface until surface is thoroughly wet.
2. Leave on the surface for 2–3 minutes. If needed, apply more to keep the surface wet.
3. Mist treated surfaces with water and gently scrub with a non-metallic, short-fibered scrub brush to loosen biological soiling.
4. Working from the bottom to the top, rinse thoroughly with clean water. Reduce rinsing pressure as needed for fragile or deteriorated stone. See “Fragile or Deteriorated Surfaces” in “Preparation” section.
5. If used on food-contact surfaces (such as, but not limited to picnic benches or bench-table combos, food-stand counters, eating- or food-preparation surfaces, etc.) a potable water rinse must follow cleaning.

It may take several days for the full cleaning effect to be realized. When practical, allow two or more weeks for biological soiling to disappear. Repeat as necessary to remove remaining biological soiling.

## Cleanup

Clean tools and equipment with fresh water.

# BioWash®

## SAFETY INFORMATION

Enviro Klean® BioWash® is a water-reduced cleaning product. Use appropriate safety equipment and job site controls during handling and application. Read the full label and MSDS for precautionary instructions before use.

### First Aid

**Ingestion:** Seek medical attention.

**Eye Contact:** Rinse thoroughly for 15 minutes. Get medical assistance if irritation persists.

**Skin Contact:** Remove contaminated clothing and rinse thoroughly. Get medical attention if irritation persists. Launder contaminated clothing before reuse.

**Inhalation:** Remove to fresh air. Get medical attention as necessary.

**24-Hour Emergency Information:**  
INFOTRAC at 800-535-5053

## WARRANTY

The information and recommendations made are based on our own research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made because we cannot cover every possible application of our products, nor anticipate every variation encountered in masonry surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose.

PROSOCO, Inc. warrants this product to be free from defects. **Where permitted by law, PROSOCO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of merchantability or fitness for particular purpose.** The purchaser shall be responsible to make his own tests to determine the suitability of this product for his particular purpose. PROSOCO's liability shall be limited in all events to supplying sufficient product to re-treat the specific areas to which defective product has been applied. Acceptance and use of this product absolves PROSOCO from any other liability, from whatever source, including liability for incidental, consequential or resultant damages whether due to breach of warranty, negligence or strict liability. This warranty may not be modified or extended by representatives of PROSOCO, its distributors or dealers.

## CUSTOMER CARE

Factory personnel are available for product, environment and job-safety assistance with no obligation. Call 800-255-4255 and ask for Customer Care.

Factory-trained representatives are established in principal cities throughout the continental United States. Call Customer Care at 800-255-4255, or visit our web site at [www.prosoco.com](http://www.prosoco.com), for the name of the Enviro Klean® representative in your area.

## BEST PRACTICES

Drain water from architectural structures (such as fountains) before application. Carefully brush or scrape loose surface debris, and heavy growths of moss, ivy, or other contaminants from the dry surface.

Fragile or deteriorated stone may require reduced rinsing pressure, or even stone consolidation to avoid further damage.

Masonry-washing equipment generating 400–1000 psi with a water flow rate of 6–8 gallons per minute is the best water/pressure combination for rinsing porous masonry. Use a 15–45° fan spray tip. Heater water (150–180°F; 65–82°C) may improve cleaning efficiency.

Many types of biological soiling change color when exposed to BioWash®. Most surface discoloration will disappear soon after thorough water rinsing and weathering.

It may take several days for the full cleaning effect to be realized. When practical, allow two or more weeks for biological soiling to disappear. Repeat as necessary to remove remaining biological soiling.

Never go it alone. For problems or questions, contact your local PROSOCO distributor or field representative. Or call PROSOCO technical Customer Care toll-free at 800-255-4255.

# MATERIAL SAFETY DATA SHEET



## I PRODUCT IDENTIFICATION

**MANUFACTURER'S NAME AND ADDRESS:** PROSOCO, Inc.  
3741 Greenway Circle  
Lawrence, KS 66046

**EMERGENCY TELEPHONE NUMBERS:**  
**8:00 AM – 5:00 PM CST Monday-Friday:** 785/865-4200  
**NON-BUSINESS HOURS (INFOTRAC):** 800/535-5053

**PRODUCT TRADE NAME:** Enviro Klean<sup>®</sup> BioWash

## II INGREDIENT INFORMATION

INGREDIENT NAME: ACTIVE:	(COMMON NAME)	CAS NO.	ACGIH TLV/TWA	OSHA PEL/TWA
Di-(C8-10)-alkyl dimethyl ammonium chlorides	(Quaternary compounds)	68424-95-3	None established	None established
Alkyl dimethyl benzyl ammonium chloride (C12-16)	(Quaternary compounds)	68424-85-1	None established	None established
Nonyl Phenol Ethoxylate	(Nonionic surfactant)	9016-45-9	None established	None established

## III PHYSICAL DATA

	BOILING POINT (°F)	VAPOR PRESSURE (mm Hg)	VAPOR DENSITY (Air = 1)	EVAPORATION RATE
Di-(C8-10)-alkyl dimethyl ammonium chlorides	Not Determined	Not Determined	Heavier than air	Slower than ethyl ether
Alkyl dimethyl benzyl ammonium chloride (C12-16)	Not Determined	Not Determined	Heavier than air	Slower than ethyl ether
Nonyl Phenol Ethoxylate	>201°F	Not Determined	Heavier than air	Slower than ethyl ether

	SPECIFIC GRAVITY	pH	SOLUBILITY IN WATER	APPEARANCE AND ODOR
Enviro Klean <sup>®</sup> BioWash	1.00	5.5-6.5	100%	Clear liquid, low odor

## IV FIRE AND EXPLOSION HAZARD DATA

### EMERGENCY OVERVIEW

Enviro Klean<sup>®</sup> BioWash is a clear, low odor liquid. This product may cause moderate eye irritation. May cause mild skin irritation after prolonged contact. Material is stable and will not burn. Nontoxic by inhalation. Inhalation of concentrate mists may cause upper respiratory irritation.

**FLASH POINT (METHOD):** Material is stable and will not burn.

**FLAMMABLE LIMITS:** Material is stable and will not burn.

**EXTINGUISHING MEDIA:** Not flammable/nonexplosive.

**SPECIAL FIRE FIGHTING PROCEDURES:** No special procedures required.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** None required.

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## V HEALTH HAZARD DATA

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**HUMAN HEALTH EFFECTS:** BioWash is a moderate eye irritant; mucous membranes may become irritated by concentrate mist.

Prolonged skin contact with BioWash may irritate the skin. Repeated application to the skin without rinsing or continuous contact of BioWash on the skin may lead to irritation. Allergic reactions are not anticipated.

