SYSTEM AND METHOD TO REMOVE SOLIDS AND LIQUID CONTAMINANTS FROM A PROCESS STREAM BY MIXING THE STREAM WITH A HEATING MEDIUM, AND APPLICATIONS THEREOF

ABSTRACT OF THE INVENTION

A system and method to remove solids, liquid contaminants, or both from a process stream (15) does so in a liquid pool zone (21) of a vessel (20) as the stream comes into contact with a heating medium (23) that is less volatile than the process stream (15). To keep the pool hot, the heating medium (23) can be recirculated through a heater (41) of a pump-around loop (40) or a heater (41) can be placed in the liquid pool zone (21). As the process stream (15) is vaporized, solids and any remaining liquids present in the process stream (15) migrate from the process stream (15) into the heating medium (23), and may be further removed from the heating medium (23) in the pool or in the pump-around loop (40). The vaporized process stream (30) can be further condensed. Any heat recovered can be used to pre-heat the process stream or used in the pump-around loop's heater in case of mechanical vapor recovery.

Fig. 1