



Technical Data Sheet

CELLOSIZE™ Texture 40-0202 Hydroxypropyl Methylcellulose

INCI name: Hydroxypropyl methylcellulose

Features & Benefits

- Foam & lather stabilization
- Thickening
- Lubricity
- Cold water dispersible
- Allows clear formulas
- Mild for the skin
- Stable over a broad pH range (3–11)
- Good salt & electrolyte tolerance
- Synergistic conditioning behavior with UCARE™ & SoftCAT™ conditioning polymers

Composition

- Methoxy and hydroxypropyl substituted cellulosic polymers

Applications

- Shampoos
- Body washes
- Hand soaps & bar soaps
- Hair gels & mousses
- Shaving products
- Skin care

Typical Properties

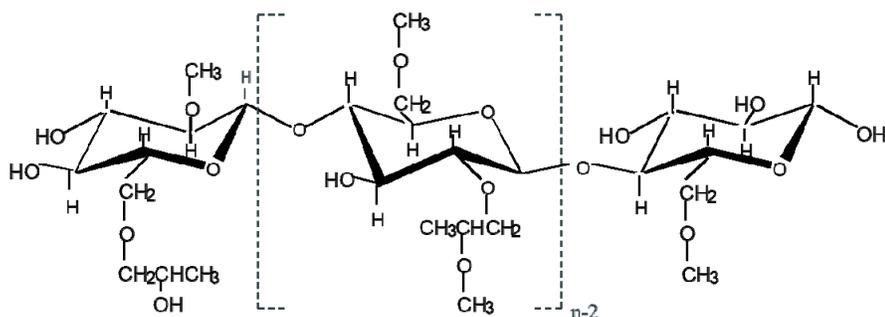
Specification Writers: These values are not intended for use in preparing specifications.

Test ¹	Property	Unit	Result
	Methoxyl	%	29
	Hydroxypropyl	%	10
DOWM 101662	Viscosity (2% in water at 20°C)	cP	3500–5500
	Bio-based carbon	%	69

1. Dow Test Method

Description

CELLOSIZETM Texture are methoxy and hydroxypropyl substituted cellulosic polymers that are supplied as white powders. The ratio of methoxy to hydroxypropyl largely determines the properties of the different product grades.



Formulating Tips

CELLOSIZETM Texture 40-0202 Hydroxypropyl Methylcellulose is surface treated with glyoxal to render the powders temporarily insoluble in cold water. This allows the CELLOSIZETM product to be added to a formulation and dispersed at relatively low shear without any significant viscosity increase initially.

The “time delay” of the hydration or viscosity build is a function of temperature, pH, and concentration of CELLOSIZETM Texture. Normally, the concentration of CELLOSIZETM Texture in the system does not become a factor until the concentration exceeds 5% by weight (relative to water in the system). At higher concentrations, the time of hydration (referred to as delay time) is reduced. The delay time is generally reduced as temperature is raised. The figure below shows a typical delay time as a function of pH, evaluated at room temperature.

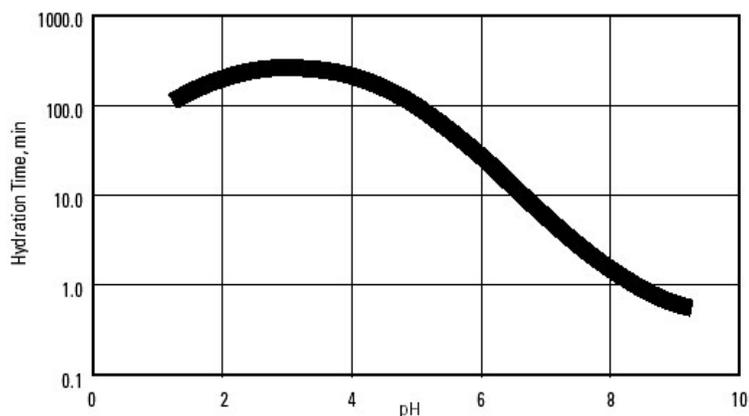


Figure 1: Typical hydration delay time of CELLOSIZETM Texture products as a function of pH

Formulating Tips (Cont.)

