

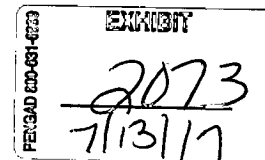
David B. Braun  
Meyer R. Rosen

# Rheology Modifiers Handbook

Practical Use and Application

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# **RHEOLOGY MODIFIERS HANDBOOK**

**Practical Use and Application**

by

**David B. Braun**

**Meyer R. Rosen**

Interactive Consulting Inc.  
East Norwich, New York

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### 7. Carboxymethylcellulose Sodium

These rheology modifiers are classified chemically as cellulose ethers and are produced by reacting alkali cellulose with sodium monochloroacetate. Their unit chemical structure, depicted in Figure 2.3 below, is composed of two anhydroglucose units each of which originally contains three hydroxyl. Sodium Carboxymethyl groups are substituted for some of the hydrogens of these hydroxyl groups. The Degree of Substitution (DS) is defined as the average number of substituted with Sodium Carboxymethyl substituted per anhydroglucose unit. Commercial products typically have a DS between about 0.7 and 1.2.

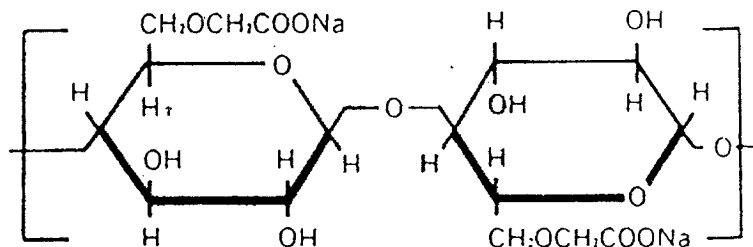


Figure 2.3

(Reprinted from Aqualon Div, Hercules, Inc. Technical Bulletin Ref.1)

<p><b>A. Recommended Application Areas</b></p> <ol style="list-style-type: none"> <li>1. Food</li> <li>2. Pharmaceutical</li> <li>3. Personal Care</li> <li>4. Household/Institutional</li> </ol>	<p><b>C. Ionic Charge</b></p> <p>Anionic</p>
<p><b>B. Recommended Solvent Systems</b></p> <ol style="list-style-type: none"> <li>1. Hot or cold water</li> </ol>	<p><b>D. Compatibility/Stability Characteristics</b></p> <ol style="list-style-type: none"> <li>1. Best stability at pH 7-9</li> <li>2. Trivalent cations can cause precipitation</li> </ol>

Notes for FMC Microcrystalline Cellulose data:  
 1 Brookfield Model RV at 20 rpm with appropriate spindle, measured at 120 sec.

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**Useful References**

"AQUALON Sodium Carboxymethylcellulose, Physical and Chemical Properties", Hercules, Inc., Technical Bulletin 250-10F.

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