



Photo of the burst of an 8" Onda - Reddish Gamboge to Red, Green and Blue shell. Break radius was 400 feet (total spread of 800 feet).

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CMC Its Properties and Uses

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CMC, as it is commonly called, is more properly referred to as Sodium Carboxymethylcellulose (carboxy-methyl-cellulose). In the food industry it is also frequently referred to as cellulose gum.

CMC is colorless, odorless, tasteless, and non-toxic. It is somewhat hygroscopic and dissolves readily in water. It is highly thixotropic (That is to say, it is a very effective thickening agent, like corn starch except much more effective. It is used in the food industry to thicken things such as low-cal pancake syrup.) For a good grade of CMC the use of only 1, 2 or 3% will turn water into a slimy liquid, a thick goo or gelatin, respectively. CMC is also an unusually effective adhesive.

In pyrotechnics, CMC has two important uses. Because CMC is so effective as an adhesive even in relatively small amounts (1 to 2%), it

makes an excellent binder in situations when the presence of 4 to 6% binder can adversely affect the performance of a composition. For example, in strobe compositions the presence of a high percentage of binder tends to cause the composition to burn continuously as opposed to strobing. The use of CMC in low percentages often improves and makes it easier to control strobe performance. Because CMC is so effective as a thixotropic agent even in relatively small amounts (1 to 2%), it makes an excellent additive when trying to maintain formulations in suspension. For example, in priming or in the manufacture of black match there is always the difficulty of keeping the meal powder ingredients from settling to the bottom of the container during use. The use of CMC in low percentages easily thickens the suspension to the point where essentially no settling occurs.