U.S. General Services Administration

Removing Moss Stains from Concrete

Procedure code:
371029S
Source:
Historic Concrete: Investigation and Repair, APT Conference, 1989
Division:
Concrete
Section:
Concrete Cleaning
Last Modified:
12/26/2017

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

PART 1---GENERAL

1.01 SUMMARY

A. This procedure includes guidance on removing moss stains from concrete using chemical solvents.
B. Safety Precautions:
1. DO NOT save unused portions of stain-removal materials.
2. DO NOT store any chemicals in unmarked containers.
3. EXCELLENT VENTILATION MUST BE PROVIDED WHEREVER ANY SOLVENT IS USED. USE RESPIRATORS WITH SOLVENT FILTERS.
4. No use of organic solvents indoors should be allowed without substantial air movement. Use only spark-proof fans near operations involving flammable liquids.
5. Provide adequate clothing and protective gear where the chemicals are indicated to be dangerous.
6. Have available antidote and accident treatment chemicals where noted.
C. See "General Project Guidelines" 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. Chemicals for Cleaning and Removing Concrete Stains
   1. Ammonium Sulfamate:
      CAUTION: THE USE OF AMMONIUM SULFAMATE MAY BE DEPENDENT UPON REGIONAL, STATE OR LOCAL RESTRICTIONS. ENVIRONMENTAL CONDITIONS AND APPROPRIATENESS SHOULD BE REVIEWED. IRRITATION FROM CONTACT OR INHALATION.
      a. Past use was a base for weed killers; Not now readily available; Substitute any brand weed killer solution.
      b. Available from chemical supply house, construction specialties distributor, garden and lawn supply center.
         -OR-
   2. Copper Nitrate:
      a. Other chemical or common names include Cupric Nitrate. DO NOT USE THE COPPER NITRATE KNOWN AS CUPROUS NITRATE.
      b. Potential Hazards: TOXIC AND FLAMMABLE (WHEN IN
      c. CONTACT WITH ORGANIC SOLVENTS).
      d. Available from chemical supply house, drugstore or pharmaceutical supply distributor, garden and lawn supply center, or hardware store.
         -OR-
   3. Copper Sulfate (CuSO45H20):
      a. A sulfate of copper especially the normal sulfate that is white in the anhydrous form but blue in the crystalline hydrous form and that is often used as an algicide and fungicide.
      b. Other chemical or common names include Cupric Sulfate; Blue stone*; Blue vitriol*; Roman vitriol*.
      c. Potential Hazards: TOXIC BY INGESTION AND CONTACT.
      d. Available from chemical supply house, drugstore or pharmaceutical supply distributor, garden and lawn supply center, hardware store, swimming pool supply distributor, or water and sanitation supply distributor.
         -OR-
   4. Formaldehyde (CH2O):
      a. A colorless pungent irritating gas used chiefly as a disinfectant and preservative and in synthesizing other compounds and resins.
      b. Other chemical or common names include Formic aldehyde; Methanal; Methyl aldehyde; Oxomethane; Oxymethylene; Formalin*.
      c. Potential Hazards: TOXIC BY INHALATION OR CONTACT, CARCINOGEN, AND FLAMMABLE.
      d. Available from chemical supply house, dairy supply distributor, drugstore or pharmaceutical supply

distributor, photographic supply distributor (not camera shop), or printer's supply distributor.

-OR-

5. Sodium Hypochlorite (NaOCl):
    a. An unstable salt produced usually in aqueous solution and used as a bleaching and disinfecting agent.
    b. Other chemical or common names include Bleaching solution*; Household bleach*; Laundry bleach*; Solution of chlorinated soda*.
    c. Potential Hazards: TOXIC BY INHALATION AND CONTACT, DO NOT MIX WITH AMMONIA AS CHLORINE GAS IS CREATED; FLAMMABLE IN CONTAC WITH DRY ORGANIC MATERIAL.
    d. Available from chemical supply house, grocery store or supermarket, hardware store or janitorial supply distributor.

B. Chemicals for Sealing Concrete:

1. Magnesium Fluosilicate:
    a. Other chemical or common names include Magnesium silicofluoride.
    b. Potential Hazards: TOXIC.
    c. Available from construction specialties distributor (often sold under manufacturer's brand name; the chemical name may appear on the label).

    -OR-

    d. Paints containing cuprous oxide or mercurous oxide.

2.02 EQUIPMENT

A. Stiff bristle brush (non-metallic)

PART 3---EXECUTION

3.01 PREPARATION

A. Protection:

1. Provide adequate wash solutions (i.e. water, soap and towels) before starting the job.
2. Whenever acid is used, the surface should be thoroughly rinsed with water as soon as its action has been adequate. Otherwise it will continue etching the concrete even though the stain is gone.

3.02 ERECTION, INSTALLATION, APPLICATION

NOTE: DO NOT TRY MORE THAN ONE TREATMENT ON A GIVEN AREA UNLESS THE CHEMICALS USED FROM PRIOR TREATMENT HAVE BEEN WASHED AWAY.

A. To remove moss and related staining:

1. Use ammonium sulfamate and follow manufacturer's instructions for removing moss.

    -OR-

2. Mix one of the following:
    a. Sodium Hypochlorite (laundry bleach, which contains about 5% sodium hypochlorite, is adequate).
    b. Formaldehyde (1 part formalin [37% formaldehyde solution] in 49 parts water).
    c. Copper Nitrate (4 to 7 ounces by weight in 1 gallon of water).
    d. Copper Sulfate (4 to 7 ounces by weight in 1 gallon of water).
    e. Saturate the moss with the chemical using a stiff bristle brush.
3. Allow to sit in place about 7 days. Reapply solution if it rains during the first 24 hours after application.
4. Brush off the dead vegetable growth. The treatment should keep the concrete free of new growth for some time.

B. To seal the concrete (sealing the concrete may make it easier to clean in the future and, at the same time, provide some

fungicidal action against moss growth):

1. Apply a solution of 7 ounces by weight of magnesium fluosilicate in 1 gallon of water.
2. Paints containing cuprous oxide or mercurous oxide (BOTH OF WHICH ARE TOXIC TO HUMANS) may also be applied to inhibit future growth.

Last Reviewed: 2018-10-25