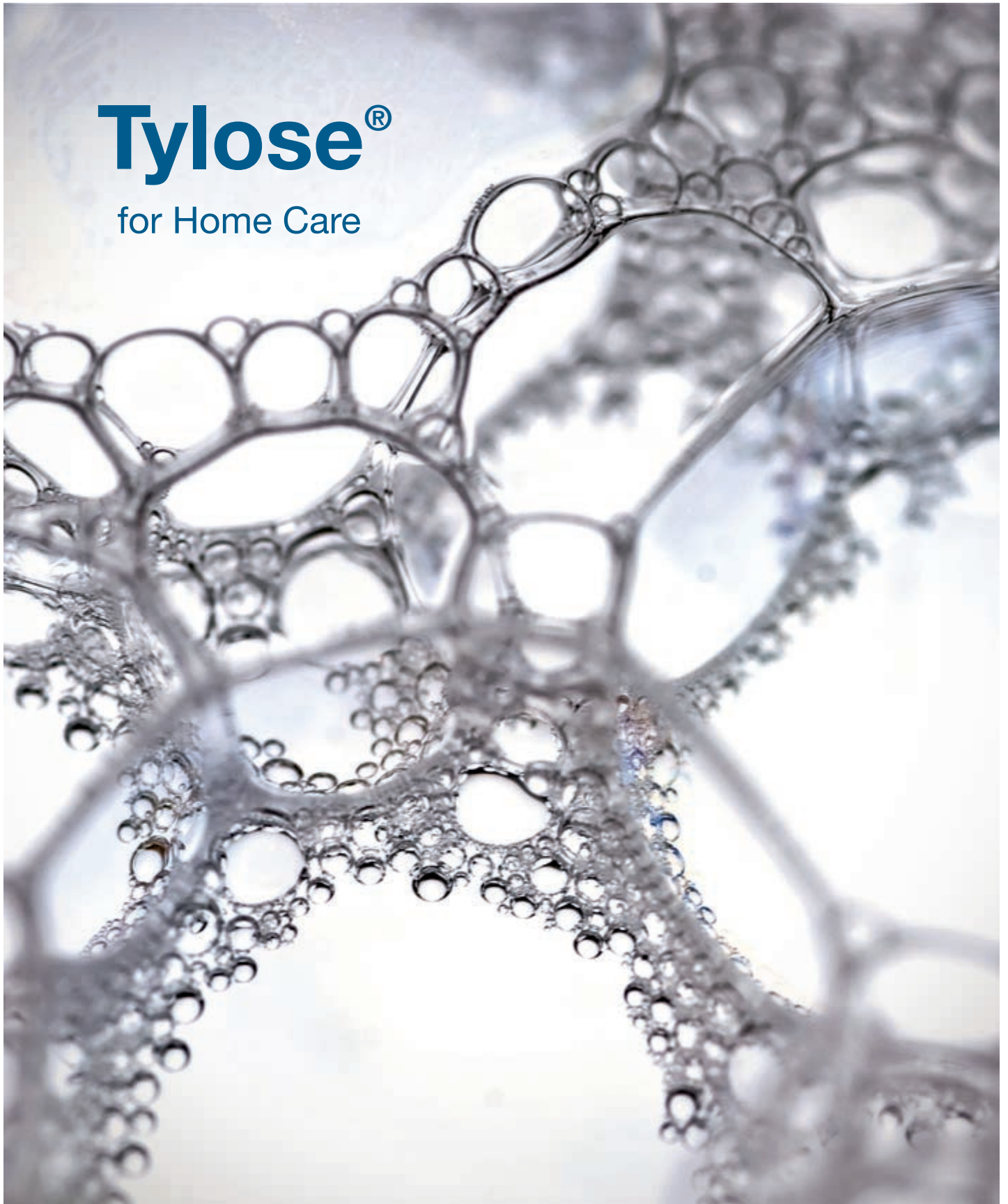


**Tylose<sup>®</sup>**

for Home Care



# Tylose® for Home Care



Home Care products include all types of liquid products such as floor cleaners, detergents and dishwashing agents.

