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ProductInformation

(Hydroxypropyl)methyl cellulose

Product Number **H8384**
Store at Room Temperature

Product Description

Molecular weight: approximately 22 kDa

Hydroxypropylmethylcelluloses are water soluble polymers derived from cellulose. They are typically used as thickeners, binders, film formers, and water retention agents. They also function as suspension aids, surfactants, lubricants, protective colloids, and emulsifiers. In addition, solutions of these polymers thermally gel.[1,2]

These polymers are prepared by reacting wood or cotton cellulose fibers with propylene oxide and methyl chloride in the presence of caustic soda.

This product has a methoxyl content of 28 - 30% and a hydroxypropoxyl content of 7 - 12%.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (50 mg/ml). However, it is very important to thoroughly disperse the particles in water with agitation before they will dissolve. Otherwise, they will lump and form a gelatinous membrane around the internal particles, preventing them from wetting completely.

There are four dispersion techniques commonly used to prepare solutions of hydroxypropylmethylcellulose: dispersion in hot water, dry blending, dispersion in non-solvent medium, and dispersion of surface-treated powders. (The last method is only for surface-treated powders).

Dispersion in hot water:

1. Heat approximately 1/3 the required volume of water to at least 90 °C.
2. Add the powder to the heated water with stirring or agitation.
3. Agitate the mixture until the particles are thoroughly wetted and evenly dispersed.
4. Add the remainder of the water (cold water) to lower the temperature of the dispersion. As the product cools, it will reach a temperature at which it becomes water soluble. It will then begin to hydrate and dissolve, increasing the viscosity of the solution.
5. Continue agitation for at least 30 minutes after the proper temperature is reached for solubility. The solution is now ready to use.

Dry blending:

1. Combine powder with other dry ingredients. The suggested ratio of dry powder to hydroxypropylmethylcellulose is 7:1 to 3:1.
2. Thoroughly blend the dry ingredients.
3. Add the dry mixture to water with agitation.
4. Agitate until the product has completed hydrated and the solution is consistently smooth. The solution is now ready for further processing/use.

Dispersion in non-solvent medium:

1. Hydroxypropylmethylcellulose may be dispersed in non-solvent media such as vegetable oil, polyethylene glycol, glycerin, corn syrup, and concentrated salt solutions. A ratio of 5-8 parts non-solvent to 1 part hydroxypropylmethylcellulose is recommended to obtain a liquid slurry.
2. Agitate the mixture until the particles are evenly dispersed.
3. This dispersion may be added to cold water or cold water may be added to the dispersion.
4. Continue mixing until the powder is completely hydrated and the solution is smooth. Additional ingredients may now be added to the formulation.

References

1. Savage, A. B., Encyclopedia of Polymer Science and Technology, vol. 3, Interscience (New York, 1965), p. 496-511.
2. Greminger, G. K., Savage, A. B., Industrial Gums, R. L. Whistler, Ed., Academic Press (New York, 1973), p. 619-647.

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