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U.S. General Services Administration

Poulticing Curing Compound Stains From Concrete

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Hstrc Concrete: Investigation & Rpr/Pre-Conf Training - 1989

Division:

Concrete

Section:

Concrete Cleaning

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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 poulticing stains on concrete resulting from curing compounds.
- B. Curing compounds often disappear from concrete with the effects of natural weathering. However, if this is not aesthetically acceptable, chemical agents may be used to assist in stain removal.
- C. 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.
- D. 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).

E. For additional information on poulticing, see 04455-02-R.

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. For Curing Compounds Made of Sodium Silicate:

1. Scouring Powder or detergent

B. For Curing Compounds Based on Wax, Resin or Chlorinated Rubber:

1. Ethylene Dichloride (C₂H₅Cl):

- a. A colorless pungent flammable gaseous or volatile liquid used especially as a local surface anesthetic.
- b. Other chemical or common names include 1,2-dichlorethane; Ethylene dichloride; Glycol dichloride.
- c. Potential Hazards: TOXIC AND FLAMMABLE.
- d. Available from automotive supply distributor, dry cleaning supply distributor, or paint store.

2. Methyl Acetone:

- a. A mixture of various proportions of acetone (47 to 51%), methyl acetate (27.5 to 31%) and methyl alcohol (20 to 25%).
- b. Potential Hazards: FLAMMABLE and Toxic.
- c. Available from chemical supply house, paint store, or photographic supply distributor (not camera shop).

3. Filler material such as diatomaceous earth or talc

4. Mineral water

C. Clean dry towels for blotting the area after treatment

D. Clean, potable water

E. Accessible source of water, soap and towels for washing and rinsing in case of emergencies associated with the use of chemicals

2.02 EQUIPMENT

A. For Poulticing:

1. Glass or ceramic container for mixing the solution
2. Wooden utensil for stirring the ingredients

B. Wood or plastic spatula

C. Stiff bristle brushes (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. For Curing Compounds Made of Sodium Silicate: Remove by scrubbing vigorously with clear water and scouring powder.

B. For Curing Compounds Based on Wax, Resin or Chlorinated Rubber:

1. Mix together 10 parts methyl acetone, 25 parts benzene and 18 parts ethylene chloride. Mix with the whiting or filler material to achieve the desired consistency and quantity of poultice.
2. Thoroughly wet the concrete surface to be treated with clean, clear water.
3. Apply the poultice mixture to the stained area using a wood or plastic spatula and allow to dry. Be sure to spread the poultice well beyond the stained area. The liquid portion of the paste will migrate into the concrete where it will dissolve some of the staining material. Then the liquid will gradually move back beyond the concrete surface and into the poultice, where it will evaporate, leaving the dissolved staining material in the poultice. Leave the poultice in place for 30 to 50 minutes.
4. When the poultice has dried, brush or scrape it off with a wooden scraper.
5. Using a stiff bristle brush, scrub the surface with a detergent and clean water to remove any residual staining.
6. Thoroughly rinse the area with clean, clear water and allow to dry.
7. Repeat the process as necessary to achieve the desired level of cleanliness.
8. If the stains are old, it may be very difficult to completely remove them. It will be important to determine how clean the area must be, because sandblasting or light grinding may be the only way to remove old stains; use of either of these treatments requires consulting and written approval by the RHPO.

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