Viscous formulas or gel cleaners are particularly useful for cleaning vertical surfaces. Gel cleaners also tend to

be chosen for applications where the agent will be left to work for an extended period of time. Tylose is ideal for thickening and adjusting the rheology of water-based, liquid cleaners with a pH between 4 - 11. The desired look and consistency for cleaning agents can be achieved using Tylose. Tylose can also be used as a thickener to adjust the rheology of liquid detergents, especially in products designed for delicate textiles.

## Application Properties

In the field of Home Care the following properties of Tylose are particularly significant:

- **Thickening/Adjustment of consistency**
- **Storage stability**
- **High compatibility with other raw materials such as surfactants**

Tylose delayed solubility grades have important characteristics which make them appropriate as thickeners in cleaner formulations:

- **Easy incorporation in the formulation**
- **Solutions of good clarity**
- **Good compatibility with ionic surfactants**
- **Good storage stability**

# Thickening / Adjustment of Consistency

Tylose® can thicken and adjust the consistency of neutral cleaners, washing up liquids and liquid detergents.



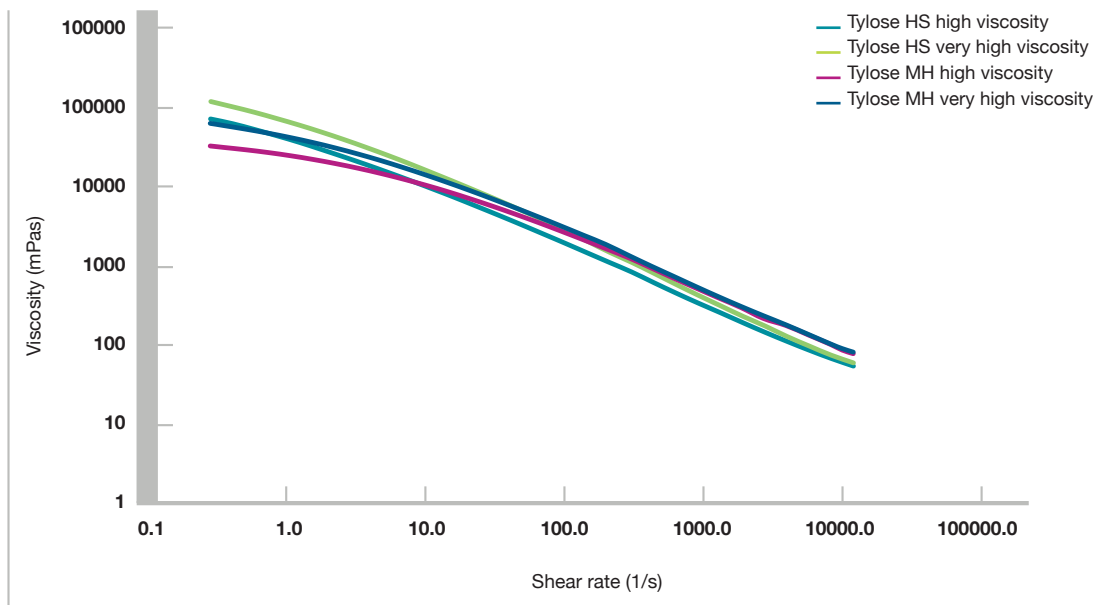
With Tylose one can thicken and adjust the consistency of neutral cleaners, washing up liquids and liquid detergents.

The thickening effect of Tylose grades is dependent on the degree of polymerisation (DP) or the molecular weight and the concentration used. When using the same concentra-

tion, the viscosity of the solution increases with an increased degree of polymerisation.

Aqueous solutions of Tylose grades are shear thinning liquids. The viscosity is decreased by an increase in shear stress, and returns to its initial viscosity when the shear stress is removed. High viscosity Tylose grades have a stronger shear thinning effect than those of low viscosity, which is shown in the diagram below. The rheological profile varies depending on the Tylose type used, e.g. Tylose HS or Tylose MH.

