ANGSTROM UNIT – A unit of wavelength of light equal to one tenth of a millimicron or one ten-millionth of a millimeter.

ETCHING – The deterioration by chemical change on the surface of glassware caused by the action of high temperatures and detergents, and it is more prevalent or intensified in soft or softened water supplies. Very high water temperatures in automatic dishwashers can cause detergent phosphate compounds to change into even more aggressive forms. If enough dish soil or water hardness is available, it will react with the most aggressive of these sequestering phosphates. Otherwise, however, the excessive detergent agents can actually extract elements directly from the glassware composition. In early stages, incipient etching appears as a rainbow colored film similar to an oil-on-water film. As etching progresses, this changes to opaqueness, which appears similar to filming except that it cannot be removed or repaired since etching is an actual eating away of the glass. It is sometimes called “soft water filming”. The solution to chemical etching is to use less detergent, water temperatures below 140°F, and sufficient amounts of water during the rinse cycle. (Poor rinsing can also be caused by overloading the dishwasher.) Mechanical etching can occur when two glasses rub against each other in the dishwasher. (See also Water Spotting.)

FLUX – Gallons per day of permeate passing through each square foot of membrane surface.

Iron Bacteria: Organisms which are capable of utilizing ferrous iron, either from the water or from steel pipe, in their metabolism and precipitating ferric hydroxide in their sheaths and gelatinous deposits. These organisms tend to collect in pipelines and tanks during periods of low flow and to break loose in slugs of turbid water to create staining, taste and odor problems.

JACKSON TURBIDITY UNIT (JTU) – An arbitrary unit of turbidity originally based on a suspension of a specific type of silica with the turbidity measured in a Jackson Candle Turbidimeter. Now called a Nephelometer.

LANGELIER’S INDEX – A calculated number used to predict whether or not a water will precipitate, be in equilibrium with, or dissolve calcium carbonate. It is sometimes erroneously assumed that any water which tends to dissolve calcium carbonate is automatically corrosive.

MICRON – A linear measure equal to one millionth of a meter or .00003937 inch. The symbol for the micron is the Greek letter “µ”.

SEQUESTERING AGENT – A chemical compound sometimes fed into water to tie up undesirable ions, keeps them in solution, and eliminates or reduces the normal effects of these ions. For example, polyphosphates can sequester hardness and prevent reactions with soap.

UNIFORMITY COEFFICIENT – The degree of variation in the size of the grains that constitute a granular material; the ratio of (a) the diameter of a grain size that is barely too large to pass through a sieve that allows 60 percent of the material (by weight) to pass through, to (b) the diameter of a grain of a size that is barely too large to pass through a sieve that allows 10 percent of the material (by weight) to pass through. The coefficient is unity for any material having grains all the same size, and it increases above unity with variation in size of grain.

VIRUS – The smallest form of life known to be capable of producing disease or infection, usually considered to be of large molecular size. They multiply by assembly of component fragments in living cells, rather than by cell division, as do most bacteria.

WATER HAMMER – The shock wave or series of waves caused by the resistance of inertia to an abrupt change (acceleration or deceleration) of water flow through a water piping system. Water hammer may produce an instantaneous pressure many times greater than the normal pressure. For this reason, many building codes now require the installation of a “water hammer arrestor,” a device to absorb these shock waves and prevent damage to appliances such as washing machines.

WATER SPOTTING – Cloudy milk-like film, spots, streaks, or heavy white deposits left on surfaces after water has dried from them, especially noticeable on clear glassware and cars after washing. Spotting is caused by minerals that had been dissolved in the water remaining behind after the water has evaporated. Soft water spotting can be wiped off easily with a damp cloth or rinsed off with a little fresh water. Hard water deposits, on the other hand, are comprised of the more tenacious calcium and magnesium salts. Hard water films typically require harsh abrasives or an acid cleaner to remove them. A third type of water residue film is due to silica (Si02) deposits. Silica spotting is rare, but it is more difficult or impractical to be removed when it does occur. If glassware films won’t dissolve in acids such as vinegar or lemon juice, they may be due to silica spotting or etching. If the spot won’t dissolve in acid, but can be scratched off with a razor blade or pinpoint, it’s likely a silica film. (See also Etching.)

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