**PRIMARY ROUTES OF EXPOSURE:** Skin, eyes, inhalation, ingestion.

**CARCINOGEN INFORMATION:** Not listed (OSHA, IARC, NTP).

**MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** Allergic reactions are not anticipated.

**EFFECTS OF OVEREXPOSURE:** None expected based upon the available toxicity data.

**EYE CONTACT:** This product may be irritating to the eyes. Caution, including reasonable eye protection, should always be used to avoid eye contact where splashing may occur, such as during spray applications.

**SKIN CONTACT:** May cause skin irritation. Gloves recommended for prolonged exposure. Rinse completely from skin after contact. Repeated or prolonged contact may cause moderate to severe irritation.

**INHALATION:** Mists may be irritating to the respiratory tract and mucous membranes.

**INGESTION:** Ingestion may cause irritation of the mouth, throat and gastrointestinal tract. Ingestion of this product may result in central nervous system effects including headache, sleepiness, dizziness, slurred speech and blurred vision.

### **EMERGENCY AND FIRST AID PROCEDURES:**

**EYE CONTACT:** Immediately rinse the eye with large quantities of cool water; continue 15 minutes or until the material has been removed. Both upper and lower lids should be lifted to facilitate thorough rinsing. Seek medical attention at once.

**SKIN CONTACT:** Concentrate may cause irritation. Minimal effects, if any, from diluted product. Rinse skin with water, rinse shoes and launder clothing before reuse. Wear protective gloves if long-term exposure is likely. If irritation persists, get medical attention.

**INHALATION:** Prolonged exposure of workers to concentrate-mist during spray application may cause reversible irritation of nasal passages or throat. Relocate workers to fresh air. If symptoms persist, get medical attention.

**INGESTION:** Give several glasses of milk or water to dilute; do not induce vomiting. Depending on volume ingested relative to size of individual can cause nausea and diarrhea. Get immediate medical attention.

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## VI REACTIVITY DATA

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**STABILITY:** Stable.

**CONDITIONS TO AVOID:** None.

**INCOMPATIBILITY (MATERIALS TO AVOID): Chlorine.** Product should not come into contact with chlorinated products, or other strong oxidizers.

**HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:** At thermal decomposition temperatures, carbon monoxide, carbon dioxide, and oxides of nitrogen.

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## VII SPILL OR LEAK PROCEDURES

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**SPILL, LEAK, WASTE DISPOSAL PROCEDURES:** Recover usable material by convenient method. Residual may be removed by wipe or wet mop.

**WASTE DISPOSAL METHODS:** Fully soluble in water and with dilution is biodegradable. If disposed by sanitary sewer or drain, diluted solutions should not harm sewage-treatment microorganisms. Dispose of in accordance with all applicable local, state, and federal laws. Do not reuse container. Drain container before disposal in household trash.

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## VIII SPECIAL PROTECTION INFORMATION

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**RESPIRATORY PROTECTION:** No special requirements under normal use conditions. Wear a NIOSH approved dust/mist respirator, when mists are present.

**VENTILATION:** No special ventilation is required during use.

**PROTECTIVE CLOTHING:** If you experience dermal sensitivity, wear protective clothing such as long-sleeved work shirt and pants, work boots and neoprene gloves to avoid prolonged skin contact. Do not allow clothing to become saturated with product. If work practices cannot be adjusted to avoid excess clothing saturation, splash resistant or Tyvek® clothing and boots may be required.

**PROTECTIVE GLOVES:** Use Neoprene or PVC gloves as necessary to avoid prolonged contact.

**EYE PROTECTION:** Safety glasses with side shields are recommended during use. If work practices or application technique cause a risk of splashing or excessive wind drift, then splash-resistant goggles may be required.

**OTHER PROTECTIVE EQUIPMENT:** Access to eyewash is recommended. Provide fresh water for rinsing skin.

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## IX SPECIAL PRECAUTIONS

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**WORK PRACTICES:** Proper work practices and planning should be utilized to avoid contact with workers, passersby, and non-masonry surfaces. Do not atomize during application. Beware of wind drift. See the Product Data sheet and label for specific precautions to be taken during use. Smoking, eating and drinking should be discouraged during the use of this, or any chemical product. Wash hands thoroughly after handling.

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** No special precautions required. This product is non-hazardous for storage and transport by all modes of transport. Store in a cool and dry place.

**OTHER PRECAUTIONS:** None.

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## X REGULATORY INFORMATION

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**SHIPPING:** Non-hazardous for transport by all modes.

**SARA 313 REPORTABLE:**

CHEMICAL NAME	CAS	UPPERBOUND CONCENTRATION % BY WEIGHT
N/A		

**CALIFORNIA PROPOSITION 65:** Contains no chemicals listed under Proposition 65.

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## XI OTHER

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**MSDS Status:**            **Date of Revision:** April 18, 2002  
**For Product Manufactured After:** N/A – new product  
**Changes:** Section III – pH corrected..  
**Item #:** 41055  
**Approved By:** Regulatory Department

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**DISCLAIMER:**

The information contained on the Material Safety Data Sheet has been compiled from data considered accurate. This data is believed to be reliable, but it must be pointed out that values for certain properties are known to vary from source to source. **PROSOCO, Inc. expressly disclaims any warranty express or implied as well as any liability for any injury or loss arising from the use of this information or the materials described.** This data is not to be construed as absolutely complete since additional data may be desirable when particular conditions or circumstances exist. It is the responsibility of the user to determine the best precautions necessary for the safe handling and use of this product for his unique application. This data relates only to the specific material designated and is not to be used in combination with any other material. Many federal and state regulations pertain directly or indirectly to the product's end use and disposal of containers and unused material. It is the purchaser's responsibility to familiarize himself with all applicable regulations.

**DATE OF PREPARATION:** \_\_\_\_\_ **April 18, 2002** \_\_\_\_\_





# DATASHEET

## NHL 3.5

(Chaux LC\*\*\*\* Pure)

Main data and application recommendations

**Product specification:** Pure and Natural Hydraulic Lime (NHL). Contains no additives.  
Conforms to European Norms (EN 459) and French Norm NFP 15.311

Strength factor: 3.5 (Moderately hydraulic)

Residue @ 0.09 mm: 6.5%

Density (volumetric weight) : typical 40.6lbs/ft<sup>3</sup>

Available (free) lime after slaking Ca(OH)<sub>2</sub>: 25% +

**Packing:** 55lb. Bags

Whiteness index: 72

Surface cover 274 sq.ft./oz

Expansion : < 3/64"

Residue of quick lime after slaking: < 1%

**Shelf life:** 8-12 months kept sealed and dry

MORTARS MIX RATIO	Compressive strength PSI			Elasticity Moduli (Mpa)			
	EN459*	1 : 2	1 : 2.5	1 : 3	1 : 2	1 : 2.5	1 : 3
7 DAYS		109	83	77			
28 DAYS	3.5*	273	213	194	9010	9000	8070
6 MONTHS		1029	774	571	15260	13501	12450
12 MONTHS		1087	855	565	15280	13620	13150
24 MONTHS		1251	870	576	17480	13785	13670
Consumption for 1cu. yd of mortar lbs. +/- 10%		514	411	364			

\* Incoming European Norm EN 459 ( mortar ratio 1:1.3 with ISO 679 Sand)

**Mixing:** can be mixed in regular mortar mixers.

**Application by spray gun:** possible. Please consult us.

**Working temperatures:** not below 40°F or above 85°F. Make sure that high suction materials are thoroughly dampened before application. Avoid rapid drying due to high temperatures or strong winds by curing with a light water mist several times a day if necessary. Protect from frost, rain, direct sun and strong wind for a minimum of 72 hours.

