



Silica gel differences

Are there differences in the silica gels with a color indicator?

An attempt was made to answer the differences between common silica gels when used in an adsorber. For this comparison, each 0.5 kg of the silica gels orange-green (OG), orange-colorless (OF), blue-pink (BR) and the KC dry beads OC (KC) are examined. The experimental conditions for all adsorbents are based on a mass flow of 46.6 g / h. This is calculated using a volume flow of 50 l / min, a temperature of 20 ° C and a relative humidity of 90%.

All experiments show a behavior characteristic of silica gel. The breakthrough curves do not run until high loads due to the different maximum loads.

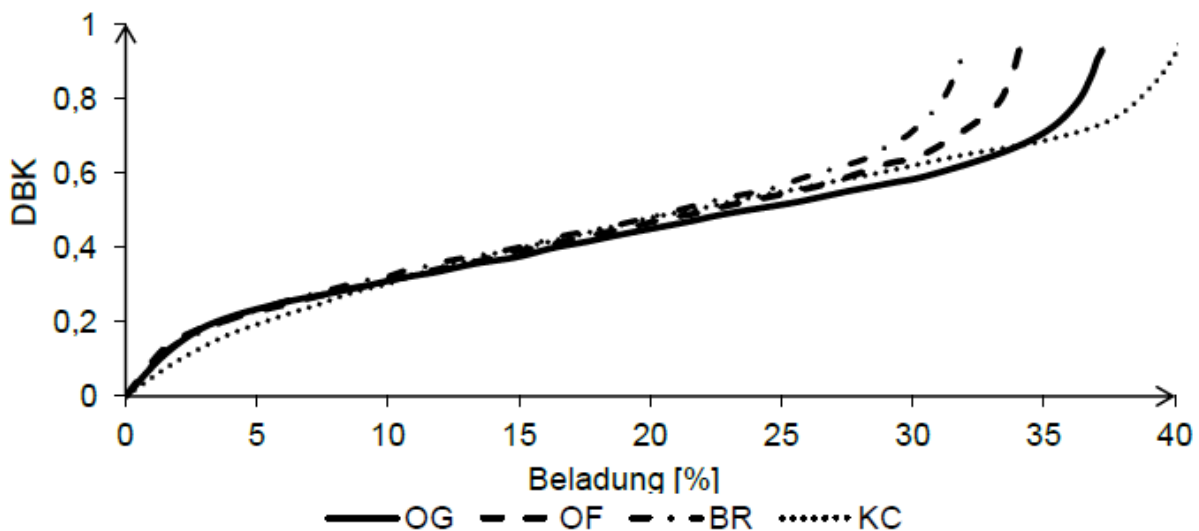


Abbildung: Abhängigkeit der DBK von der Beladung für verschiedene Adsorbentien.

Also, the loading over time is absolutely comparable between the silica gels. Differences are only to be determined in the maximum load.

