

Stain Removal

Caution: The treatments recommended herein for stain removal should be used by trained and experienced personnel. Improper use may result in bleaching the grout, if a colour dye had been added. T.S.P. is corrosive, use rubber gloves. Wash skin that has had contact with this material immediately. **The use of T.S.P. is intended for stubborn stain removal only.** Other stain removal products are available through TTMAC members. **Always perform a test in an inconspicuous area first.**

Prevention is better than the cure. Treat absorptive surfaces with penetrating sealers which give improved stain resistance and when spills occur, remove promptly. The methods appropriate for stain removal depend on the nature of both the stain and the type of surface, which has to be cleaned. Acidic cleaners should not be used on natural stone or over some types of glazes on tile that may be low absorption stone surfaces may only be on the surface. Often stains can be removed by scrubbing with a cloth dampened with a mild detergent solution. If this fails, most surface stains can be removed by scrubbing with a dampened abrasive cleaner such as Ajax, Comet or similar products. These procedures should be tried first; particularly on absorptive surfaces. There is a danger that if too much of a solvent for the stain is used, the stain will spread or penetrate further into the surface. If the stain has penetrated below the surface (this may occur on absorptive surfaces such as limestone, marble, slate and to lesser extent, granite) it may be necessary to apply a poultice to attempt to draw the stain out. A poultice is made by mixing a cleaning solution with talcum powder or other fine inert powders to a paste consistency. The paste is applied on the stain at approximately 6 mm thickness and left to dry. As the paste dries it tends to draw the stain to the surface of the powder. Poultices may have to be applied repeatedly to remove a stain.

Stains should be treated as soon as possible, as they become more difficult to remove when they have dried. No one should attempt to remove stains unless they know what the stain is and why a certain type of remover is being used. Only as a last resort should chemicals be used to remove stains and by a qualified person. Stain removers either dissolve the substance that causes the stain, absorb the stain; or act as a bleaching agent. Thus stain removers fall into three general classes.

1. **Solvents** such as mineral spirits, xylene, or chlorinated solvents which dissolve grease, chewing gum, lipstick, etc.
2. **Absorbents** such as chalk, talcum powder, blotting paper or cotton which absorb fresh grease or moist stains.
3. **Bleaches** such as household ammonia, hydrogen peroxide, acetic acid or lemon juice which discolour stains.

Appreciate the importance of knowing the surface to be treated and the nature of the stain before trying to remove it. The maintenance staff should review the following prior to proceeding:

1. If it is a water base stain, water will remove it.
2. If it is an alcohol base stain, alcohol will remove it.
3. If it is an acid stain, an alkali will remove it.
4. If it is an alkali stain, an acid will remove it.
5. If it is a grease stain, soap or a degreaser will remove it.
6. If the stain contains albumin, as in milk or blood, do not use a hot solution as it may cook the albumin.

Water marks

Water will not damage marble or stone although it may temporarily darken the stone. Often what looks like a watermark on marble may have been caused by acids in citrus drinks or soft drinks, which can etch the surface. Refinishing the affected area may be the only way to remove these marks.

Ink stains

Different inks require different treatments. Ordinary writing inks may etch concrete due to acid content. To remove a stain of this type, mix a solution of sodium perborate (dry hydrogen peroxide) in hot water and add whiting (such as chalk), mix to a thick paste, apply in 6 mm layer, and leave until dry. If some of the blue colour is visible after poultice is removed, repeat. Sodium perborate may be contained from a druggist and used with caution as it may cause skin irritation. Use rubber gloves, wash any affected areas with water immediately.

Many red, green, violet and other bright coloured inks are water solutions of synthetic dyes. Stains made by this type of ink can usually be removed by the sodium perborate poultice described above. Often the stain can be removed by applying ammonia water on cotton batting. Javelle water is also effective, used the same as ammonia water, or mixed to a paste with whiting and applied as a poultice. A mixture of equal parts of chlorinated lime and whiting reduced to a paste with water may also be used as a poulticing material.

Some blue inks contain Prussian Blue, a ferrocyanide of iron. These stains cannot be removed by the perborate poultice, Javelle (Calcium or Sodium Hypochlorite) water, or chlorinated lime poultice. Such stains yield to treatment of ammonia water applied on a layer of cotton batting. A strong soap solution applied the same way may also be effective.

Indelible ink often consists entirely of synthetic dyes. Stains be treated as outlined above. However, some indelible inks contain silver salts which cause a black stain. This may be removed with ammonia water applied by bandage.

Lubricating oil

Lubricating oil may quickly penetrate concrete and portland cement. It should be mopped off immediately, covering the spot with Fuller's earth, or a dry powdered material such as hydrated lime, whiting or dry portland cement. If treated soon enough, there will be no stain. However, when the oil has remained for some time, other methods will be necessary.