**SUITABLE FOR LATH WORK / LIME CONCRETE/INJECTION/GROUTING** see relevant sheets.

**Reworking:** possible within 12 hours.



## DATASHEET

### NHL 3.5

(Chaux LC\*\*\*\* Pure)

Main data and application recommendations

#### **Mortar composition: MASONRY/POINTING/ CAPPING/ BEDDING/ ASHLAR**

Binder: sand ratio: from 1:1.5 to 1:3 depending on the support/background conditions, the size of the joint and the fineness of the sand. Always use well graded sands ( #6 down to #200).

See also “*General Guidelines – Sands for NHL mortars*”.

#### **RENDERING**

A. Pricking up coat (if required) (1/8"-3/16") 1 VOLUME NHL 3.5 : 1.5 VOLUMES of SAND Cast on.

B. Undercoat (5/8"-3/4") 1 VOLUME NHL 3.5 : 2 VOLUMES of SAND\*

C. Finishing (3/16"-3/8") 1 VOLUME NHL 3.5 : 2.5 VOLUMES of SAND

With very fine sands possibly containing clays the binder content may have to be reduced.

*\*At this dosage the consumption is approx. 2.05lbs of NHL 3.5 per sq. yd. for each 1/8" thickness.*

Please also refer to General Guidelines: *NHL Renders*.

***The above details are given for information purposes only. Final dosages and application should be checked with our technicians. The Factory reserves the right to alter specifications.***



March 9, 2010

WORCESTER EISENBRANDT  
2100 Gable Ave  
Baltimore, Md 21230  
Ph: 410-844-8880  
Fax: 410-844-1602

Attn: Amy

RE: YARD @ BALTIMORE  
BALTIMORE, MARYLAND

Dear Amy,

This letter is to certify that the White Masonry Sand meets ASTM C144-99 and AASHTO M45-98 as permitted under subsection 4.4 and the 2001 Maryland State Highway Administration specifications under Section 901.

WHITE MASONRY SAND

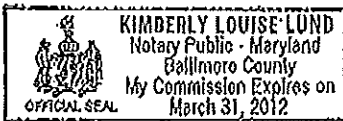
Sieve Size:	#4	#8	#16	#30	#60	#100	#200
% Passing	100	98.7	92.0	78.0	39.0	12.0	3.5
Limits:	100	95-100	70-100	40-75	20-40	10-25	0-10

Note: The gradation and color range of this sand is a characteristic of masonry sands produced in this region. Individual test results may vary. Certification applies as permitted under ASTM C-144, Subsection 4.4 (When an aggregate exceeds the gradation limits). Since individual results are influenced by the products and methods used in preparing masonry mortar, it will be the contractor's responsibility to insure that the mortar is prepared to comply with the water retention and compressive strength requirements of the property specifications of ASTM C 270 and to insure that any grout be prepared to comply with the strength requirements of ASTM C 476 therefore, Aggtrans assumes no liability in color variations or assuring "Specification C 270" or "C 476" compliance.

Sincerely,

Sajina Crismond  
Customer Service Representative

BALTIMORE COUNTY -- State of Maryland



Sworn and subscribed to before me this Ninth day of March, 2010.

Kimberly Louise Lund  
Notary Public  
My Commission expires March 31, 2012.



## Our Products

VIEW OUR PRODUCTS :: PHOTO GALLERY :: WHY HANDMADE BRICK :: MAKING HANDMADE BRICK :: HOME

Select style, select beauty, select Cushwa Handmade Brick by Redland Brick.

**DIMENSIONAL DATA SPECIFICATIONS:** C216 - FBA | **WEIGHT:** 6.3 lbs. | **SIZE:** 4" x 2-3/4" x 8-1/2"  
**5.5 Units per Sq. Ft. (3/8" Joint) | SBE: 1.4 | METRIC SIZE:** 101.6 x 69.85 x 203.2



10 ROSE RED RANGE

The Rose Red Range is one of Cushwa's original handmade products. The Rose Red Range is a non-flashed product that mirrors the colors of many of America's early 17th century brick buildings.



30 ROSE FULL RANGE

A flashed version of the Rose Red Range. This product has been the flagship color of the Cushwa plant since its inception. Containing rose, gold, and mauve hues, this brick also is representative of our country's early brick buildings.



40 SANTA FE

The Santa Fe color is often called a "dirty Rose" because it is slightly darker than the #30 Rose Full Range, but still contains the rose and mauve hues that are seen in many of the Colonial era buildings. The #40 Santa Fe is an excellent color to use with many of today's trim and shingle colors.



103 GEORGIAN

The Georgian is a red, orange, and brown toned brick that replicates handmade bricks made over the centuries that used local river sands in the moulds. The typical river sands contain clay sands that contain traces of iron that will fire to a beautiful blend of reds, orange, and brown.



104 VICTORIAN

The Victorian is an unflashed version of the #103 Georgian. Without flashing, the Victorian fires to a warm subtle red range.



107 REGENCY

The Regency is a two tone product that contains the same colors of the #103 Georgian plus some of the deep scarlet reds seen in the #237 Cambridge handmade brick. The Regency's combination of these two colors allows the designer to still match some of the great river plantations and to also add darker hues that reflect the maturity of these classic designs.



115 SHENANDOAH

The Shenandoah contains burgundy, brown, and black hues that reflects the time honored architectural tradition of brick. This color is used on many university campuses and is used by designers to portray a sense of stability, strength, and longevity.



202 HARTFORD

The Harford is a genuine brown with hints of gray and buckskin. The handmade texture combined with this brown creates a unique earthen color characteristic of the woody North East.



237 CAMBRIDGE

The Cambridge is another handmade color that is also used by many designers for university campuses. The Cambridge with its deep scarlet red and black flash range is a traditional color which will stand the test of time. Any project that is designed with the Cambridge will never go out of style.