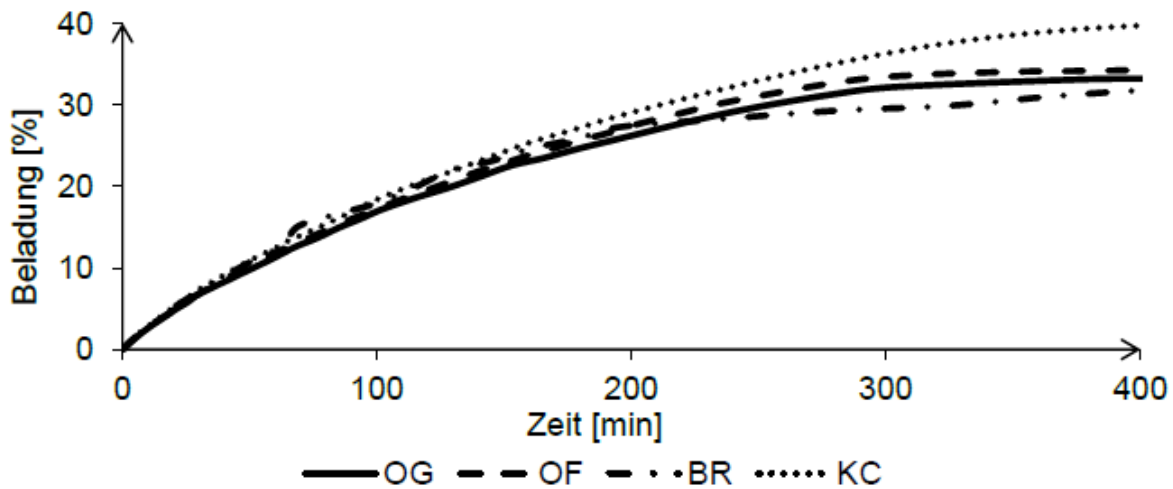


Figure: Dependence of loading on time for different silica gels.

All silica gels show the same behavior in water absorption. Only the differences at high loads can be justified by the varying maximum loadings. However, this maximum loading is well above the time of color change and is secondary to use in aeration dryers.

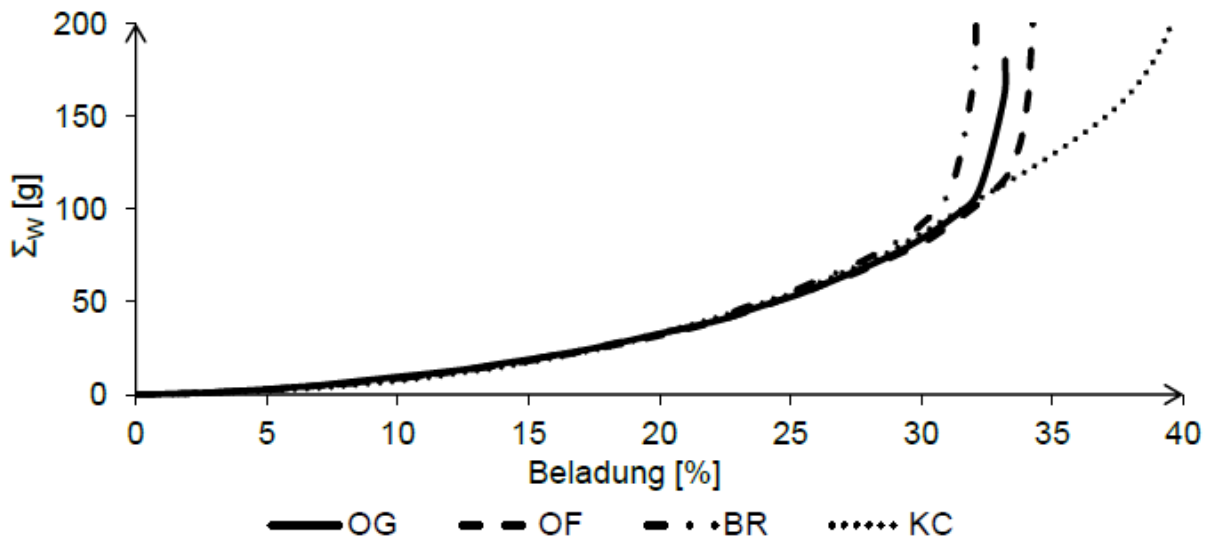


Figure: Dependence of the amount of water on the loading for different silica gels.

The loadings of the color envelopes vary greatly. The silica gel KC dry beads OC achieves the color change at the lowest loadings. As a result, the service life, the breakthrough curve and the water absorption take the lowest values. In contrast to this is the silica gel orange-colorless. This silica gel reaches the color changes only at high loads. This results in a long service life, a high breakthrough curve and a large amount of registered water. The orange-green and blue-pink silica gels have comparable properties in color change.



Silicagel Orange-Grün



Silicagel Orange-Farblos



Silicagel Blau-Rosa



KC-Trockenperlen OC

Figure: Photos show adsorbers at 10%, 20% and 30% total loading, silica gel 0.5kg (dry).