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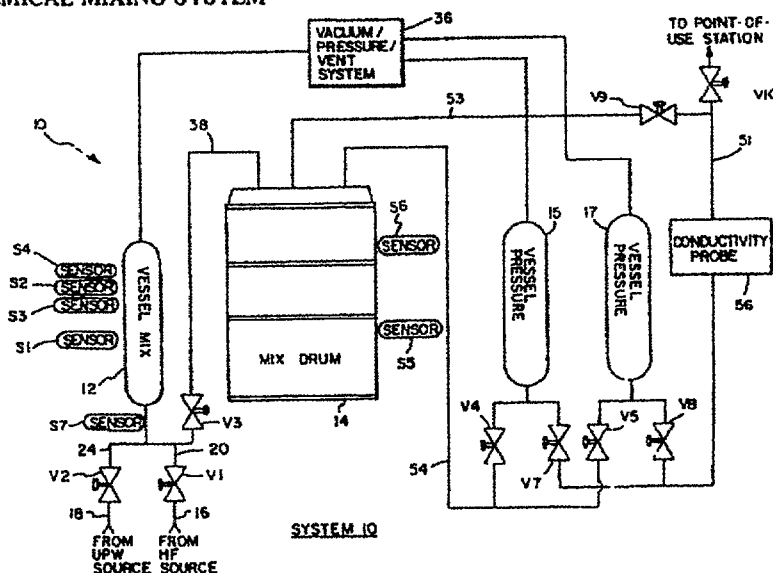
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(54) Title: TWO-STAGE CHEMICAL MIXING SYSTEM



(57) Abstract

A chemical mixing system (10) for mixing ultra pure water (18) and concentrated HF (16) to a desired concentration within a qualification range. Batches of the mixed chemical are mixed in a relatively small mix vessel (12) and transferred to a relatively large mix drum (14). The concentration of the chemical within the mix drum is measured by a concentration monitor (56). If the measured concentration of the chemical in the mix drum is within the qualification range, the batches of chemical in the mix vessel are mixed to the desired concentration. If the measured concentration of the chemical in the mix drum is below the qualification range, the batches of chemical in the mix vessel are mixed to a high concentration which is greater than the desired concentration. If the measured concentration of the chemical in the mix drum is above the qualification range, the batches of chemical in the mix vessel are mixed to a low concentration which is less than the desired concentration. Batch averaging is thereby performed to maintain the concentration of chemical in the mix drum within the desired qualification range.