A UNIFIED APPROACH TO CLASSIFY REMOVAL PROCESSES OF DIFFERENT SOILS USING DIMENSIONLESS NUMBERS

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ABSTRACT

Cleaning of closed industrial processing equipment is usually performed by automatic CIP (Cleaning in Place) processes. To gain a better understanding of a cleaning process, it is essential to identify the controlling sub-process of cleaning (e.g. swelling, diffusion, wall shear stress) and hence to select appropriate cleaning tasks.

The objective of this work is to develop an easily applicable and universally valid approach based on dimensionless numbers, which enables optimization of the cleaning process for any soil material. The user will need to characterize the existing soil in laboratory analysis for the calculation of the dimensionless numbers. The dimensionless numbers will be characteristic for the soil status, thus resulting in a specific recommendation for the cleaning procedure.