Saturate white Canton flannel in a mixture of equal parts of acetone and amyl acetate and place over stain. Cover with a slab of concrete or pane of glass. If the stain is on a vertical surface, improvise means to hold cloth and covering in place. Keep the cloth saturated until stain is removed. If the solvent tends to spread the stain, a larger cloth should be used. Covering the saturated cloth with glass drives the stain into the concrete, while a dry slab of concrete draws some oil into it. Scrubbing with mineral spirits or other organic solvents will often remove oil stains. Caution should be taken when using organic solvents as inhalation of the vapour and prolonged skin contact with the liquid may lead to unpleasant health effects.

Tabacco stains

The following formula is usually effective, dissolve 900 g (2 lbs) of tri-sodium phosphate (TSP) crystals in 4.54 l (1 gal.) hot water. Mix 340 g (12 ounces) of chlorinated lime to a paste in a shallow enamelled pan by adding water slowly and mashing the lumps. Pour this and tri-sodium phosphate solution into a 9 l (2 gal.) stoneware jar and add water until full. Stir well, cover the jar, and allow time to settle. To use, add some of the liquid to powdered talc until a thick paste is obtained. Apply as a 6 mm poultice with a trowel. To apply with a brush, add about one teaspoon of sugar to each 454 g. (lb) of powdered talc.

When dry, scrape off with a wooden paddle or trowel. This mixture is a strong bleaching agent and is corrosive to metals. Care should be taken not to drop it on coloured fabrics or metal fixtures.

This method is valuable for treating other stains. Tri-sodium phosphate may be purchased at drug stores,

chemical supply or laundry supply houses. If the stain is not bad, grit scrubbing powders, commonly used on terrazzo, tile and marble floors are often satisfactory as poulticing material. Stir powder into hot water until mortar consistency is obtained. Mix thoroughly, then apply to stained surface in a 13 mm layer. Leave until dry. In most cases, two or more applications will be necessary.

Coffee stains

Coffee stains can be removed by applying a cloth saturated in glycerine diluted with four times its volume of water. Javelle water, or the solution used on iron stains, is also effective.

Iodine stains

An iodine stain will gradually disappear on its own accord. It may be removed quickly by applying alcohol and covering with whiting or talcum powder. If on a vertical surface, mix talcum to a paste with alcohol. Apply some alcohol to the stain, then cover with paste.

Blood stains

Blood stains can be removed by the following method:

- Use cold water and a mild detergent to clean the area.
- Apply a solution of cold water and tri-sodium-phosphate (TSP) crystals or a solution of 50% ammonia and water, allowing it to sit for several minutes.
- Agitate or scrub gently with a stiff scrubbing brush or nylon scouring pad.
- Rinse with clear, cold water. Dry with a clean cloth or paper towel.
- If the stain remains use a poultice with a powder such as ammonia and diatomaceous earth.

Chewing gum

Chewing gum can be removed by the following method:

- Apply ice to harden gum.
- Scrape off with putty knife or razor blade.
- Remove remaining traces by scrubbing with a nylon scouring pad saturated with trichloroethylene.

Caution should be used when using trichloroethylene as inhalation of the vapour and skin contact with the liquid may lead to unpleasant health effects.

Grease

Method for removal of grease, fat, butter, salad dressing or milk varies with the conditions. Two methods are recommended:

Method 1

- Use a strong solution of high alkaline cleaner (TSP or similar product) and very hot water.
- Agitate with stiff scrubbing brush.
- Rinse thoroughly with very hot water.

Method 2

- Apply a thin layer of thick paste of non bleaching cleanser (pumice powder) wich will not discolour grout joints. Note: Other absorbents are corn meal, corn starch, talcum powder, Fuller's earth, and French chalk.
- Next morning agitate with scrubbing brush or nylon scouring pad.
- Rinse thoroughly with very hot water.

Reference : Terrazo, Tile and Marble Association of Canada, *2000 Maintenance Guide, Terrazo, Tile and Stone- For a Lifetime of Beauty*, Ontario, Edition 2000, 18 pages.

Types of Stains	Types of detergent or solvent recomanded
Deposit, efflorescence of limestone, ink, rust, oxidation, mortar residue, moisture.	Acid: phosphoric, citric, nitric, sulfuric, oxalic.
Beer, wine, ice, coffee, vegetables and animals oil.	Alkali detergent: soude caustic, potasse.
Rubber, painting, lubricating oil, chewing gum.	Solvent: acetone terebenthine, dissolvent, trichlorethylene
Felt, ketchup, Coca Cola, vinaiger.	Alkali Detergent-Acid bleu of methylene

Acidity Scale												
Cleaner 9006			Cleaner PX-300				Domestic Products					
1	2	3	4	5	6	7	8	9	10	11	12	13
Acid cleaner			pH neutral cleaner				Alkaline or basic cleaner					
Alkaline stains: limestone deposit rust						Acid stains: ketchup mustard						