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NF93-133 Water Nuisances: Deposits on Household Surfaces

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Water Nuisances
Deposits on Household Surfaces

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Hard water deposits on materials such as vitreous china, porcelain enamel, ceramic tile, stainless steel, fiberglass, chrome and glass are some of the common water nuisances in the home.

High concentrations of calcium and magnesium in water interfere with the effectiveness of cleaning products. In addition the minerals form hard deposits (lime scale) on fixtures and equipment, reducing their function and service life and making them more difficult to clean. Hard water increases films and stains from soaps, minerals and other pollutants. Bathroom fixtures, sinks, washers, dishwashers and other surfaces in contact with water will require more frequent cleaning if one has hard water.

Other water nuisances include some of the following. Acidic water tends to be destructive to plumbing and equipment dissolving brass and copper plumbing fittings, leaving blue or green stains. Reddish stains are likely to be iron. Iron bacteria may create a reddish slime. Manganese produces brownish or blackish stains. Metallic corrosion such as iron, manganese, and copper minerals respond to acidic solutions and to sequestrants in detergents and other products.

Soap curds, calcium and magnesium respond to sequestrants which are ingredients in cleaning products that capture and deactivate minerals in water. Minerals are held in solution so that they do not react with other materials to form scum or film. The calcium and magnesium ions remain in solution and do not react with other ions, such as carbonate to form lime scale.

The following general types of cleaners may be effective on specific water nuisances and household surfaces. However consider the particular surface and appropriateness of the cleaner. Consult Home Furnishings NF 93-134, *Alternative to Removing Deposits on Household Surfaces,* for more information.

Acid Cleaners

Acids help remove hard water deposits. Some aid in removing discoloration from aluminum, brass, bronze, and copper. Other acids remove iron rust stains without a lot of rubbing. Acids are typically

found in toilet bowl cleaners, rust removers, metal cleaners, and kitchen/bathroom cleaners that remove mineral deposits.

Vinegar, a weak acid, is about 4 to 8 percent **acetic acid**. It may remove hard water deposits from glassware, rust stains from sinks, and tarnish from brass and copper. Lemon juice contains **citric acid**, a weak acid, and can be used in much the same way as vinegar. **Oxalic acid** is effective as a rust remover. **Phosphoric acid** is often seen in products that remove hard water deposits. **Hydrochloric and sulfuric acid** are strong acids and are used in diluted concentrations in some toilet bowl cleaners.

Rust stains present a specific problem on plumbing fixtures. The most common rust remover is oxalic acid. Commercial rust removers contain oxalic acid but it is also available in some drug stores or chemical supply stores. Dilute oxalic acid with 10 parts water. Follow precautions as this is a highly toxic product.

For fixtures that are not acid resistant, clean with tri-sodium phosphate to remove the rust. Another alternative to oxalic acid is a paste of cream of tartar. This is a mild acidic mixture. Citric acid may also act as a rust remover but is a weaker acid than oxalic.

Abrasive Cleaners

Although abrasives may scour off stains, regular use of harsh abrasives will gradually scratch the shiny finish of sinks and bathtubs and other items. Once the surface is dull and rough, it will get dirty faster and stain deeper. The result is a need to keep using a harsh abrasive to remove embedded dirt and stains. Coarse abrasives will also damage plastic, glass, plated and highly polished metals. Depending on the coarseness or fineness of the abrasive and the use of a lubricant, most household surfaces are subject to damage from repeated cleaning with abrasives. Even mild or fine abrasive cleaners may eventually scratch or dull surfaces.

Chlorine Bleach

Chlorine bleach can help remove stains. However, it can dully shiny finishes of porcelain enamel surfaces.

Specialty Cleaners

Some specialty cleaners for kitchen and baths are formulated to remove hard water deposits, soap scum or rust stains. Tub, tile and sink cleaners that remove soap scum and water hardness may contain sequestering agents and acids such as phosphoric, hydrochloric or hydroxyacetic.

All-Purpose Cleaner

Non-abrasive, all-purpose cleaner in powdered, liquid or spray form is an effective cleaner safe for most plumbing fixtures and can be used for regular cleaning and for removal of hard water deposits and soap scum if the deposits are not heavy accumulations. Most contain surfactants.

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