240 ROYAL ESSEX

The Royal Essex is a two tone product that features a light tan sand coating over top of the traditional #115 Shenandoah burgundy color. This two tone product is a perfect choice to compliment sandstone and river rock exteriors or as a primary exterior color similar to some of the great European estates.



260 OLD SAVANNAH

The Old Savannah replicates the old ship ballast brick brought from Europe during the 17th century and used to build our Colonial port cities. These two brick feature a mix of grays, tan, cream, brown, and black colors. The Old Savannah is another brick that will complement many stone exterior products or will create the classic look of the Old World.



265 OLD SAVANNAH RED BURN

The Old Savannah Red Burn is the clear fired brother of our 260 Old Savannah, which replicates the old ship ballast brick brought from Europe during the 17th century and used to build our Colonial port cities. These two brick feature a mix of grays, tan, cream, without the darker brown and black. The Old Savannah Red Burn is another brick that will complement many stone exterior products or will create the classic look of the Old World.



280 BIRCH

The Birch handmade is another two tone product that contains tan, cream, white, and green hues. This modern brick color is a preferred choice for today's neo-classical residential designs.



290 SMOKEY MOUNTAIN

The Smokey Mountain is Cushwa's newest handmade product. This brick with its gray, white, and black hues was created to allow homeowners get all of the permanent benefits of brick while also obtaining the appearance of stone.



312 PROVINCIAL

The Provincial is a light colored handmade brick creating a soft white appearance with subtle pink and red undertones. The Provincial name is an appropriate description of this product. Using a matching mortar will provide your project with a grand regal appearance.



330 ROCKDALE

The Rockdale is another two tone brick that includes the classic #30 Rose color and an over coating of cream sands. This product is the perfect choice for updating the Rose color to highlight today's new innovative residential designs.



340 ENGLISH MANOR

The English Manor is another new Cushwa handmade two tone product that was specifically designed to replicate the old brick seen on many old English estates. The base deep red tones coated with tan and cream sands portrays the time honored look of centuries old brick.



350 VIRGINIA BLEND

The Virginia Blend is a non-flashed mixture of reds, oranges, and grays. This color replicates many of the bricks used on projects built in the early 19th century during the Federalism period.

# JAHN M100

- Terra Cotta Repair
- Brick Repair Mortar

## CERTIFIED INSTALLERS ONLY

This single-component, cementitious, mineral based mortar is designed for the restoration of terra cotta and brick surfaces. **Jahn M100 is completely vapor permeable and contains no latex or acrylic bonding agents or additives.** M100 is specifically engineered for compatibility with oven-fired materials to provide a permanent repair, which both enhances and protects the original substrate. (Only Certified Installers may purchase Jahn M100 Terra Cotta Repair Mortar.)

To restore the original glaze and keep water from entering the substrate through the new repair, use a **Terra Cotta Coating System** to paint the repair. (Call Cathedral Stone at 800-684-0901 for more information about our complete Terra Cotta Coating System).

## Features and Benefits

- **Single-Component:** Mixes with water only, improving quality control and consistency of application.
- **Compatible Formulations:** Compatibility of physical properties ensures that the mortar and natural substrate react to the environment in the same way.
- **Contains No Latex or Acrylic Bonding Agents:** It protects the substrate by allowing salts, water vapor, and liquid water to reach the surface, preventing failure due to salt expansion or freeze/thaw cycles.
- **Tenacious Adhesion:** Strong bonding capabilities without relying on synthetic bonding agents.
- **Factory Controlled:** No field chemistry resulting in product variation.
- **Custom Colored Upon Request:** Closely matches existing masonry. Choose from Standard or Custom Colors.

## Application Procedures

### Surface Preparation

Surfaces to receive M100 must be sound and free of all dust, dirt, grease, laitance and/or any other coating or foreign substance which may prevent proper adhesion. Remove all loose and deteriorated masonry from the repair area using manual or pneumatic cutting



tools. Areas to be repaired should be cut to provide a minimum of 1/2" depth. Do not install repairs that have a feathered edge (see diagram below), incorrect installation will cause repairs to fail prematurely. Wash the prepared surface with clean water and a bristle brush to remove dust from the pores.



Section: Correct (*Square Cut*) Surface Preparation



Section: Incorrect (*Feathered Edge*) Surface Preparation

## Exposed Ferrous Metals

In the event that ferrous metal reinforcement (rebar, threaded rod, etc.) is exposed within the repair area or repairs are adjacent to ferrous metal jambs, lintels, anchoring systems etc., the Coronado Surface Tolerant Mastic 113 Line must be applied to all properly prepared ferrous metal surfaces before repairs are made. Refer to the Technical Data Sheets within Cathedral Stone's Product line for proper preparation and use of the Coronado Surface Tolerant Mastic 113 Line.

## Mixing

The mixing ratio is approximately 4 to 4½ parts powder to 1 part water by volume, **depending on temperature and humidity.** More water may be required as ambient temperature rises. The mixing may be done by hand, stirring until the mortar is thoroughly mixed. The mortar should be the consistency of stiff putty, without lumps. M100 may also be mixed using a slow speed drill (400 - 600 rpm) equipped with a Jiffler-type mixing paddle. For best results, add the powder to the water slowly. The working time will vary, depending upon wind, temperature, and humidity. Using excessive water in the mixture may affect the color of the repair.

## Application

Moisten the substrate using clean water. Jahn Mortar should be applied to a glistening wet surface on vertical applications and a well-dampened surface (with no pooling water) on horizontal applications. **If the surface is allowed to dry out before applying**

**M100, this step must be repeated. This is very important.**

The next step of the application is what CSP has termed the "Peanut Butter" coat. The Jahn mortar should be mixed with water to the consistency of wet putty. Apply the "Peanut Butter" coat to the glistening wet substrate approximately 1/8 inch thick. **Important – To achieve proper bond, the "Peanut Butter" coat must not dry out prior to application of Jahn Mortar (4.5:1) mix!**

Since the working consistency of M100 is somewhat wet, large repairs may require successive applications in order to avoid material slump. If this is necessary, be sure to remove the shiny cement skin that sometimes forms on the surface by scraping away 1/16" of material. This will open the pores before an additional layer of material is applied. Dampen surface and continue application.

Build up material beyond the surface of the substrate. The waiting period before finishing will vary, depending upon wind, temperature, and humidity. After achieving initial set, scrape away excess mortar until the desired profile is reached.

Use a Terra Cotta Coating System Flat, Low Lustre or Semi Gloss to simulate the original terra cotta glaze. System can be applied once repairs are completely cured (28 days).

