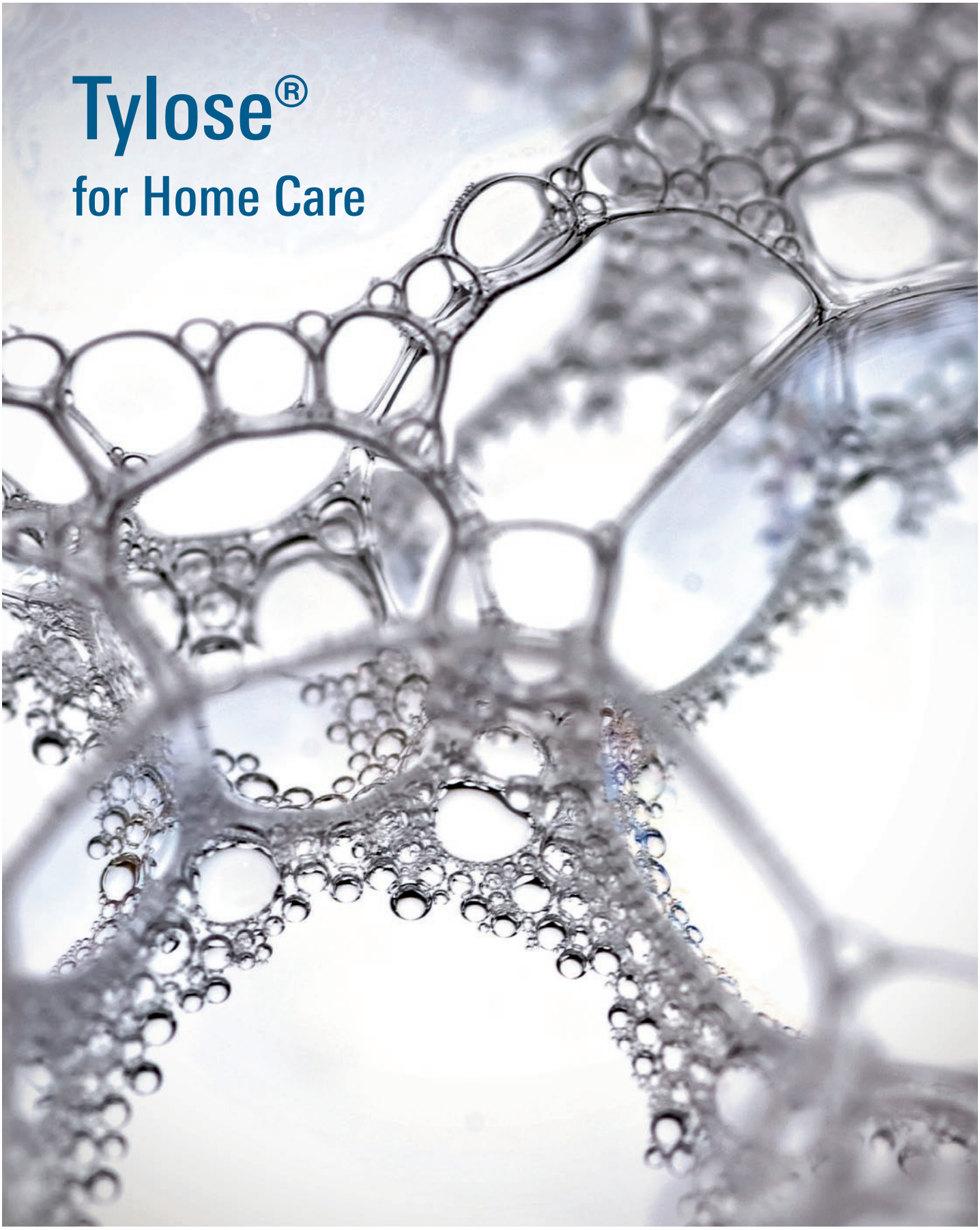
ShinEtsu
SE Tylose GmbH & Co. KG

Your Best Partner

Tylose®
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

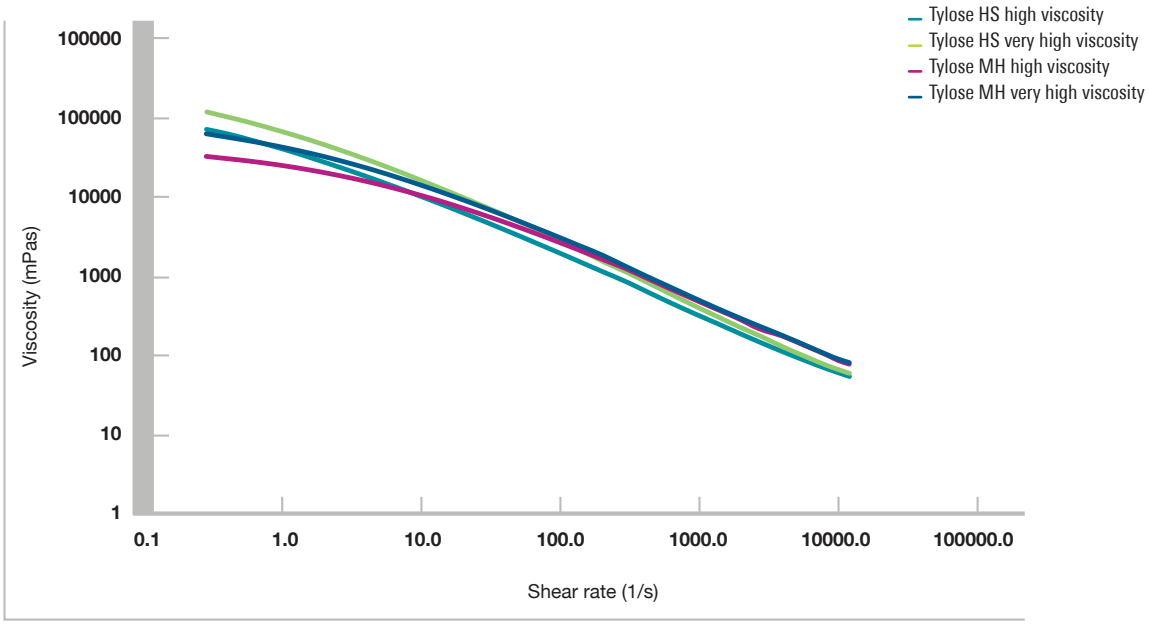
Thickening / Adjustment of Consistency

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 concentration, 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

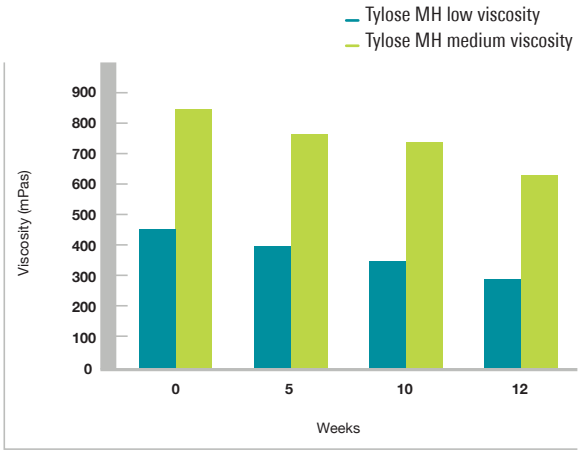


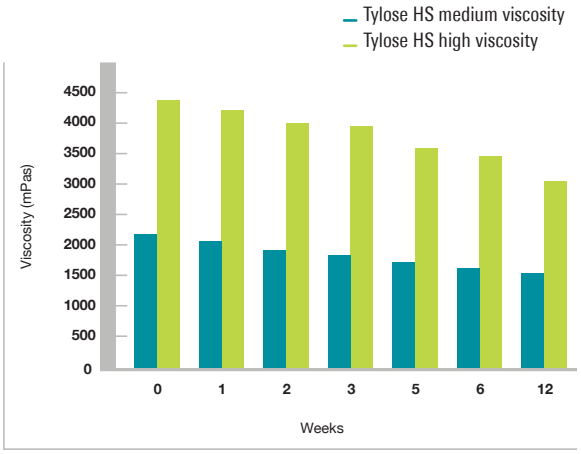
measured at 20 °C, water 20 °dH (German hardness), 1.9 % solutions

Storage Stability

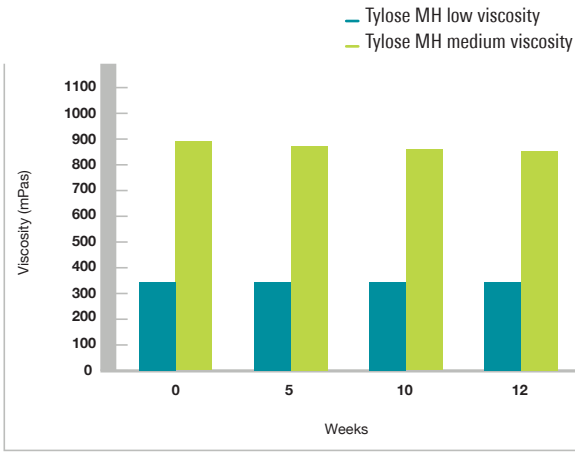
Tylose® displays optimum storage stability when water-based cleaners are pH neutral. Generally, the lower a Tylose grade's viscosity, the better its storage stability. The more acidic or alkaline a cleaner is, the more the Tylose viscosity will be reduced over an extended period of time (see diagram below). It is advisable to use a low to medium viscosity Tylose grade for such products as this has significantly better storage stability.