## Viscosity curves



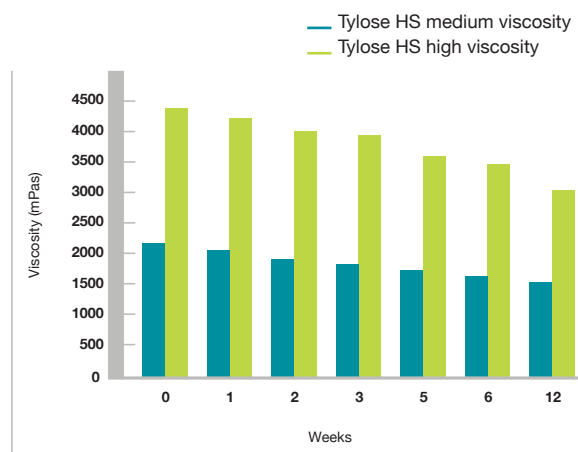
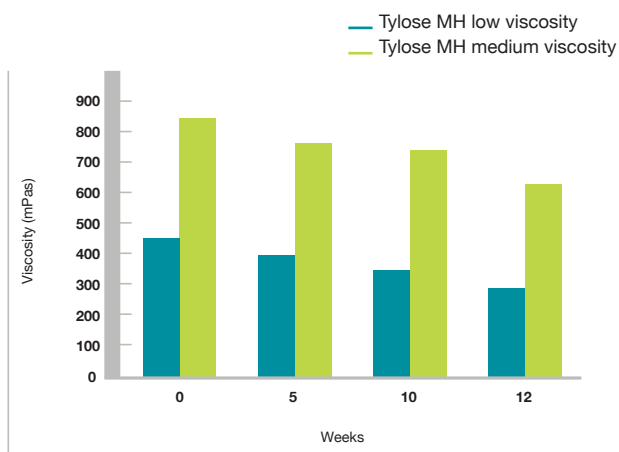
measured at 20 °C, water 20 °dH (German hardness), 1.9 % solutions

# Storage Stability

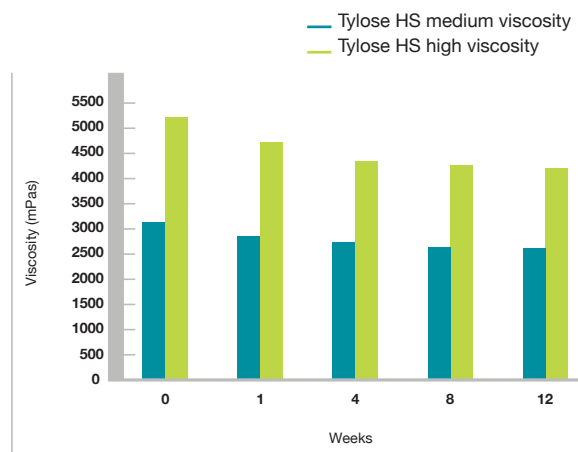
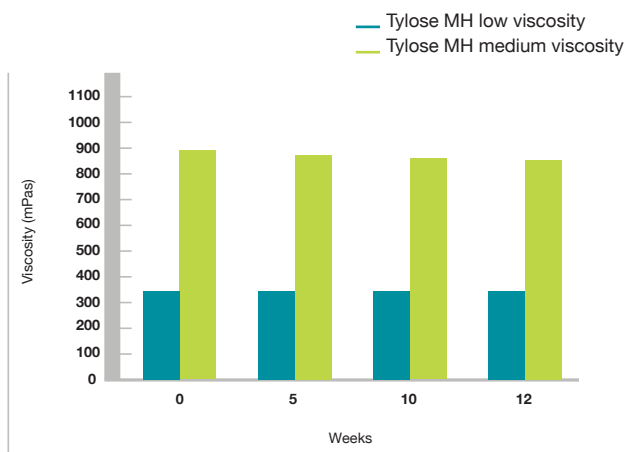
Tylose® displays optimum storage stability when water-based cleaners are pH neutral. Generally, the lower a Tylose grade's viscosity, the better its storage stability. The more acidic or alkaline a cleaner is, the more the

Tylose viscosity will be reduced over an extended period of time (see diagram below). It is advisable to use a low to medium viscosity Tylose grade for such products as this has significantly better storage stability.

