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U.S. General Services Administration

# Cleaning Darkened Or Discolored Travertine

**Procedure code:**

440002S

**Source:**

Apt Bulletin, V. 23, N. 2 (1991), Doebly, Lewin & Aronson

**Division:**

Masonry

**Section:**

Stonework

**Last Modified:**

02/10/2017

## PART 1---GENERAL

### 1.01 SUMMARY

A. This procedure includes guidance on cleaning darkened or discolored travertine.

B. Travertine naturally darkens over time. The iron compounds in the stone, when combined with oxygen, eventually produce a dark reddish-brown tone.

C. Travertine may also darken from accumulations of particulate dirt.

D. See 01100-07-S for general project guidelines to be reviewed along with this procedure. These guidelines cover the following sections:

1. Safety Precautions
2. Historic Structures Precautions
3. Submittals
4. Quality Assurance
5. Delivery, Storage and Handling
6. Project/Site Conditions
7. Sequencing and Scheduling
8. General Protection (Surface and Surrounding)

These guidelines should be reviewed prior to performing this procedure and should be followed, when applicable, along with recommendations from the Regional Historic Preservation Officer (RHPO).

## PART 2---PRODUCTS

### 2.01 MATERIALS

**NOTE:** Chemical products are sometimes sold under a common name. This usually means that the substance is not as pure as the same chemical sold under its chemical name. The grade of purity of common name substances, however, is usually adequate for stain removal work, and these products should be purchased when available, as they tend to be less expensive. Common names are indicated below by an asterisk (\*).

A. Synthetic detergent containing sodium dodecylsulphonate and marketed for use in home laundry, such as "FAB" detergent, or approved equal.

B. Sodium Hypochlorite (NaOCl):

1. An unstable salt produced usually in aqueous solution and used as a bleaching and disinfecting agent.
2. Other chemical or common names include Bleaching solution\*; Household bleach\*; Laundry bleach\*; Solution of chlorinated soda\*.
3. Potential Hazards: CORROSIVE TO FLESH.
4. Available from chemical supply house, grocery store or supermarket, hardware store or janitorial supply distributor.

-OR-

Calcium Hypochlorite (CaCl<sub>2</sub>O<sub>2</sub>):

5. A white powder used especially as a bleaching agent and disinfectant.
6. Other chemical or common names include Chlorinated calcium oxide; Bleaching powder\*; Calcium oxymuriate\*; Chloride of lime\*; Chlorinated lime\*; Hypochlorite of lime\*; Oxymuriate of lime\*.
7. Potential Hazards: CORROSIVE TO FLESH; FLAMMABLE (WHEN IN CONTACT WITH ORGANIC SOLVENTS).
8. Available from chemical supply house, dry cleaning supply distributor, drugstore or pharmaceutical supply distributor, janitorial supply distributor, swimming pool supply distributor, or water and sanitation supply distributor.

C. Clean, dry cloths

D. Clean, potable water

### 2.02 EQUIPMENT

A. Garden hose

B. Stiff bristle brushes and/or acrylic mesh pads

C. Paint rollers (for large surface areas)

D. Squeegees and/or wet/dry shop vacuums.

## PART 3---EXECUTION

### 3.01 PREPARATION

A. Surface Preparation: Conduct test on small area to determine time required to remove the soiling without overcleaning.

### 3.02 ERECTION, INSTALLATION, APPLICATION

**NOTE:** THE EFFECTS OF THIS PROCEDURE ARE ONLY TEMPORARY. THE STONE WILL AGAIN, OVER TIME, DARKEN DUE TO THE REFORMING OF IRON OXIDE ON THE SURFACE OF THE STONE.

**CAUTION:** ACIDIC AND ALKALINE CLEANERS WILL ETCH TRAVERTINE AND MAY INTRODUCE SOLUBLE SALTS INTO THE POROUS MATERIAL.

**CAUTION:** CLEANERS CONTAINING SODIUM CARBONATE OR ACIDIC PHOSPHATES ARE HARMFUL TO TRAVERTINE AND CAN DAMAGE THE SURFACE.

**NOTE:** WHEN CLEANING, AVOID OVERCLEANING. AIM FOR ACHIEVING 85% CLEAN. MOST DAMAGE OCCURS WHEN ATTEMPTING TO CLEAN THE LAST 15%.

**NOTE:** BEGIN CLEANING BY USING THE GENTLEST METHOD POSSIBLE. TEST CLEAN A SMALL AREA BEFORE ATTEMPTING TO CLEAN LARGE AREAS. TEST IN AN INCONSPICUOUS LOCATION.

A. Thoroughly wet the surface to be cleaned.

B. Apply synthetic detergent in a 1-2% aqueous solution.

1. For small areas, scrub the surface with stiff bristle brushes and acrylic mesh pads.
2. For large areas, apply with paint rollers and allow to remain on the surface for the length of time determined by previous testing.

C. Thoroughly rinse the surface with clean, clear water and allow to dry. For interior applications, contain liquids using squeegees and wet/dry shop vacuums.

D. If some soiling still remains, scrub with a 5-1/4% solution of sodium hypochlorite or calcium hypochlorite, or apply cloths soaked in bleach.

**CAUTION:** BLEACH CAN IRRITATE THE SKIN AND CAN CAUSE BLISTERING OF EYES AND MUCOUS MEMBRANES. IT IS ALSO TOXIC IF INGESTED. WASH HANDS THOROUGHLY AFTER USE.

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Last Reviewed: 2018-10-25