

8.2 Evaluation of the cleaning process reveal the mechanism For research purposes, the measurements do not need to be quick, easy to handle and non- invasive. Visual inspection is an off-line method and can range from ordinary photos to follow the course of cleaning, but also together with dyes for specific elements and microscopic techniques to enhance the details and resolution. Using Scanning electron microscopy (SEM) structural changes of the fouling, such as the swelling of the protein deposit, can be revealed. By monitoring and analyzing the effluent during cleaning over time, important information is obtained; such as when the protein and mineral content is released in comparison to each other and to the current parameters used for the cleaning process. UV-absorbance can be used in cleaning studies to investigate the effluent concentration of proteins [84]. The content of the mineral deposit could be obtained in using a SEM-EDX, giving the elemental composition in a certain area of the sample [111]. From effluent analysis, the original composition of the fouling can be determined, but without any spatial information.