

# Abstract

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## **Statistical Analysis Techniques for High Quality Water**

Water quality standards usually changes from application to another. For industrial application high water quality is required for boilers and turbines protection. Habitual desalinated planets water is used, but by the time it creates some problems because of salts and silica concentrations. Some important parameters have been studied for desalinated water which are Sodium (Na), Calcium (Ca), Magnesium (Mg), Potassium (k), Sulfate (So), Silica (Sio<sub>2</sub>), Chloride (Cl), and Fluoride (F-) in addition to PH and conductivity. The linear regression model, based on these parameters, is extracted and its coefficients and error are calculated using Regstat method. The principle component analysis (PCA) is applied for clustering water parameters according to the value of measured parameters the result indicates that it is important to follow the desalination process by another purification process to improve water quality. The demineralization process can decrease ionic impurities significantly, so it is recommended to be used to protect industrial component from deposits and corrosion.