## pH 6.5



## pH 9.8



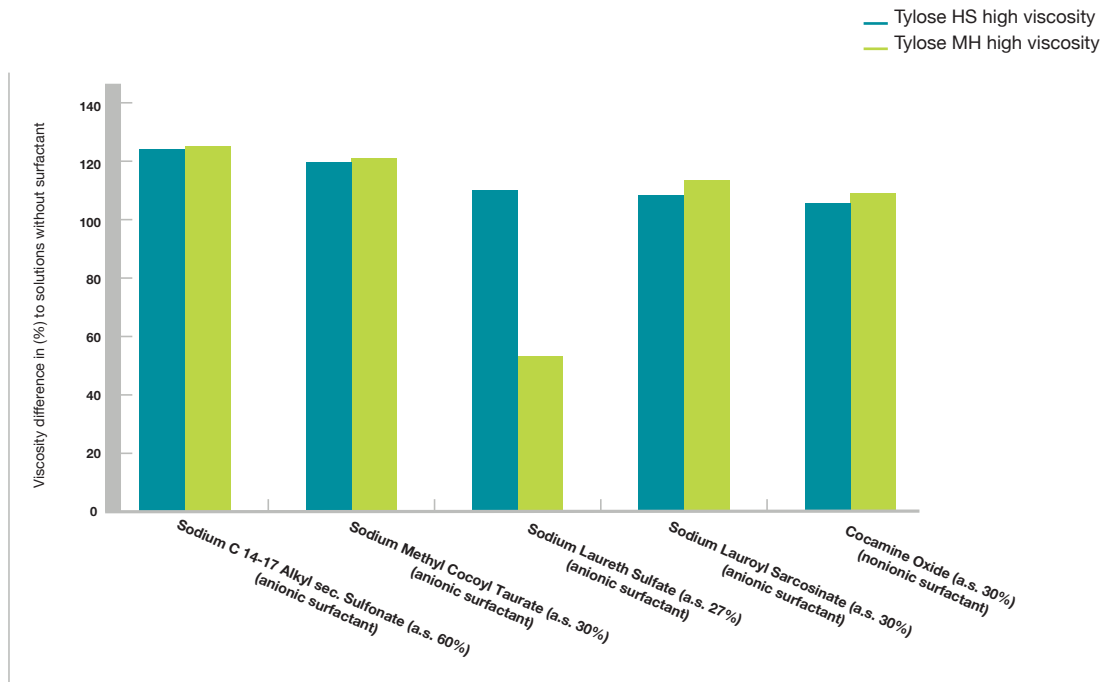
Testing of Tylose MH and HS solutions ( Brookfield RV at 20 °C, 1 %) at different exposure times up to 12 weeks at pH 6.5 and pH 9.8

# Compatibility of Tylose<sup>®</sup> with Surfactants



Tylose delayed solubility grades are particularly well suited for use in cleaners due to their good solubility properties. In

addition, most surfactants give a higher thickening effect with Tylose grades (see diagram below). When producing a cleaning agent formula, it is advisable to manufacture the Tylose solution first and then add the other ingredients.



