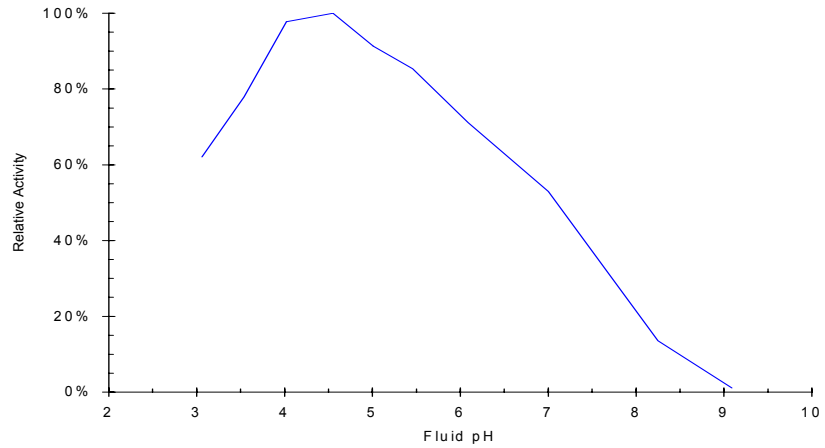


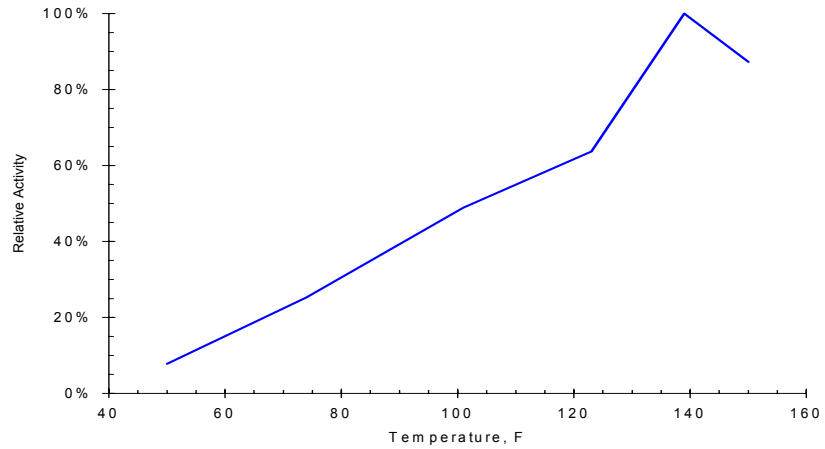
- DESCRIPTION** EB-1 and EB-10 are two enzyme based fracturing fluid breakers. The enzyme contained in these breakers is a hemicellulase derived from the fermentation of *Aspergillus niger*. EB-10 is approximately 10 times more active than EB-1. Both breakers are readily soluble in water if a liquid is preferred.
- ADVANTAGES**
- EB-1 and 10 are powders that are readily soluble in water on location.
  - EB-1 and 10 can be packaged and labeled to meet your requirements, including in water-soluble bags.
  - Quality assurance insures consistent break times with each batch of EB-1 and 10.
- APPLICATION**
- EB-1 and 10 can be used in fracturing fluids below pH 9 and 140°F.
  - EB 1 and 10 may be used in conjunction with delayed release acids (EnCap-A or SBS) in high pH fluids below 120°F. After the pH of the fluid decreases due to released acid, the enzyme will activate and break the fluid.
- PROPERTIES**
- Faint Yellow Powder
  - Solubility in water – 16 g/100 g of water
  - Specific Gravity – 1.15 g/mL
  - Bulk density – 44 to 55 lb./ft.<sup>3</sup>
  - Activity – EB-1/EB-10 ~ 55/570 units/gram
  - Enzyme activity versus
    - pH see FIGURE 1
    - Temperature see FIGURE 2
  - Viscosity Profiles in 40 lb. of guar/Mgal. gels at 100°F
    - pH 4.6 see FIGURE 3
    - pH 6.8 see FIGURE 4
  - Profiles of 40 lb. guar/Mgal. gels at pH 9.6 with EnCap SBS at
    - 74°F see FIGURE 5
    - 100°F see FIGURE 6

