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NATIONAL BUREAU OF STANDARDS

Letter  
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DRAINPIPE CLEANERS OR SOLVENTS

This letter circular has been prepared to answer numerous requests which are received by the National Bureau of Standards for general information regarding drainpipe cleaners or solvents.

Warning.- Sodium hydroxide (caustic soda or lye) and potassium hydroxide (caustic potash or lye) are caustic poisons. While handling these materials or drainpipe cleaners containing them, protect the eyes, skin, and clothing from splashing. Keep water out of the can and do not let the material get on wood, painted surfaces, floor coverings, or aluminum. Flush with cold water only, and do not use a plunger.

Antidotes.- If the material gets into the eyes or into the mouth, call a physician at once. Apply the following emergency treatments: Eyes.- Flood copiously and quickly with water and then wash out with a solution of boric acid in water. Internal.- Give vinegar diluted with water, juice of lemon, orange, or grapefruit copiously. Follow with olive oil, butter, or other cooking oil. External.- Flood with water, then wash with vinegar, follow with vegetable oils or butter.

If spilled on floors, floor coverings, or clothing, quickly flood with water, then apply vinegar, and finally rinse with water.

The Federal Caustic Poison Act requires products containing caustic soda or caustic potash to be labeled "Poison", with directions for treatment of external injury or internal personal injury. A copy of this Act may be obtained on request from the Food and Drug Administration, Federal Security Agency, Washington 25, D.C.

For the removal of grease stoppages from drainpipes, as in kitchen sink drains, concentrated lye (caustic soda or sodium hydroxide), either as such or mixed with aluminum, or zinc-coated aluminum, turnings or chips, is in general use. Mixtures of caustic soda with sodium nitrate and aluminum turnings are also used for this purpose. Caustic soda acts on the accumulated grease and the insoluble soap curds that may have been formed by the interaction of the grease with the dissolved mineral matter in the water supply. Infrequently, the soap so

formed accumulates more rapidly than it can be removed by the water and, hence, increases the stoppage. When water is added to mixtures containing aluminum and caustic soda, they react vigorously, forming hydrogen gas. With mixtures also containing nitrate, the hydrogen forms ammonia gas, which then acts chemically on the grease. The stirring or agitating effect of the gas in either case may facilitate the removal of the waste matter. The use of the more expensive caustic potash is probably more satisfactory, as this compound converts the grease into a soft soap which is more readily dissolved by water than is usually the case with soda soaps. The heat generated on dissolving caustic soda (lye) or caustic potash in water aids in the saponification of the grease.

It is probable that most, if not all, drainpipe cleaners will attack some of the metals or parts used in household plumbing, especially galvanized coatings, lead, glazed earthenware, porcelain, and enameled iron. However, if such cleaners are used with care, followed by copious flushing with water, it is believed that the life of the plumbing will not be materially shortened. Care should also be taken to avoid spilling these cleaners on floor coverings, the clothing, or any part of the body (see warning on page 1).

Drainpipe cleaners should be carefully guarded, since any water splashed into an open can of the material or any moisture absorbed by it from the atmosphere causes the evolution of heat and gas, to an extent depending upon the amounts of water, caustic soda and aluminum. If a can containing gas-forming mixtures is closed tightly after it has become wetted or has stood open and absorbed moisture, sufficient pressure may develop to cause the can to "blow up".

The National Bureau of Standards has not investigated the various drainpipe cleaners or solvents that are on the market. It is, therefore, not in a position to furnish formulas or data based on experimental work as to the efficiency of such products or their action on plumbing fixtures, piping, etc.