## Curing

Periodically mist M100 repairs using clean water for at least a 72-hour period. The timing for initial misting will vary with ambient conditions. Hot, dry conditions may require misting in 30 to 60 minutes. Cooler, damp conditions may require waiting several hours before beginning the curing process. Mist several times a day. Should access to the repairs be impossible over a period of time, plastic may be used to cover them temporarily. The application of plastic, however, does not remove the need for normal curing techniques.

## Clean Up

Remove uncured mortar from the perimeter of the repair before it dries using clean water and a rubber sponge. **Repeat several times with clean water to prevent a halo effect (staining of adjacent masonry).** Cured mortar may only be removed chemically or mechanically.

## Safety Requirements

It is recommended that safety goggles, gloves, and a dust mask equipped with P-2 filters (or equivalent) be worn for protection while mixing.

## Limitations

- Do not apply Jahn Mortar to a frozen or exceedingly hot substrate. The applied mortar must be protected from extreme heat, freezing, excessive wind, direct sunlight, and rain. Ambient

temperature range should be 40° F to 90° F with low to average humidity.

- Do not add bonding agents to Jahn Mortar or use them as surface preparation materials.
- Minimum thickness of mortar application is 1/2"

## Packaging and Coverage

A 5-gallon plastic pail contains approx. 44 lb. of material. This will cover 0.5 cubic ft. (12 sq. ft. at 1/2" thickness).

## Storage And Shelf Life

Store material in a dry area away from direct sunlight. Ambient storage conditions should be in the range of 40° F to 90° F with low to average humidity. Average shelf life is 6 months in original, unopened packaging.

## Technical Data

### Jahn M100

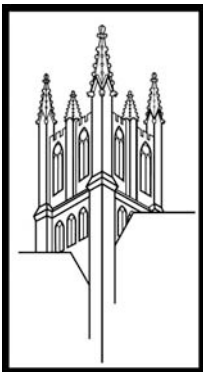
<b>LIQUID/PLASTIC PHASE</b>	
Ratio of water/dry material	3 fl. oz. to 4.5 lb.
Volume per pound mixed mortar	12.0 fl. oz./lb
<b>HARDENED PHASE</b>	
Compressive strength	3000 to 3800 psi
Tensile bending strength	619 psi
Tensile strength	150 psi
Linear coefficient of thermal expansion	0.1E-06 to 0.3E-06 in inches °F
Modulus of elasticity	218 to 1540 ksi
Open porosity (%)	4.2 to 16.5
Specific gravity	1.3

## Warning

Not for internal consumption. Keep out of reach of children and animals. Consult Material Safety Data Sheet (MSDS) for specific information.

**Notice:** The information contained herein is based on our own research and the research of others, and it is provided solely as a service to help users. It is believed to be accurate to the best of our knowledge. However, no guarantee of its accuracy can be made, and it is not intended to serve as the basis for determining this product's suitability in any particular situation. For this reason, purchasers are responsible to make their own tests and assume all risks associated with using this product.

02/2012



## Cathedral Stone® Products

7266 Park Circle Drive  
 Hanover, Maryland 21076  
 (800) 684-0901 FAX: (410) 782-9155  
 www.cathedralstone.com

### Jahn Restoration Mortar (Jahn M-Products) Material Safety Data Sheet

#### Section I –Product and Company Identification

<b>Trade Name:</b> Jahn Restoration Mortar	<b>Date Prepared:</b> 9/10/2008
<b>Supplier:</b> Cathedral Stone Products	<b>Manufacturer:</b> Cathedral Stone Products
<b>Address:</b> 7266 Park Circle Drive Hanover, Maryland 21076, U. S. A.	<b>Address:</b> 7266 Park Circle Drive Hanover, Maryland 21076, U. S. A.
<b>Emergency Number:</b> Chemtrec (800) 424-9300 Customer Code: CDTS	
<b>Telephone Number:</b> (410) 782-9150	
<b>Fax Number:</b> (410) 782-9155	

#### Section II –Composition/ Information on Ingredients

Ingredient Names	OSHA PEL	ACGIH TLV	NOISH (RTECS)#
Silicon Dioxide (Quartz) (CAS: 14808-60-7)	See table Z3	0.1 mg/m <sup>3</sup> Rdust; 9293	VV7330000
Non-Hazardous Aggregate	N/A	N/A	1000314NH
Tricalcium Silicate (CAS: 12168-85-3)	N/A	N/A	1004122TS
Dicalcium Silicate	N/A	N/A	1004278DS
Tricalcium Aluminate (CAS: 12042-78-3)	N/A	N/A	1004124TA
Calcium Oxide (CAS: 1305-78-8)	5mg/m <sup>3</sup>	2mg/m <sup>3</sup>	EW3100000
Non-Hazardous Ingredients: Inorganic pigments	N/A	N/A	10000314NH

#### Section III – Physical/Chemical Characteristics

<b>Boiling Point:</b> N/A	<b>Specific Gravity:</b> 1400/1700 kg/m <sup>3</sup>
<b>Vapor Pressure:</b> N/A	<b>Melting Point:</b> N/A
<b>Vapor Density (Air=1):</b> N/A	<b>Evaporation Rate:</b> N/A
<b>Solubility in Water (20° C):</b> Negligible	<b>Solubility in Other Solvents:</b> N/A
<b>Color:</b> White to Pastel	<b>Odor:</b> No Odor

#### Section IV – Fire and Explosion Hazard Data

<b>Flash Point:</b> N/A	
<b>Extinguishing Media:</b> Media Suitable for Surrounding Fire (FP N).	
Special Fire Fighting Procedure: Wear NIOSH / MSHA Approved SCBA & Full Protective Equip. (FP N).	
<b>Unusual Fire and Explosion Hazards:</b> Not Relevant	

#### Section V – Reactivity Data

<b>Stability:</b> Yes	<b>Conditions to Avoid Stable (Stability):</b> N/A
<b>Incompatibility (Materials to Avoid):</b> N/A	
<b>Hazardous Polymerization:</b> No	<b>Conditions to Avoid (Hazardous Polymerization):</b> Not Relevant



**Cathedral Stone Jahn Mortars**  
**Material Safety Data Sheet**

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**Section VI – Health Hazard Data**

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**Primary Routes of Entry:** Inhalation Ingestion

**Health Hazard acute and Chronic:** Eye and Skin Irritation, Removes Oil From Skin.

**Other Potential Health Risks:** None

**Carcinogenicity – NTP:** Yes

**Carcinogenicity – IARC:** Yes

**Carcinogenicity – OSHA:** No

**Explanation Carcinogenicity:** Not Relevant

**Signs / Symptoms of Exposure:** See Health Hazards

**Medical Condition Aggravated by Exposure:** None Specified by Manufacturer.

**Contact with Eyes:**

IMMEDIATELY FLUSH WITH POTABLE WATER FOR A MINIMUM OF 15 MINUTES, SEEK ASSISTANCE FROM MD (FP N). INHALATION: REMOVE TO FRESH AIR. SUPPORT BREATHING (GIVE O<sup>2</sup>/ARTF RESP) (FP N). INGESTION: CALL MD IMMEDIATELY (FP N).

