

# KIMA CHEMICAL CO.LTD

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## Ceramic grade CMC

Ceramic grade CMC Sodium carboxymethyl cellulose solution can be dissolved with other water-soluble adhesives and resins. The viscosity of CMC solution decreases with the increase of temperature, and the viscosity will recover after cooling. CMC aqueous solution is a non-Newtonian fluid with pseudoplasticity, and its viscosity decreases with the increase of tangential force, that is to say, the fluidity of the solution becomes better with the increase of tangential force. Sodium carboxymethyl cellulose (CMC) solution has a unique network structure, can well support other substances, so that the whole system is evenly dispersed into a whole.

Ceramic grade CMC can be used in ceramic body, glazing pulp, and fancy glaze. Used in ceramic body, it is a good strengthening agent, which can strengthen the mouldability of mud and sand materials, facilitate body shaping and increase the folding strength of the green body.

### Typical properties

Appearance	White to off-white powder
Particle size	95% pass 80 mesh
Degree of substitution	0.7-1.5
PH value	6.0~8.5
Purity (%)	92min, 97min, 99.5min

### Popular grades

Application	Typical grade	Viscosity (Brookfield, LV, 2%Solu)	Viscosity (Brookfield LV, mPa.s, 1%Solu)	Degree of Substitution	Purity
CMC For Ceramic	CMC FC400		300-500	0.8-1.0	92%min
	CMC FC1200	1200-1300		0.8-1.0	92%min

### Applications:

#### 1. Application in ceramic printing glaze

CMC has good solubility, high solution transparency and almost no incompatible material. It has excellent shear dilution and lubricity, which can greatly improve the printing adaptability and post-processing effect of printing glaze. Meanwhile, CMC has good thickening, dispersion and stability effect when applied to ceramic printing glaze:

- \* Good printing rheology to ensure smooth printing;
- \* The printed pattern is clear and the color is consistent;
- \* High smoothness of solution, good lubricity, good use effect;

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- \* Good water solubility, almost all dissolved matter, not sticky net, not blocking net;
- \* The solution has high transparency and good net penetration;
- \* Excellent shear dilution, greatly improve the printing adaptability of printing glaze;

### 2. Application in ceramic infiltration glaze

Embossing glaze contains a large number of soluble salt substances, and acidic, embossing glaze CMC has superior acid resistance and salt resistance stability, so that the embossing glaze in the use and placement process to maintain stable viscosity, to prevent the change of viscosity and affect the color difference, greatly improve the stability of embossing glaze:

- \* Good solubility, no plug, good permeability;
- \* Good matching with glaze, so that the flower glaze stability;
- \* Good acid resistance, alkali resistance, salt resistance and stability, can keep the viscosity of the infiltration glaze stable;
- \* Solution leveling performance is good, and viscosity stability is good, can prevent viscosity changes affect the color difference.

### 3. Application in ceramic body

CMC has a unique linear polymer structure. When CMC is added to water, its hydrophilic group is combined with water to form a solvated layer, so that CMC molecules are gradually dispersed in water. CMC polymers rely on hydrogen bond and van der Waals force to form a network structure, thus showing adhesion. CMC for ceramic embryo body can be used as excipient, plasticizer and strengthening agent for embryo body in ceramic industry.

- \* Less dosage, the green bending strength increase efficiency is obvious;
- \* Improve green processing speed, reduce production energy consumption;
- \* Good loss of fire, no residue after burning, does not affect the green color;
- \* Easy to operate, prevent glaze rolling, lack of glaze and other defects;
- \* With anti-coagulation effect, can improve the fluidity of glaze paste, easy to spray glaze operation;
- \* As a billet excipient, increase the plasticity of sand material, easy to form the body;
- \* Strong mechanical wear resistance, less molecular chain damage in the process of ball milling and mechanical stirring;
- \* As billet strengthening agent, increase the bending strength of green billet, improve the stability of billet, reduce the damage rate;
- \* Strong suspension and dispersion, can prevent poor raw materials and pulp particles settling, so that the slurry evenly dispersed;
- \* Make the moisture in the billet evaporate evenly, prevent drying and cracking, especially used in large size floor tile billets and polished brick billets, the effect is obvious.

### 4. Application in ceramic glaze slurry

CMC belongs to the polyelectrolyte class, which is mainly used as a binder and suspension in glaze slurry. When the CMC in the glaze slurry, water seep into the CMC plastic piece inside,

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hydrophilic group combined with water, produce water absorption expansion, while the micelle in hydration expansion, internal external combined with water layer is formed, micelle in early dissolved phase in adhesive solution, because of the size, shape asymmetry, and combined with the water gradually formed network structure, volume is very big, Therefore, it has strong adhesion ability:

- \* Under the condition of low dosage, effectively adjust the rheology of glaze paste, easy to apply glaze;
- \* Improve the bonding performance of the blank glaze, significantly improve the glaze strength, prevent deglazing;
- \* High glaze fineness, stable glaze paste, and can reduce the pinhole on the sintered glaze;
- \* Excellent dispersion and protective colloid performance, can make the glaze slurry in a stable dispersion state;
- \* Effectively improve the surface tension of glaze, prevent water from glaze diffusion to the body, increase the smoothness of glaze;
- \* Avoid cracking and printing fracture during conveying due to the drop in the strength of the body after glazing.

### Packaging:

CMC Product is packed in three layer paper bag with inner polyethylene bag reinforced , net weight is 25kg per bag.

12MT/20'FCL (with Pallet)

14MT/20'FCL (without Pallet)