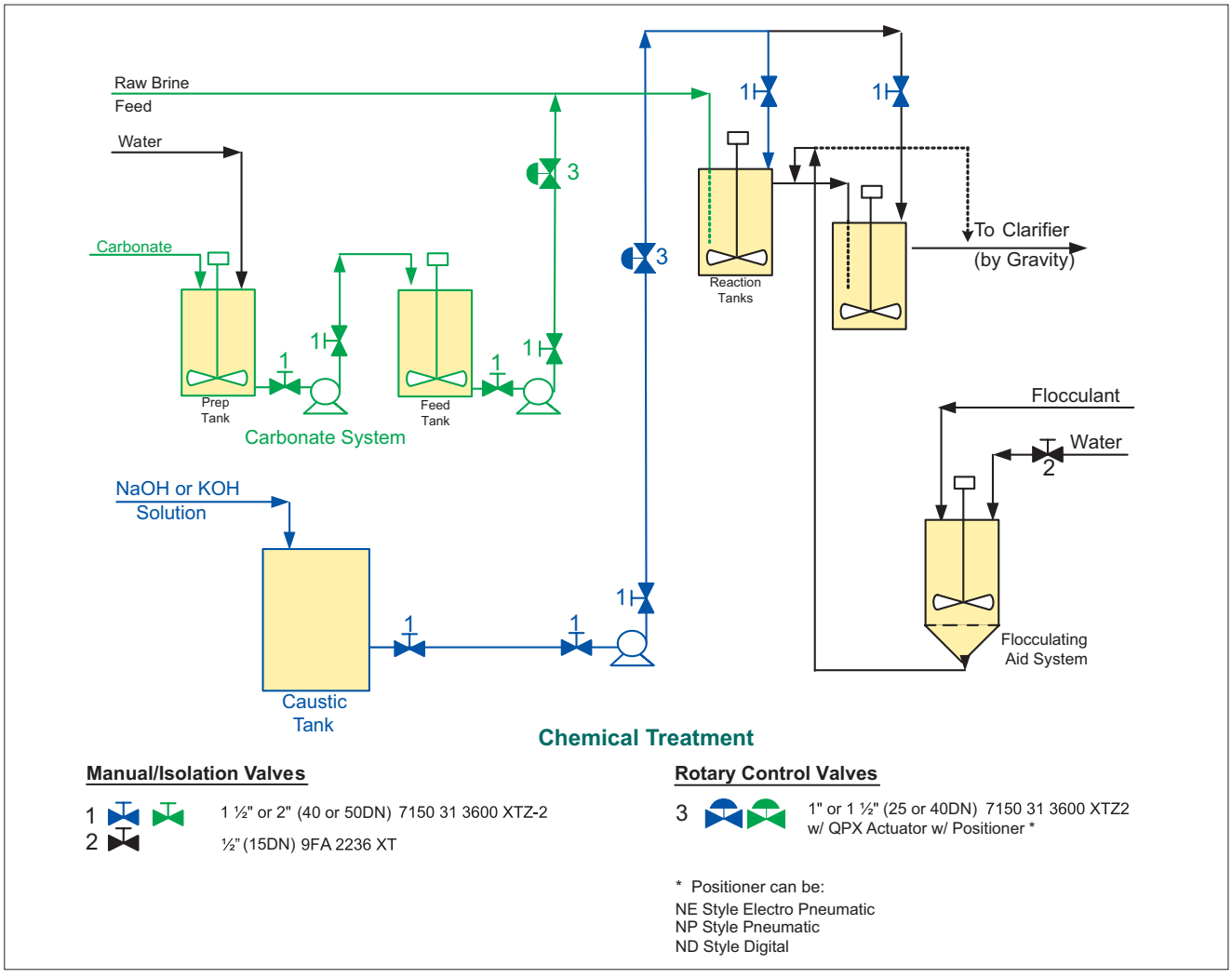
Chlorine Chemical Treatment



Brine Processing

Brine must be treated before entering chlorine production cells. Achieving the required purity in the feed brine is vital to successful operation. Before filtering, certain process inhibiting elements and heavy metals must be removed from the brine.

Chemical Treatment

Hardness elements (Ca & Mg) and heavy metals are the principal impurities in most salts and brines. These are removed primarily by chemical precipitation. Calcium ions form an insoluble compound when carbonate ions are added to the brine. Soda ash is the normal source of carbonate. Magnesium and most heavy metals are precipitated as hydroxides. Caustic soda, produced in the plant, provides the hydroxide. These are added to the brine and allowed to react in treatment tanks before clarifying.

Valve Requirements

There are a variety of valves in the chemical treatment area. Typical pressure and temperatures are 15 psi (1 bar) and 75°F (24°C) ambient, and material is 316SS. Chemical treatment line size is 1" – 1 1/2" (25 – 40DN) depending on output. Pump and tank isolation valves are typical applications (1 , 2). Rotary modulating control valves feed caustic soda (NaOH) or caustic potash (KOH) in precise amounts to remove heavy metals (3). Likewise, carbonate in the form of sodium carbonate, CNa2O3 is added at precise levels to remove calcium (3). Because process lines are small, modulating control valves can be line size. The treated brine then is held in a large clarifier to allow precipitated solids to separate from the clean brine.

Neles Solution

Modulating control valves include QPX spring diaphragm actuator with positioner and accessories as specified.

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