---

**Section VII – Safe Handling and Use Information**

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**Steps to be Taken in Case Material is Released or Spilled:** Normal Clean Up.

**Neutralizing Agent:** None Specified by Manufacturer.

**Waste Disposal Method:** If This Material as Provided by the Manufacturer, Becomes a Waste, It Doesn't Meet the Criteria of a Hazardous Waste as Defined by the EPA Under Authority of the RCRA. Disposal Must be in Accordance With Federal, State, or Local Regulations (FP N).

**Precautions-Handling / Storage:** Store Dry

**Other Precautions:** Avoid Contact Between Skin Surfaces and Wet Mortar, or Clothing Saturated With Wet Mortar. Wash Clothing in Clean Water.

**Normal Use:** Mix With Water and Use Within 30 Minutes. Do Not Use Under 5°C (41°F).

---

**Section VIII – Control Measures**

---

**Protective Gloves:** Impervious Gloves Recommended.

**Respiratory Protection:** NIOSH / MSHA Approved Dust Respirator.

**Ventilation:** N/A

**Eye Protection:** Chemical Worker's Goggles.

**Other Protective Equipment:** None Specified by Manufacturer.

**Work Hygienic Practices:** None Specified by Manufacturer.

**Suppl. Safety and Health Data:** None Specified by Manufacturer.

---

**Section IX – Label Data**

---

**Label Required:** Yes

**Label Status:** G

**Common Name:** Cementitious Mortar

**Special Hazard Precautions:** Inhalation: Pulmonary Diseases. Dust Can Cause Inflammation of the Lining Tissue of the Interior of the Nose and Inflammation of the Cornea.

**Label Name:** Cathedral Stone Products, Inc.

**Label Street:** 7266 Park Circle Drive

**Label City:** Hanover

**Label State:** Maryland

**Label Zip Code:** 21076

**Label Emergency Number:** (410)782-9150 Fax: (410)782-9155

---

**Section XX – Transportation**

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**DOT Shipping:** N/A

**DOT Hazard:** N/A

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**Section XXI**

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*Disclaimer:*

Although reasonable care has been taken in preparation of this document, we extend no warranties, and make no representations as to the accuracy or completeness of information Contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for his or her particular purpose.

# Safety Data Sheet

## ACRYL 60

Revision date : 2011/10/05

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(30337726/SDS\_GEN\_US/EN)

### 1. Product and Company Identification

Use: Product for construction chemicals

CompanyBASF CORPORATION  
100 Campus Drive  
Florham Park, NJ 07932, USA24 Hour Emergency Response InformationCHEMTREC: 1-800-424-9300  
BASF HOTLINE: 1-800-832-HELP

Chemical family: acrylic polymers, aqueous solution

### 2. Hazards Identification

Emergency overviewCAUTION:  
NO PARTICULAR HAZARDS KNOWN.  
Keep container tightly closed.  
Avoid ingestion.  
Avoid contact with the skin, eyes and clothing.  
Wash thoroughly after handling.State of matter: liquid  
Colour: white  
Odour: ammonia-likePotential health effects**Primary routes of exposure:**

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

**Acute toxicity:**

Ingestion may cause gastrointestinal disturbances. The product has not been tested. The statement has been derived from products of a similar structure or composition.

**Irritation / corrosion:**

May cause slight irritation to the eyes. May cause slight irritation to the skin. The product has not been tested. The statement has been derived from products of a similar structure or composition.

**Sensitization:**

There is no evidence of a skin-sensitizing potential. The product has not been tested. The statement has been derived from products of a similar structure or composition.

**Chronic toxicity:**

# Safety Data Sheet

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**Carcinogenicity:** The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

**Repeated dose toxicity:** No reliable data was available concerning repeated dose toxicity.

**Reproductive toxicity:** The chemical structure does not suggest such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

**Teratogenicity:** The chemical structure does not suggest such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

**Signs and symptoms of overexposure:**

No significant symptoms are expected due to the non-classification of the product.

**Potential environmental effects**

**Aquatic toxicity:**

At the present state of knowledge, no negative ecological effects are expected. There is a high probability that the product is not acutely harmful to aquatic organisms. The product has not been tested. The statement has been derived from products of a similar structure or composition.

---

### 3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
-------------------	----------------------	----------------------

---

### 4. First-Aid Measures

**General advice:**

First aid personnel should pay attention to their own safety. Remove contaminated clothing.

**If inhaled:**

If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

**If on skin:**

After contact with skin, wash immediately with plenty of water and soap. If irritation develops, seek medical attention.

**If in eyes:**

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

**If swallowed:**

Rinse mouth immediately and then drink plenty of water, seek medical attention. Do not induce vomiting unless told to by a poison control center or doctor.

**Note to physician**

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

---

### 5. Fire-Fighting Measures

Flash point:

A flash point determination is unnecessary due to the high water content.

Lower explosion limit:

No data available.

Upper explosion limit:

No data available.

# Safety Data Sheet

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**Suitable extinguishing media:**  
foam, water spray, dry powder, carbon dioxide

**Unsuitable extinguishing media for safety reasons:**  
water jet

**Hazards during fire-fighting:**  
carbon monoxide, carbon dioxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

**Protective equipment for fire-fighting:**  
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

**Further information:**  
Sealed containers should be protected against heat as this results in pressure build-up. Keep containers cool by spraying with water if exposed to fire.

---

## 6. Accidental release measures

**Personal precautions:**  
Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Sources of ignition should be kept well clear. Handle in accordance with good building materials hygiene and safety practice.

**Environmental precautions:**  
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

**Cleanup:**  
For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.  
For large amounts: Pump off product.

---

## 7. Handling and Storage

### Handling

**General advice:**  
Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

**Protection against fire and explosion:**  
No special precautions necessary.

### Storage

**General advice:**  
Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Store protected against freezing. Protect from direct sunlight.

**Temperature tolerance**  
Protect from temperatures below: 0 °C  
PROTECT FROM FREEZING DURING THE COLD-SEASON (BELOW 40°F / 5°C ).  
Protect from temperatures below: 32 °F  
Freezing may permanently damage product.

---

## 8. Exposure Controls and Personal Protection

# Safety Data Sheet

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### Personal protective equipment

#### **Respiratory protection:**

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) respirator as necessary.

#### **Hand protection:**

Chemical resistant protective gloves

#### **Eye protection:**

Safety glasses with side-shields.

#### **Body protection:**

Body protection must be chosen based on level of activity and exposure.

