

## TECHNICAL SUPPORT SPECIAL ADDITIVES INTERNATIONAL

the plus of pure  
performance

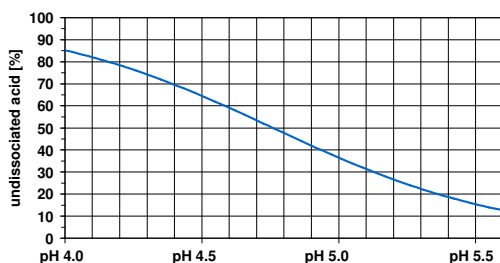
### The influence of the pH on the performance of euxyl® K 712

euxyl® K 712 is a cosmetic preservative based on the actives sodium benzoate and potassium sorbate.

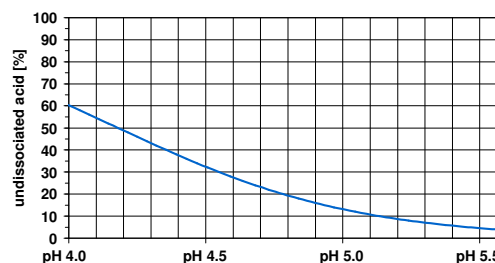
euxyl® K 712 should be used at a pH value  $\leq 5.5$ . The efficacy depends on the pH-value. The efficiency is increased by reducing the pH-value. Only the free organic acids are biocidal active. The dissociated organic acids are completely ineffective.

The following graphs show the amount of undissociated acid depending on the pH for benzoic acid and sorbic acid.

**Sorbic acid ( $pK_a$  4.76)**



**Benzoic acid ( $pK_a$  4.18)**



The following table summarises the availability of undissociated acids for the use of euxyl® K 712.

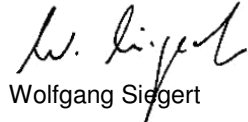
pH	Amount undissociated acid		Amount of active available from euxyl® K 712
	Benzoic acid	Sorbic acid	Sum of acids
4.0	60%	86%	68%
4.5	32%	65%	42%
5.0	13%	36%	20%
5.5	4%	15%	7%

The efficacy and optimum use-concentration should always be determined in the end product with the aid of a preservation load test. Additionally highly acidic products should be tested for their skin tolerance.

In w/o emulsions the pH has to be adjusted already in the water phase. The oil phase must be free of alkaline compounds.

For the production of wet wipes it is absolutely essential to adjust the pH in the squeezed wet wipe liquid. The nonwovens qualities have a different buffer capacity, they often increase the pH.

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Wolfgang Siegert

The information given concerning the application and product technology represent our state of knowledge at the time of going to press, and no claims are made as to its completeness. The information given does not free the user of his own responsibility for comprehensive testing before production. We therefore disclaim any responsibility for the accuracy of the information given.

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