

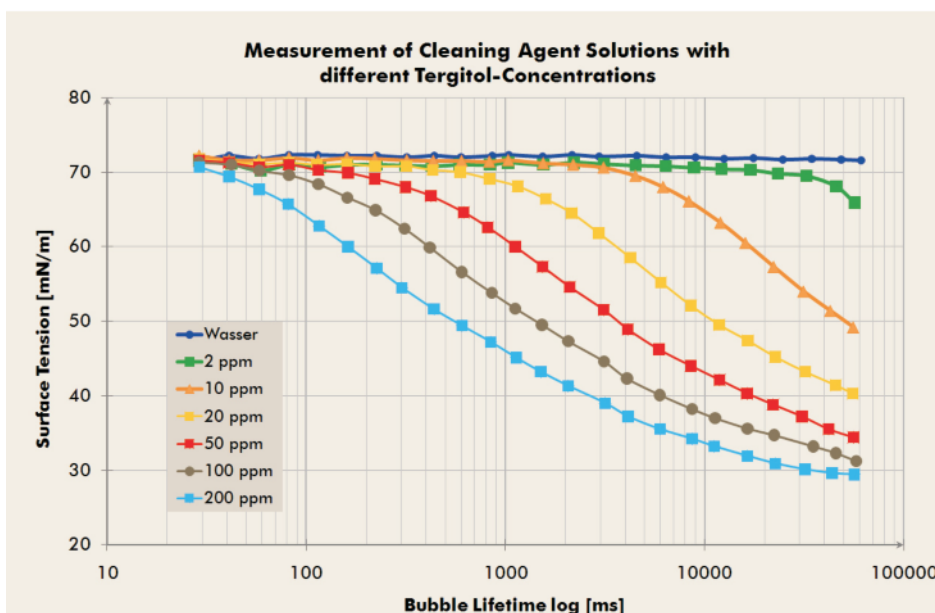
Advantages of measuring the Surface Tension when cleaning Wafers

In the production and treatment of silicon wafers it is essential that the discs are absolutely clean. However, surface treatment processes of wafers cause contamination which has to be removed in a cleaning process afterwards. In order to fulfill those high requirements, special cleaners are used in defined concentrations. There are two conditions for a successful cleaning process:

1. The concentration of the cleaner has to be sufficient in order to achieve the required cleaning result.
2. After the last rinsing process it has to be avoided that there are still surfactants on the silicon wafer. Remaining surfactants have a negative influence on the following treatment processes.

Based on experiences, surfactants often get overdosed due to a missing monitoring of the surfactant's concentrations in cleaning and rinsing processes. In case of an overdose, surfactants have to be removed again in rinsing processes afterwards with much more effort.

The measurement of the surface tension ensures an optimal determination and monitoring of the surfactant's concentration in a particular production step. SITA-Tensiometers allow a precise control of the surfactant concentration close to the optimal surface tension value which can lead to considerable savings of surfactants and consequently to a less complex rinsing process. Furthermore, a control of the residual surfactant concentration in the second last or last rinsing step also leads to a reliable monitoring of the process.



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The measurement of the dynamic surface tension with a bubble pressure tensiometer also helps choosing an appropriate cleaner so that surfactants with higher dynamics and a lower surface tension achieve a better cleaning effect in general.

For monitoring, cleaning and rinsing processes it is recommended to use the flexible handheld tensiometer SITA DynoTester for random measurements and the SITA DynoLine for an automatic and reliable process monitoring. The SITA DynoTester measures the current surface tension of a particular bath in order to control if the surfactant concentration corresponds to the desired value. In contrast, individual system's solutions of the process monitoring system SITA clean line ST carry out these tasks and their documentation automatically. The surface tension of the particular bath is measured regularly and compared to the defined desired values.