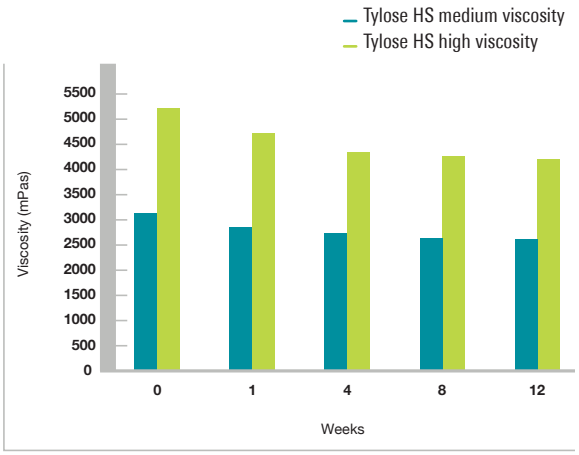
pH 6.5





pH 9.8

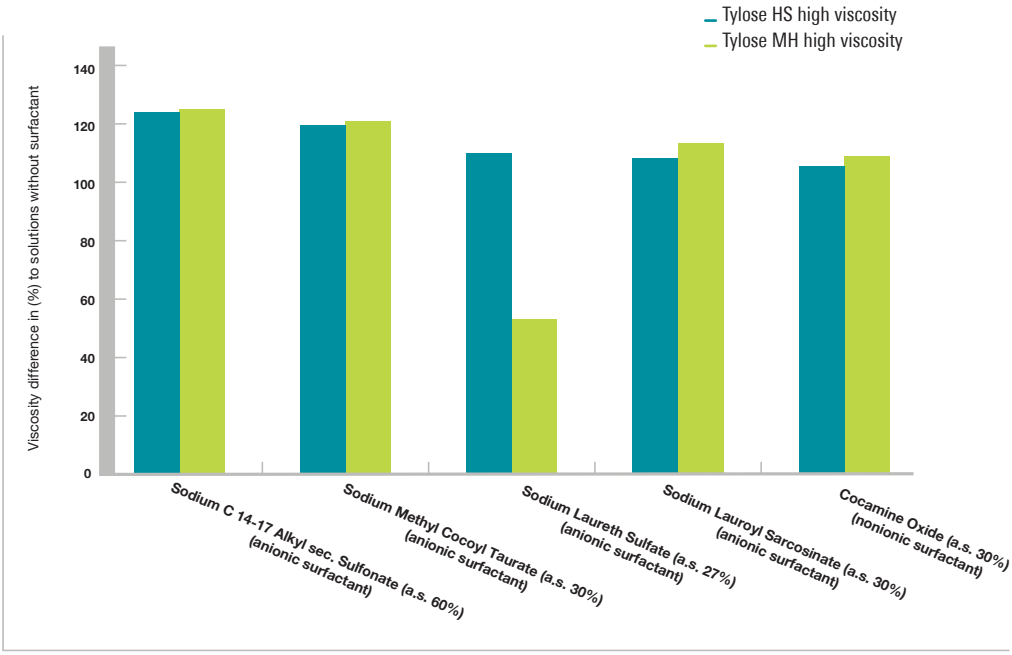




Testing of Tylose MH and HS solutions (Brookfield RV at 20 °C, 1 %) at different exposure times up to 12 weeks at pH 6.5 and pH 9.8

Compatibility of Tylose® with Surfactants

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.



Recommended Tylose® Products

Tylose grades	Viscosity	Delayed solubility	Applications			
	Viscosity ca. (mPas)		Liquid Detergents	Neutral Cleaners	Toilet Cleaners / WC-Gels	Washing up Liquids
Standard Tylose H/HS/HX						
Tylose H 4000 NG4	4500 (2,0 %)*1		■			
Tylose H 10000 NG4	7000 (2,0 %)*1		■			
Tylose HS 6000 YP2	5200 (2,0 %)*1	●	■		■	
Tylose HS 30000 YP2	2000 (1,0 %)*1	●		■	■	
Tylose HS 60000 YP2	3000 (1,0 %)*1	●		■		
Tylose HS 100000 YP2	4500 (1,0 %)*1			■		■
Tylose HX 6000 YG4 Plus	4500 (1,0 %)*1				■	■
Standard Tylose MH/MHS/MO						
Tylose MH 4000 KG4	4500 (1,9 %)*2	●	■			
Tylose MH 10000 KG4	10000 (1,9 %)*2	●			■	
Tylose MH 30000 YG8	23500 (1,9 %)*2	●		■	■	■
Tylose MHS 60000 YP4	31000 (1,9 %)*2	●		■		
Tylose MOBS 4070 P4	4750 (2,0 %)*3			■		■