In many cases it is desirable to “trigger” viscosity build immediately following dispersion. Aqueous slurries can be held for 45 minutes and still remain usable in neutral systems. A trigger can conveniently be used by adding a small amount of a base, such as ammonium hydroxide, sodium bicarbonate, etc. If CELLOSIZETM Texture is dispersed in neutral water (pH of 7), there is adequate time for thorough dispersion. Addition of base to raise the pH to approximately 9 causes the hydration to be completed in just a few minutes.

Common alkaline catalysts used in personal care are dilute sodium hydroxide, alkanolamines, amino methyl propanol (AMP), or any other raw material which would raise pH above 8.0. An excellent catalyst that serves double duty in these formulations is VERSENETM 100 Chelating Agent (tetrasodium EDTA) which contributes a small but effective amount of alkalinity.

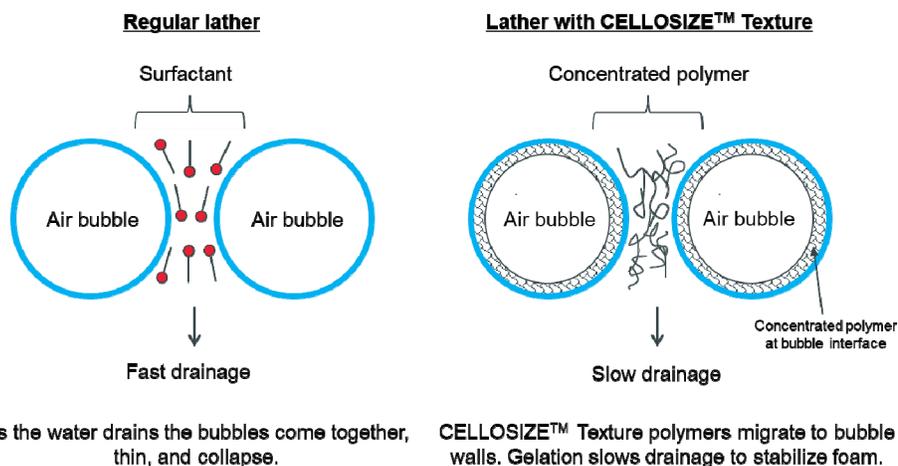
For best results and to achieve maximum hydration, surface treated CELLOSIZETM Texture powders should be added with good agitation to a neutral pH system. The system should be agitated thoroughly for a few minutes, followed by an adjustment of pH to 8.5 to 9.0 with continued agitation, until full viscosity is reached (usually 10 to 30 minutes). Once the pH has been shifted to the alkaline side (pH 8.5 to 9.0), allowing full and rapid solubilization of the surface-treated product, solutions are stable over the pH range of 3 to 11.

Dispersion Technique

1. Add the cold water dispersible CELLOSIZETM Texture powder to water at neutral pH. Cold water dispersible products can be added directly to water systems at 40°C or below. Begin agitation.
2. Continue agitation and add sufficient base to raise the pH to 8.5–9.0. This will result in rapid viscosity development. Continue agitation until sufficient hydration and full viscosity has been achieved (usually 10–30 minutes).
3. Re-adjust pH to desired value for final formulation. Solutions of CELLOSIZETM Texture are stable at pH 3–11.

Mechanism of Action

CELLOSIZETM Texture products offer a unique property called interfacial gelation. This property is the cumulative result of the inherent surface activity and gelling behavior of hydroxypropyl methylcellulose. Interfacial thermal gelation occurs spontaneously even in very dilute systems over a wide range of use temperatures. This formation of gelled films within the foam accounts for the polymer's ability to enhance lather in cleansing products of all types. It also explains why foams are denser and more stable.



**Handling
Precautions**

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

**Usable Life and
Storage**

Shelf life is 36 months. Store the product indoors in a closed container.

**Packaging
Information**

Product is sold in 20 kg bags.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

**Health and
Environmental
Information**

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

**Disposal
Considerations**

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

**Product
Stewardship**

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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