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Removing Blood Stains From Concrete

Procedure code:

371007S

Source:

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

Division:

Concrete

Section:

Concrete Cleaning

Last Modified:

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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 removing blood stains from concrete using sodium peroxide and water

B. Safety Precautions:

2. DO NOT save unused portions of stain-removal materials.
3. DO NOT store any chemicals in unmarked containers.
4. EXCELLENT VENTILATION MUST BE PROVIDED WHEREVER ANY SOLVENT IS USED. USE RESPIRATORS WITH SOLVENT FILTERS.
5. No use of organic solvents indoors should be allowed without substantial air movement. Use only spark-proof fans near operations involving flammable liquids.
6. Provide adequate clothing and protective gear where the chemicals are indicated to be dangerous.
7. Have available antidote and accident treatment chemicals where noted.

C. 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. Sodium Peroxide:

1. Other chemical or common names include Sodium dioxide; Sodium binoxide*.
 2. Potential Hazards: TOXIC (DO NOT BREATHE THE DUST); CAUSTIC TO FLESH; FLAMMABLE (EXPLOSIVE IN WATER, ACID OR ORGANIC SOLVENTS).
 3. Available from chemical supply house, drugstore or pharmaceutical supply distributor, hardware store, paint store, or water and sanitation supply distributor (often sold under a manufacturer's brand name; the chemical name may appear on the label).
- OR-

B. Sodium Orthophosphate:

1. Other chemical or common names include Tribasic
 2. sodium phosphate; Trisodium orthophosphate;
 3. Trisodium phosphate; TSP*; Phosphate of soda*.
 4. Potential Hazards: CAUSTIC TO FLESH.
 5. Available from chemical supply distributor, supermarket, grocery, or hardware store.
- OR-

C. Sodium Thiosulfate - white sal or "hypo" of photographicfixing agent (NA2S2O3):

1. A hygroscopic crystalline salt used especially as a photographic fixing agent and a reducing or bleaching agent.
 2. Other chemical or common names include Sodium hydrosulfite; Sodium Hyposulfite; Sodium subsulfite; Antichlor*; Hypo*; Hyposulfite of soda*.
 3. Potential Hazards: TOXIC; CORROSIVE TO CONCRETE, STEEL, WOOD OR GLASS.
 4. Available from chemical supply house, dry cleaning supply distributor, drugstore or pharmaceutical supply distributor, photographic supply distributor (not camera shop), or water and sanitation supply distributor.
- OR-

D. Hydrogen Peroxide (H2O2):

1. An unstable compound used especially as an oxidizing and bleaching agent, an antiseptic, and a propellant.
2. Other chemical or common names include Peroxide of hydrogen*; Solution of hydrogen dioxide*; Superoxol*; (hydrogen peroxide is commonly sold as a 3% solution; Superoxol is a 30% solution; Superoxol causes flesh burns; 3% hydrogen peroxide does not).
3. Potential Hazards: TOXIC (when concentrated); Caustic to Flesh (gasoline, kerosene and mineral spirits are each a mixture of compounds from petroleum, all of which fall within a specified range of properties); FLAMMABLE (in high concentration).
4. Available from chemical supply house, drugstore, pharmaceutical supply distributor, or hardware store.

E. Acetic Acid:

1. A colorless pungent liquid acid that is the chief acid of vinegar and that is used especially in synthesis (as of plastics).
2. Other chemical or common names include Vinegar acid*. (Vinegar itself, which contains about 4% acetic acid, may be suitable for some purposes requiring acetic acid.)
3. Potential hazards: CAUSTIC TO FLESH AND CORROSIVE TO CONCRETE, STEEL, WOOD OR GLASS.
4. Available from chemical supply house (both commercial and scientific), drugstore or pharmaceutical supply distributor, grocery store or supermarket, or hardware store.

F.Vinegar:

1. Potential Hazards: CORROSIVE TO CONCRETE, STEEL, WOOD OR GLASS.
2. Available from grocery store or supermarket.
3. Vinegar itself, which contains about 4% acetic acid, may be suitable for some purposes requiring acetic acid.

G. Bandaging Materials**H. Clean, portable water****2.02 EQUIPMENT**

- A. Cloth mask
- B. 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
3. 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.

B. Saturate the surface with clear cold water.

C. Carefully sprinkle sodium peroxide powder over the surface in a thin layer.

CAUTION: sodium peroxide dust is highly toxic. Wear a cloth mask over the nose and avoid breathing the sodiumperoxide dust. Also keep all areas of the skin protected from the dust.

1. Solids of sodium orthophosphate, sodium thiosulfate or a liquid 3% solution of hydrogen peroxide may be used instead of sodium peroxide.

NOTE: SODIUM THIOSULFATE SHOULD NOT BE USED IN CONFINED AREAS BECAUSE IT GENERATES ACRID FUMES OF SULFUR DIOXIDE.

D. Sprinkle the surface with a fine mist of water or apply a water-saturated bandage and allow to sit for a few minutes.

E. Thoroughly rinse the surface with clean, clear water, scrubbing vigorously with a stiff bristle brush.

F. Neutralize any remaining alkali on the surface (not necessary if hydrogen peroxide is used):

1. Brush the surface with vinegar.
 2. Rinse with clean, clear water and allow to dry.
- OR-
- If alkali still remains,
3. Mix a solution of 1 part glacial acetic acid and 19 parts water.
 4. Brush the solution over the surface.
 5. Thoroughly rinse the surface with clean, clear water and allow to dry.

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