# Recommended Tylose® Products

Tylose Grades	Viscosity ca. (mPas)	Delayed Solubility	Applications			
			Liquid Detergents	Neutral Cleaners	Toilet Cleaners / WC-Gels	Washing up Liquids
<b>Standard Tylose H/HS</b>						
Tylose H 4000 NG4	4500 (2.0 %) <sup>1</sup>		■			
Tylose H 10000 NG4	7000 (2.0 %) <sup>1</sup>		■			
Tylose HS 6000 YP2	5200 (2.0 %) <sup>1</sup>	●	■		■	
Tylose HS 30000 YP2	2000 (1.0 %) <sup>1</sup>	●		■	■	
Tylose HS 60000 YP2	3000 (1.0 %) <sup>1</sup>	●		■		
Tylose HS 100000 YP2	4500 (1.0 %) <sup>1</sup>	●		■		■
<b>Standard Tylose MH/MHS</b>						
Tylose MH 4000 KG4	4500 (1.9 %) <sup>2</sup>	●	■			
Tylose MH 10000 KG4	10000 (1.9 %) <sup>2</sup>	●			■	
Tylose MH 30000 YG8	23500 (1.9 %) <sup>2</sup>	●		■	■	■
Tylose MHS 60000 YP4	31000 (1.9 %) <sup>2</sup>	●		■		

■ recommended

<sup>1</sup> Brookfield LV, 25 °C, deionised water

<sup>2</sup> Brookfield RV, 20 °C, water 20 °dH (German hardness)

# Nomenclature of Tylose®

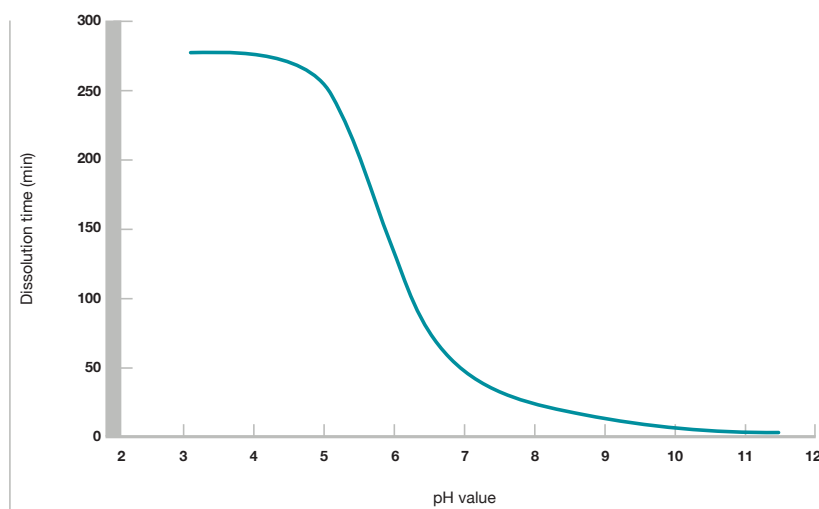
Example: Tylose MH 4000 KG4

MH		4000	KG4	
	<b>Type of ether</b>		<b>Viscosity level</b>	<b>Chemical refinement</b>
<b>M</b>	Methyl	: <b>60000</b> <b>30000</b> <b>15000</b> <b>10000</b> <b>6000</b> <b>4000</b> <b>2000</b> <b>200</b> :	The viscosity level is based on Hoesppler: 2 % solution of the commercial product with 5 % moisture content, 20 °C, 20° dH (German hardness)	<b>Y</b> Delayed solubility*
<b>H</b>	Hydroxyethyl			<b>K</b> Readily soluble granules
				<b>N</b> Non-delayed solubility products (only for Tylose H grades)
	<b>Degree of etherification</b>			
				<b>Particle size</b>
<b>S</b>	Special higher degrees of etherification, depending on the individual type of ether			

## \*Delayed solubility

Tylose products with delayed solubility are denoted with an additional 'Y'. Delayed solubility Tylose grades can easily be suspended in pH neutral water without forming any lumps. Adjusting the pH to alkaline values can eliminate the delayed solubility. Please note that the pH value should be adjusted after the Tylose is completely dispersed. Raising the pH before dispersion results in lumps.

## Dissolution time of a delayed solubility Tylose grade at various pH values





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### About us

SE Tylose GmbH & Co. KG is one of the major manufacturers of cellulose ethers world-wide, supplied under the brand name Tylose®. Tylose is used in a wide variety of products and applications.

Applications	
	Building Materials
	Paints
	Oilfield
	Personal Care
	Home Care
	Polymerisation
	Ceramics
	Others

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