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Technical Documents

5-6 minutes

Procedure code:

371013S

Source:

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

Division:

Concrete

Section:

Concrete Cleaning

Last Modified:

08/02/2016

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

SUMMARY

1. This procedure includes guidance on removing creosote staining from concrete using a poultice containing benzene.

2. 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.

NOTE: some of the solvents listed are known carcinogens and may be banned in some states.

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.
3. 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).

9. 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 (*).

1. Benzene (C₆H₆):
 1. A colorless, volatile, flammable, toxic, liquid, aromatic hydrocarbon used in organic synthesis, as a solvent and as a motor fuel.
 2. Other chemical or common names include Benzol; Benzole; Phene; Phenyl hydride; Coal naphtha*; Motor benzol*.
3. Potential Hazards: FLAMMABLE.
4. Available from automotive supply distributor, chemical supply house, dry cleaning supply distributor, hardware store or paint store.
5. Benzene and benzine should not be confused. Benzene is a distinct chemical compound obtained from coal tar. Benzine is a mixture of aromatic hydrocarbons of similar boiling points derived from petroleum.

2. Filler material such as hydrated lime, talc or whiting
3. Mineral water
4. Clean dry towels for blotting the area after treatment
5. Scouring powder
6. Clean, potable water

2.02 EQUIPMENT

1. Glass or ceramic container for mixing the solution
2. Wooden utensil for stirring the ingredients
3. Wood or plastic spatula
4. Stiff bristle brushes (non-metallic)

PART 3---EXECUTION

3.01 PREPARATION

1. 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.

1. Mix a poultice by selecting the quantity of hydrated lime, powdered talc or whiting needed to cover the affected area. Add Benzene and mix to form a thick paste.

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.
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 scouring powder 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 sufficiently remove the stain.

Last Reviewed: 2017-09-28