#### **General safety and hygiene measures:**

In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

## 9. Physical and Chemical Properties

Form:	liquid	
Odour:	ammonia-like	
Colour:	white	
pH value:	9.5 - 10	( 20 °C)
<i>Information on: Water</i>		
solidification temperature:	0 °C	
-----		
<i>Information on: Water</i>		
boiling temperature:	100 °C	( 1,000 hPa)
-----		
<i>Information on: Water</i>		
Vapour pressure:	23 mbar	( 20 °C)
-----		
Density:	1.03 g/cm <sup>3</sup>	( 20 °C)
Vapour density:		Heavier than air.
Partitioning coefficient n-octanol/water (log Pow):		No data available.
Viscosity, dynamic:	approx. 30 mPa.s	( 20 °C)
% volatiles:		
Solubility in water:		( 20 °C) dispersible
Miscibility with water:		( 20 °C) miscible
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

## 10. Stability and Reactivity

#### **Conditions to avoid:**

See MSDS section 7 - Handling and storage.

#### **Substances to avoid:**

strong acids, strong bases, strong oxidizing agents

#### **Hazardous reactions:**

The product is stable if stored and handled as prescribed/indicated.

#### **Decomposition products:**

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No hazardous decomposition products if stored and handled as prescribed/indicated.

**Thermal decomposition:**

No decomposition if stored and handled as prescribed/indicated.

**Corrosion to metals:**

No corrosive effect on metal.

---

## 11. Toxicological information

**Other Information:**

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

---

## 12. Ecological Information

**Degradability / Persistence  
Biological / Abiological Degradation**

Evaluation: Inherently biodegradable.  
The insoluble fraction can be removed by mechanical means in suitable waste water treatment plants.

**Bioaccumulation**

No data available concerning bioaccumulation.

**Other adverse effects:**

Ecological data are not available. Do not allow to enter soil, waterways or waste water channels.

---

## 13. Disposal considerations

**Waste disposal of substance:**

Do not discharge into drains/surface waters/groundwater. Dispose of in a licensed facility.

**Container disposal:**

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

---

## 14. Transport Information

**Land transport**

USDOT

Not classified as a dangerous good under transport regulations

**Sea transport**

IMDG

Not classified as a dangerous good under transport regulations

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**Air transport**  
IATA/ICAO

Not classified as a dangerous good under transport regulations

---

### 15. Regulatory Information

**VOC content:**  
0 g/l

#### Federal Regulations

**Registration status:**  
Chemical TSCA, US released / listed

**OSHA hazard category:** No data available.;

**EPCRA 311/312 (Hazard categories):** Not hazardous;

#### State regulations

**CA Prop. 65:**  
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

---

### 16. Other Information

#### **HMIS III rating**

Health: 1 Flammability: 0 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

---

**MSDS Prepared by:**  
BASF NA Product Regulations  
msds@basf.com  
MSDS Prepared on: 2011/10/05

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR

# Safety Data Sheet

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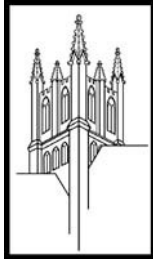
Version: 2.1

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END OF DATA SHEET





# Silin

## Lasur

### Mineral Stain for Masonry



Cathedral Stone Products® Inc. introduces Silin® Lasur Stain, for use on masonry, stucco, and plaster. The Lasur stain is ideal for interior and exterior surfaces plastered with cementitious mortars. The stain is completely inorganic and after drying, produces a flat finish. The glaze is non-flammable and does not develop toxic gases. The Silin® Lasur silicifies with the substrate and preserves its breathability.

Application is by brush, roller and airless sprayer. For more decorative finishes, the use of sponges and brushes are acceptable.

### Features and Benefits

- ***Specially Formulated for Masonry***
- ***97% Vapor Permeable***
- ***Color Fast***
- ***Retards Corrosion***
- ***Fire Retardant***
- ***Withstands Extreme Climate Conditions***
- ***Easy to Apply***

### Application Procedures

#### ***Surface Preparation***

All mineral surfaces are suitable if they have cured and are clean, solid, dry and absorbent. Wood, plastics or oil paints and enamel coatings are not suitable as a substrate. *For substrates containing gypsum, contact us for special assistance.* Repairs of the plaster have to be executed with an adequate mortar. The surface of the repaired areas should match the texture and color of the existing surface. Hairline cracks must be repaired prior to application. Silin Lasur must be applied to clean masonry surfaces. Any previous coating must be removed prior to application. Temperature (ambient and substrate) must be at least 45° F (8° C) and below 90° F (32° C). Do not apply the Silin Lasur when precipitation is expected within 48 hours of application. Do not install Silin Lasur when the temperature is expected to reach the dew point within 24 hours. Do not work in the

direct sun. Always maintain a wet edge when applying Lasur. Silin Lasur is designed for vertical surfaces only. Horizontal surfaces, especially where water can pool, are not suitable for application.

***PROTECT ALL AREAS THAT ARE NOT GETTING COATED, ESPECIALLY GLASS. Once the Lasur dries, it becomes part of the substrate and cannot be removed.*** Do not apply under wet conditions.

### ***Apply a Sample First***

A sample should always be applied and evaluated for color before any large areas are coated. For a more accurate color representation, allow one to two days after applying the sample before determining if the color is acceptable.

### **Mixing**

The ratio of the mixture between Silin® Lasur and Silin® AZ-Fixative depends on the desired effect of the stain. **The more Silin® AZ-Fixative used, the more transparent the stain.** Different substrates with varying degrees of porosities will also have a greater or lesser effect on the color. To avoid a glass effect, dilute Silin® AZ-Fixative with water. Colors should be tested and adjusted on site.

### **Clean Up**

Place tools in clean water when stopping work. Clean tools with clean water immediately after finishing work. Dried Silin® Lasur is insoluble in water.

### **Coverage**

The coverage depends on the proportion in the mixture and the absorptive capacity of the substrate. The exact quantities needed have to be determined on a trial area.



## Safety Information

Eye protection should be worn during mixing to protect eyes. Avoid contact with skin and mucous membranes. Work in well ventilated area.

### Formulation Chart

Degree of Transparency	Parts Silin Stain	Parts Silin AZ-Fixative	Dilution of Silin AZ-Fixative
Low	1	3 - 5	Undiluted
Medium	1	6 - 25	Diluted 1:1 with water
High	1	26 - 100	Diluted 1:2 with water

## Storage and Shelf Life

Store in a cool place. Use stain within twelve months time. Stir well before using.

## Warning

Not for internal consumption. Keep out of the reach of children and animals.