■ recommended
*1 Brookfield LV, 25 °C, deionised water
*2 Brookfield RV, 20 °C, water 20 °dH (German hardness)
*3 Brookfield LV, 20 °C, deionised water

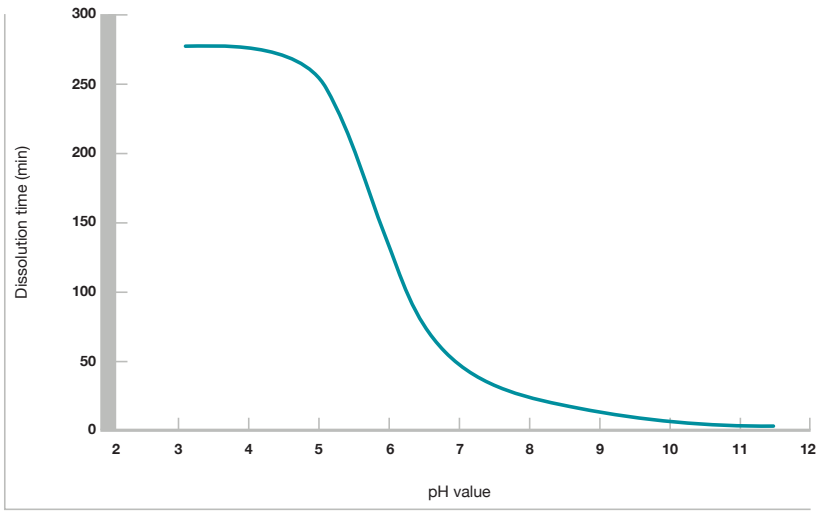
Nomenclature of Tylose®

Example: Tylose MH 4000 KG4

MH		4000		KG4	
	Type of ether		**Viscosity level**		**Chemical refinement**
M	Methyl	⋮		Y	Delayed solubility*
H	Hydroxyethyl	60000	The viscosity level is based on Hoeppler:	K	Readily soluble granules
		30000		N	Non-delayed solubility products (only for Tylose H grades)
	Degree of etherification	15000	2 % solution of the commercial product with 5 % moisture content, 20 °C, 20° dH (German hardness)		
		10000			**Particle size**
S	Special higher degrees of etherification, depending on the individual type of ether	6000			
		4000			**Granule types:**
		2000		G4	Granules (< 500 µm)
		200		G8	Granules (< 300 µm)
		⋮			
					Powder types:
				P2	Powder (< 180 µm)
				P4	Fine powder (< 125 µm)

***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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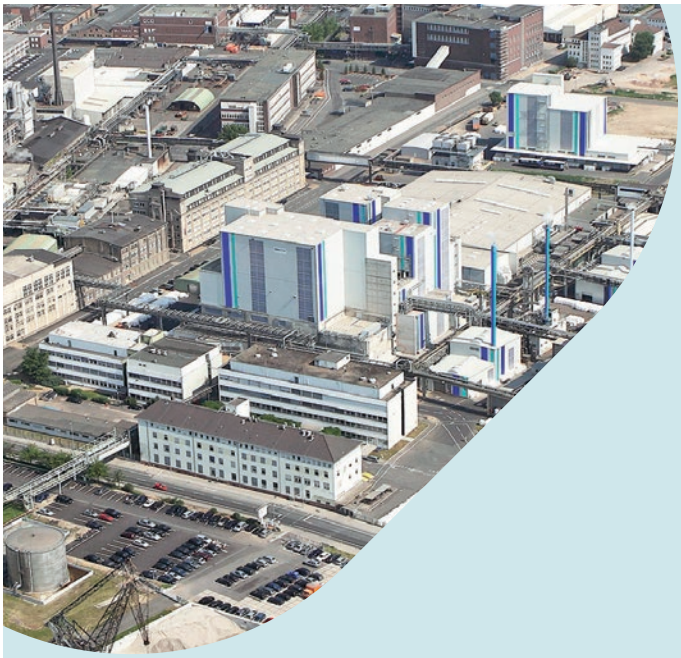

About us

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.

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Applications

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

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