U.S. General Services Administration

# Removing Dirt from Brick Masonry

**Procedure code:**
421109S
**Source:**
The Brick Industry Association. "Technical Note 20. Cleaning Brickwork". June, 2006.
**Division:**
Masonry
**Section:**
Brick Unit Masonry
**Last Modified:**
08/12/2016

PREFACE

The cleaning or removal of stains from masonry may involve the use of liquids, detergents or solvents which may run off on adjacent material, discolor the masonry or drive the stains deeper into the porous masonry. Use the products and techniques described here only for the combinations of dirt/stain and masonry specified.

PART 1---GENERAL

1.01 SUMMARY

A. This specification provides guidance on cleaning brick masonry to remove accumulations of surface dirt.

B. Read "General Project Guidelines" along with this specification. 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). The 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)

PART 2---PRODUCTS

2.01 MANUFACTURERS

A. Diedrich Technologies, Inc.

Schenectady, NY 12303

1-800-283-3888

B. ProSoCo, Inc.

Lawrence, KS 66117

1-800-255-4255

2.02 MATERIALS

A. For Light Dirt:

1. Trisodium Phosphate:

a. NOTE: THIS CHEMICAL IS BANNED IN SOME STATES SUCH AS CALIFORNIA. REGULATORY INFORMATION AS WELL AS ALTERNATIVE OR EQUIVALENT CHEMICALS MAY BE REQUESTED FROM THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REGIONAL OFFICE AND/OR THE STATE OFFICE OF ENVIRONMENTAL QUALITY.

b. Strong base-type powdered cleaning material sold under brand names.

c. Other chemical or common names include Sodium Orthophosphate, Tribasic sodium phosphate, Trisodium orthophosphate, TSP*, Phosphate of soda*.

d. Potential Hazards: CAUSTIC TO FLESH.

e. Available from chemical supply house, grocery store or supermarket or hardware store.

2. Laundry detergent.

B. For Heavy Dirt: Muriatic acid (generally available in 18 degree and 20 degree Baume solutions):

1. CAUTION: DO NOT USE MURIATIC ACID ON LIGH- COLORED BRICKS. THEY ARE MORE SUSCEPTIBLE TO "ACID BURN" THAN DARKER BRICKS.

2. A strong corrosive irritating acid.

3. Other chemical or common names include Chlorhydric acid; Hydrochloric Acid (30-35%): Hydrogen chloride; Marine acid*; Spirit of salt*; Spirit of sea salt*.

4. Potential Hazards: TOXIC; CAUSTIC TO FLESH; CORROSIVE TO CONCRETE, STEEL, WOOD AND GLASS; FLAMMABLE.

5. Available from chemical supply house, drugstore or pharmaceutical supply distributor, or hardware store.

C. For Rough-textured Brick: Oxalic acid (COOH)2 or (H2C2O4):

1. A poisonous strong acid that occurs in various plants as oxalates and is used especially as a bleaching or cleaning agent and in making dyes.
2. Other chemical or common names include ethanedioic acid.
3. Potential Hazards: TOXIC; CORROSIVE TO CONCRETE, STEEL, WOOD AND GLASS.
4. Available from chemical supply house, dry cleaning supply distributor, drugstore or pharmaceutical supply distributor, hardware store, or photographic supply distributor (not camera shop).
5. Often sold under a manufacturer's brand name; the chemical name may appear on the label.

D. White vinegar or commercial neutralizer such as "101 Masonry Restorer Super Concentrate" (Diedrich Technologies, Inc.) or approved equal.

E. Clean, potable water.

2.02 EQUIPMENT

A. Non-metallic container.

B. Stiff bristle brush.

C. Wooden or other non-metallic scraper.

PART 3---EXECUTION

3.01 ERECTION, INSTALLATION, APPLICATION

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.

A. Mix solution or cleaner:

1. For light dirt: Mix 1/2 cup (0.14 L) trisodium phosphate and 1/2 cup (0.14 L) laundry detergent in 1 gallon (3.79 L) clean, clear water.
2. For heavy dirt:
    a. Mix 9 parts clean water with 1 part muriatic acid in a non-metallic container. POUR ACID INTO WATER, NEVER POUR WATER INTO ACID AS IT MAY CAUSE WATER TO BE SUPER-HEATED.

       CAUTION: DO NOT ALLOW METAL TOOLS TO COME IN CONTACT WITH THE ACID. DO NOT MIX THE ACID SOLUTION STRONGER THAN RECOMMENDED AS A STRONGER CONCENTRATION MAY STAIN THE MASONRY SURFACE.

       -OR-

    b. Use a commercial cleaning compound suitable for use on brick (follow manufacturer's recommended dilution and application instructions).

3. For rough-textured brick: Mix 1 lb (0.45 kg) oxalic acid crystals with 1 gallon (3.79 L) of water.

B. Apply the solution to the brick and scrub the surface using a stiff bristle brush. Allow the solution to remain on the brick for 5 to 10 minutes or as recommended by manufacturer (if proprietary product is used).

C. Use a wooden scraper to remove heavy crusts as necessary. DO NOT USE METAL SCRAPERS OR CHISELS AS METAL MARKS LEFT ON THE BRICK WILL OXIDIZE AND CAUSE STAINING.

D. Thoroughly rinse the surface with clean, clear water and allow to dry.

E. Repeat the process as necessary to achieve the desired level of cleanliness.

F. If acid or commercial cleaner is used, neutralize the surface using white vinegar or a proprietary chemical neutralizer. A neutral pH (7 pH) should be achieved.

1. Allow neutralizer to stand on wall about three minutes before rinsing. DO NOT ALLOW NEUTRALIZER TO DRY!

2. Thoroughly rinse the surface with clean, clear water.

3. Test the pH with litmus paper or phenolphthalein:

a. Dissolve a 2" piece of phenolphthalein in denatured alcohol.

b. Brush the solution onto the surface.

c. If the color of the area where the solution was brushed turns from pink to magenta, there is still chemical residue.

4. Continue to neutralize the surface and test until there is no color change in the phenolphthalein solution or until the litmus paper registers neutral.

Last Reviewed: 2018-10-25