

● **SODIUM CARBOXYMETHYLCELLULOSE (SCMC)**

Room541, Saina Business Center Building,
111# YanJi Road, Qingdao266034, China

SCMC covers wide range of applications including a variety of food stuffs, toothpaste, paper, pharmaceuticals, oil drilling, ceramics, cigarettes, batteries, etc. our product is especially strong on food grade and is highly reputed for the excellent performance of its food grade products.

Quality & Service

It is our leading principle to unite the entire workforce in their commitment to provide the best quality and service to their customers. Our product has been steadily supplying top quality products to top biggest dairy and soft drinks manufacturers in china for many years.

Main applications:

CMC is widely used in frozen desserts, protein food, beverages, icings, dressings, instant noodles, etc.

1. Properties

1. Thickening: CMC can produce high viscosity at low concentration. It also acts as lubricant.
2. Water retention: CMC is a water binder, helps increase shelf life of food.
3. Suspending aid: CMC acts as emulsifier and suspension stabilizer, particularly in icings to control ice crystal size.
4. Film forming: CMC can produce a film on the surface of fried food, eg. Instant noodle, and prevent absorption of excessive vegetable oil.
5. Chemical stability: CMC is resistant to heat, light, mold and commonly used chemicals.
6. Physiologically inert: CMC as a food additive has no caloric value and can not be metabolized.
7. Odorless, tasteless, non-toxic.

2. Characteristics of food grade CMC

- A. Finely distributed molecular weight
- B. High resistance to acid
- C. High resistance to salt
- D. High transparency, low free fibers
- E. Low gel

3. Examples of application

1. Ice cream:

1. CMC can mix freely with milk, sugar, emulsifier and other ingredients.
2. It helps body formation of the ice cream.
3. It helps control ice crystal size and improves mouth feel.
4. It brings glossy surface to the ice cream.

2. Instant noodle:

1. SCMC facilitates mixing and extrusion of flour.
2. It forms smooth film on the surface of noodle on heating.
3. It prevents absorption of excessive vegetable oil.
4. It increase the noodle's strength, saves cost on handling.
5. It improves mouth feel.

3. Yoghurt:

1. CMC stabilizes yoghurt and prevents sedimentation.
2. It increases shelf life.

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3. CMC performs well at pH 2-4.
4. It improves mouth feel.

1. Characteristics of CMC for toothpaste:

1. Acid resistance: pH 2-4.
2. Salt resistance: The addition of salt will not decrease but rather increases the viscosity of CMC aqueous solution.
3. Thermal resistance.
4. High transparency.
5. Antibacterial.

2. Advantages:

1. Good compatibility to toothpaste ingredients.
2. Good thickening affect, helps retain extrusion set.
3. Smooth and glossy body.
4. Increases shelf life.

CMC in Oil Drilling

CMC is a high-purity, high-efficiency slurring agent.

2. It is resistant to salt, base and moisture, compatible with sea water and saturated brine.
3. It is a strong thickener, suitable for in-situ preparation with dry powder.
4. PAC-HV is a high-performance thickener. It has good slurring capacity and water retention.
5. PAC-LV has high water retention capacity, in both sea water mud and saturated brine mud.
6. CMC is suitable for slurry system with broad solid content variation.
7. When used as fracturing fluid, it provides good sand suspending and gel rupture capability, and low gel residue.

| | Viscosity mpa.s | Substitution degree | Purity % | Water % | PH | Water loss | | | Slurring capacity ³ /t | | |
|------------|--------------------|------------------------|-------------|------------|-------------|------------|--------------|--------------------|-----------------------------------|--------------|--------------------|
| | | | | | | Increase | Sea water | Saturated brine | Fresh water | Sea water | Saturated brine |
| PAC-LV | ≤60 | ≥1.0 | ≥98 | ≤10 | 6.0- 8.5 | 1.0 | ≤10 | ≤16 | / | / | / |
| PAC-R | 1000- 2000 | ≥1.0 | ≥98 | ≤10 | 6.0- 8.5 | / | / | / | ≥350 | ≥150 | ≥200 |
| PAC- HV | ≥2000 | ≥0.95 | ≥98 | ≤10 | 6.0- 8.5 | / | / | / | ≥500 | ≥220 | ≥300 |

CMC in Ceramics

CMC for ceramics features uniform distribution of substituents (carboxymethyl group) on the cellulose backbone. It produces fewer gel granules in glaze formulation.

2. It contains no colored impurity and is 100% combustible under firing condition, to ensure clean ceramic glaze.
3. It can stabilize physical and chemical property of glaze formulation.
4. It can improve glaze adhesion and reduce glaze cracking.

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5. It facilitates formation of a smooth dense glaze layer.
6. It can improve the theological property of glaze formulation.
7. The glaze viscosity is proportional to the concentration of CMC added.

Specification of CMC for ceramics

| | Viscosity (mpa.s) (1% aq. solution) | Substitution degree | Purity,% | PH |
|--------|--|------------------------|----------|---------|
| CL100 | 60-150 | ≥1.0 | ≥98 | 6.5-8.5 |
| C300 | 150-400 | ≥0.90 | ≥98 | 6.5-8.5 |
| C600 | 400-700 | ≥0.90 | ≥98 | 6.5-8.5 |
| C800 | 700-1000 | ≥0.90 | ≥98 | 6.5-8.5 |
| CH1200 | 1000-1500 | ≥0.90 | ≥98 | 6.5-8.5 |

CMC for cigarette features high purity and fine particle size, suitable for tobacco processing.

2. It can improve the wet tack and film strength of tobacco.
3. The tobacco treated with CMC produces no foreign odor when burned. The ash is grayish white.
4. It dissolves fast and can achieve the desired viscosity in a short time.

Specification of CMC for cigarette

| | TC-I | TC-II | TC-III |
|---------------|------------------------------|--------------|---------------|
| Appearance | White to light yellow powder | | |
| Particle size | ≥80mesh | ≥80mesh | ≥80mesh |
| Viscosity | 600-800mpas | 800-1200mpas | 1200-1500mpas |
| Cl-, % | ≤1.8 | ≤1.8 | ≤1.8 |
| PH | 6.5-8.0 | 6.5-8.0 | 6.5-8.0 |
| Water, % | ≤10 | ≤10 | ≤10 |

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CMC in Battery

CMC has good resistance to base, keeps dispersing battery medium.

2. It contains only trace amount of chloride, iron and heavy metal.

3. It has good dispersibility, easy to achieve uniform and stable colloid.

4. It has good affinity to zinc powder in high-duty Alkali Mn battery.

Specification of CMC for battery

| | Viscosity (mpa.s) | Fe, Ppm | Na,% | Water,% | PH |
|---------|----------------------|---------|------|---------|---------|
| BM90 | 400-800 | ≤50 | ≤1.0 | ≤10 | 6.5-8.5 |
| BH90-1 | 800-1200 | ≤50 | ≤1.0 | ≤10 | 6.5-8.5 |
| BH90-II | ≥1200 | ≤50 | ≤1.0 | ≤10 | 6.5-8.5 |