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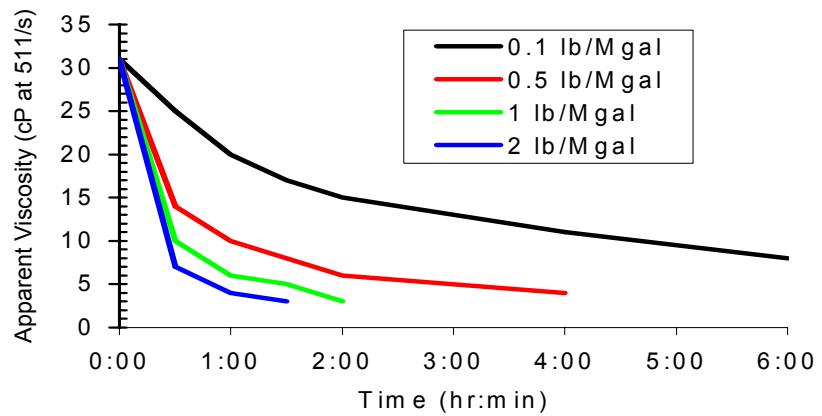
**FIGURE 1**



**FIGURE 2**

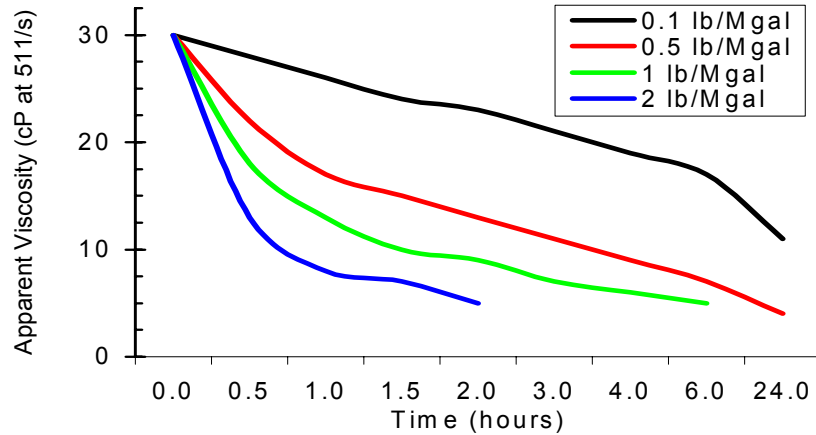


**FIGURE 3**

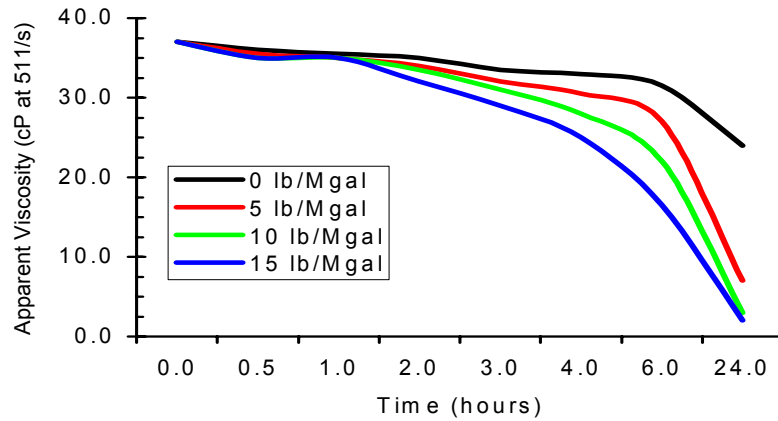


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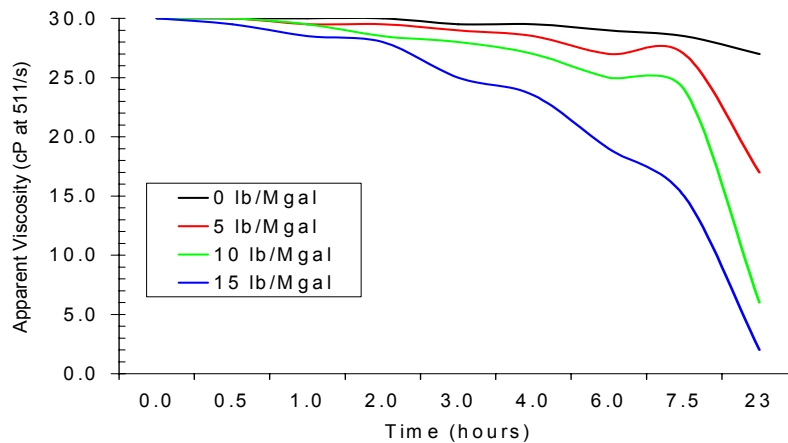
**FIGURE 4**



**FIGURE 5**



**FIGURE 6**



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