## Packaging and Coverage

Silin Lasur is available in a kit. Individual components can be purchased separately. Colors in the Silin Lasur kit were chosen to achieve a large variety of natural earth tones. Additional colors are available (see color chart). Coverage will vary greatly depending on degree of transparency (See formulation chart) and the porosity of the substrate.

### Silin Lasur Kit

<u>Item</u>	<u>Quantity</u>
Silin AZ Fixative	10 liters (approx. 2.6 gallons)
White	1 pint
A52 – Ochre	1 pint
A53 – Terra Cotta Red	1 pint
A54 – Red	1 pint
A56 – Green	1 pint
A57 – Umber	1 pint
A58 – Black	1 pint
A59 – Brown	1 pint
Color Fan	1 unit
Toolbox	1 unit
Graduated Syringes	2 units

### Color Chart

<u>Color Number</u>	<u>Color Name</u>
A51	Bright Yellow
A52	Ochre
A53	Terra Cotta Red
A54	Red
A55	Marine Blue
A56	Green
A57	Umber
A58	Black
A59	Brown
A60	Cobalt Blue
A61	Lasur Blue
A62	Light Green
A63	Goldenrod
A64	Clay
A65	Gray
WeiB	White

**Notice:** The information contained herein is based on our own research and the research of others, and it is provided solely as a service to help users. It is believed to be accurate to the best of our knowledge. However, no guarantee of its accuracy can be made, and it is not intended to serve as the basis for determining this product's suitability in any particular situation. For this reason, purchasers are responsible to make their own tests and assume all risks associated with using this product.

06/2006



## Cathedral Stone® Products

7266 Park Circle Drive  
Hanover, Maryland 21076  
(800) 684-0901 FAX: (410) 782-9155  
www.cathedralstone.com

### Silin Lasur Material Safety Data Sheet

#### Section I – Product and Company Identification

<b>Product Identity:</b> Silin Lasur (Stain)	<b>Date Prepared:</b> 12/01/08
<b>Supplier:</b> Cathedral Stone Products	<b>Manufacturer:</b> Van Baerle & Co.
<b>Address:</b> 7266 Park Circle Drive Hanover, Maryland 21076, U. S. A.	<b>Address:</b> Mainzer Str. 35 D-64679 Gersheim/Rhein, Duitsland
<b>Emergency #:</b> Chemtrec (800) 424-9300	
Customer Code: CDTS	
<b>Telephone Number:</b> (410) 782-9150	<b>Telephone Number:</b> 001-49-625-89400
<b>Fax Number:</b> (410) 782-9155	<b>FAX Number:</b> 001-49-625-82561

#### Section II – Composition/ Information on Ingredients

Ingredient Names	OSHA/PEL	TLV
Liquid Potassium Silicate( <i>f</i> *) (CAS: 1312-76-1)	NE	NE
Non-Hazardous Acrylates (2%)	NA	NA
Non-Hazardous Pigments	NA	NA
Non-Hazardous Fillers	NA	NA

*f* - Federal Hazard List

\* - Hazardous only as dust when product is sanded.

#### Section III – Physical/Chemical Characteristics

<b>Boiling Point:</b> 100° C (water)	<b>Specific Gravity:</b> Not specified by the manufacturer
<b>Vapor Pressure:</b> Non-volatile	<b>Melting Point:</b> N/A
<b>Density (20° C):</b> Approx 1,54 g/cm <sup>3</sup>	<b>Evaporation Rate:</b> Slower than Ether
<b>Solubility in Water (20° C):</b> Miscible	<b>pH Value:</b> Approx. 12
<b>Color:</b> All	<b>Odor:</b> Weak

#### Section IV – Fire and Explosion Hazard Data

<b>Flash Point:</b> None	<b>Flammable Limits:</b> N/A	<b>LEL:</b> N/A
<b>Extinguishing Media:</b> All extinguishing media		
<b>Special Fire Fighting Procedure:</b> N/A		
<b>Unusual Fire and Explosion Hazards:</b> None specified by the manufacturer		

#### Section V – Reactivity Data

<b>Stability:</b> Stable	<b>Conditions to Avoid Stable (Stability):</b> N/A
<b>Incompatibility (Materials to Avoid):</b> None reasonably foreseeable	
<b>Hazardous Polymerization:</b> Will Not Occur	<b>Conditions to Avoid (Hazardous Polymerization):</b> N/A

**Silin Lasur for Masonry**  
**Material Safety Data Sheet**

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**Section VI – Health Hazard Data**

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**Primary Routes of Entry:** Dermal Inhalation Ingestion

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**Effects of Overexposure (Acute)**

**Inhalation:** Irritation of the respiratory tract

**Skin and Eye Contact:** Primary irritation

**Ingestion:** Ingestion of large amounts can cause serious injury

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**Effects of Overexposure (Chronic) :** None known

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**Carcinogenicity:** N/A

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**Medical Conditions Prone to Aggravation by Exposure:** None expected when used in accordance with Safe Handling and Use Information in Section VIII.

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**Emergency and First Aid Procedures**

**Inhalation:** Remove to fresh air. Get medical help for any breathing difficulty.

**Eye Contact:** Flush thoroughly with water for 15 minutes. If irritation persists, call physician.

**Skin Contact:** Wash with soap and water

**Ingestion:** Drink 1 or 2 glasses of water to dilute. Do NOT induce vomiting. Call a physician.

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**Section VII – Spill or Leak Procedures**

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**Steps to be Taken in Case Material is Released or Spilled:**

Flush with water. Absorb with sawdust or rags.

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**Waste Disposal Method:**

Conventional procedures in compliance with local, state, and federal regulations.

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**Section VIII – Safe Handling and Use Information**

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**Respiratory Protection:** Use NIOSH approved respirator specified for protection against paint spray mist and sanding dust in restricted or confined areas.

**Ventilation:** Work in well ventilated area. Mechanical exhaust may be required in confined areas.

**Protective Gloves:** Use waterproof gloves during repeated contact.

**Eye Protection:** Splash goggles or safety glasses with side shields.

**Other Protective Equipment:** Clothing adequate to protect skin.

**Hygienic Practices:** Remove and wash clothing before reuse. Wash hands before eating, smoking, or using the lavatory. Wash thoroughly after handling.

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**Section IX – Special Precautions**

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**Precautions to Be Taken in Handling and Storage** Protect against freezing.

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**Other Precautions:**

Due to high pH value there exists danger of corrosion. Avoid contact with eyes, prolonged contact with skin, or breathing of spray mist or sanding dust. Close container after each use. Do not take internally. Keep out of reach of children.

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**Section XX – Transportation**

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**DOT Shipping:** N/A

**DOT Hazard:** N/A

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**Section XXI**

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**Disclaimer:**

Although reasonable care has been taken in preparation of this document, we extend no warranties, and make no representations as to the accuracy or completeness of information Contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.

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