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GSA U.S. General Services Administration Poulticing Ink Stains From Concrete

Procedure code: 371024S Source: Hstc Concrete: Investigation & Rpr/Pre-Conf Training - 1989 Division: Concrete Section: Concrete Cleaning Last Modified: 02/16/2017

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 various types of ink stains from concrete by poulticing.
- **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:
 - A. Safety Precautions
 - B. Historic Structures Precautions
 - C. Submittals
 - D. Quality Assurance
 - E. Delivery, Storage and Handling
 - F. Project/Site Conditions

- G. Sequencing and Scheduling
- H. 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. Use the following solvents depending on the type of ink stain:
 - 1. For Ordinary Writing Ink Stains:
 - Sodium Perborate:
 - a. Other chemical or common names include Perborax*.
 - b. Potential Hazards: TOXIC AND FLAMMABLE (WHEN IN CONTACT WITH ORGANIC SOLVENTS).
 - c. Available from chemical supply house, drugstore or pharmaceutical supply distributor, grocery store or supermarket.
- B. For Synthetic Dye Ink and Indelible Ink Stains:
 - 1. Ammonium Hydroxide:
 - a. Other chemical or common names include Ammonia water*; Aqua ammonia*; Household ammonia*.
 - b. Potential hazards: TOXIC; MAY IRRITATE THE EYES.
 - c. Available from chemical supply house, grocery store or pharmaceutical supply distributor, or hardware store.

-OR-

d. Javelle Water: (Made by user). See 03710-02-S for materials, equipment and procedures for preparing Javelle Water.

OR-

- 2. Calcium Hypochlorite:
 - a. Other chemical or common names include Chlorinated calcium oxide; Bleaching powder*; Calcium oxymuriate*; Chloride of lime*; Chlorinated lime*; Hypochlorite of lime*; Oxymuriate of lime*.
 - b. Potential Hazards: CAUSTIC TO FLESH; FLAMMABLE (WHEN IN CONTACT WITH ORGANIC SOLVENTS).
 - c. 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.

-OR-

- 3. Potassium Chloride:
 - a. Other chemical or common names include
 - Chloride of potash*; Muriate of potash*; ylvite*.
 - b. Available from chemical supply store, drugstore or pharmaceutical supply distributor. -AND-
 - c. Potassium Hypochlorite:
 - d. Potential Hazards: CAUSTIC TO FLESH
 - e. Available from chemical supply house orhardware store.
- 4. For Prussian Blue Ink Stains: Ammonium Hydroxide (see 2.01 A.2. above)

5. For Black Ink Stains: Scouring powder, strong soap solution or detergent

- C. Cotton wadding for bandage
- D. Mineral water
- E. Plastic sheeting
- F. Clean dry towels for blotting the area after treatment
- G. Masking tape
- H. Clean, potable water
- I. Accessible source of water, soap and towels for washing
- J. and rinsing in case of emergencies associated with the use of chemicals

2.02 EQUIPMENT

- A. Glass or ceramic container for mixing the solution
- B. Wooden utensil for stirring the ingredients
- C. Wood or plastic spatula
- D. Enameled shallow pan
- E. Rubber or plastic buckets or stoneware jar

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 Ordinary Writing Inks:

- 1. Dissolve one or two ounces of sodium perborate in hot water. Sodium perborate is not very soluble, so be patient.
- 2. Soak a bandage of cotton wadding in the solvent to form a paste the consistency of oatmeal.
- 3. Thoroughly wet the concrete surface to be treated with clean, clear water.
- 4. Apply the 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 migrates 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.
- 5. When the poultice has dried, brush or scrape it off with a wooden scraper.
- 6. Using a stiff bristle brush, scrub the surface with scouring powder and clean water to remove any residual staining.
- 7. Thoroughly rinse the area with clean, clear water and blot dry with clean towels.
- 8. If some blue color remains, repeat the process. If a brown color is left, treat the stain by the method for light stains of iron rust See 03710-26-R.
- B. For Synthetic Dye Inks:
 - 1. Synthetic dyes are used to manufacture inks of red, green, violet and other bright colors. Most of these ink stains can be removed using a sodium perborate poultice as described above in 3.01 A. for treating ordinary writing ink stains.

-OR-

2. Apply a poultice of ammonium hydroxide and cotton wadding (see poultice preparation and application procedures described above in Section 3.01 A.2-7.). Repeat the treatment as necessary to achieve the desired level of cleanliness.

-OR-

3. Apply a bandage or poultice containing 1 part Javelle Water diluted with 4 to 6 parts water (see "Making Javelle Water"-S for procedures on preparing Javelle Water). Follow poultice preparation and application procedures described above in Section 3.01 A.2-7. Repeat the treatment as necessary to achieve the desired level of cleanliness.

-OR-

- 4. Apply a poultice containing (by weight) 1 part calcium hypochlorite and 1 part whiting, dry mixed, then added with water to form a thick paste (see poultice preparation and application procedures described above in Section 3.01 A.2-7.). Repeat the treatment as necessary to achieve the desired level of cleanliness.
 -OR-
- 5. Apply a bandage or poultice containing cotton wadding saturated with both potassium chloride and potassium hypochlorite (see poultice preparation and application procedures described above in Section 3.01 A.2-7.). Repeat the treatment as necessary to achieve the desired level of cleanliness.

NOTE: BOTH THE JAVELLE WATER AND HYPOCHLORITES WILL BLEACH COLORED CLOTHING AND BE SLIGHTLY CORROSIVE TO METALS.

- C. For Prussian Blue Inks:
 - 1. Apply a bandage containing cotton wadding mixed with ammonium hydroxide or a strong soap solution (see poultice preparation and application procedures described above in Section 3.01 A.2-7.). Repeat the treatment as necessary to achieve the desired level of cleanliness.
 - 2. NOTE: The iron ferrocyanide of which prussian blueinks are made cannot be removed by the perborate or the hypochlorites used for other inks.
- D. For Indelible Inks: Indelible inks that create a black stain are made with salts.
 - 1. Some indelible inks are made from synthetic dyes and can be removed by following the same procedures listed for synthetic dye ink removal in Section 3.01 B. above.
 - -OR-
 - 2. Apply a bandage containing cotton wadding mixed with ammonium hydroxide (see poultice preparation and application procedures described above in Section 3.01 A.2-7.). Repeat the treatment as necessary to achieve the desired level of cleanliness.
- E. For Black Inks:
 - 1. NOTE: India inks and printing inks are made with finely divided carbon particles suspended in liquid by such materials as gums and shellacs.
 - 2. Using a stiff bristle brush, scrub the stain vigorously with a strong soap solution or scouring powder.
 - 3. Rinse the area thoroughly with clean, clear water.
 - 4. Blot the surface dry with clean towels, and repeat the treatment if the stain persists.