IMP-08: Effects of Bake Hardening Property on Dynamic Yield Strength of Ultra High Strength Sheet Steels
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The application of high strength steel for automotive body parts, especially pillars and cross members is one of the most effective methods both reducing the weight of automobiles and safety. Generally, the higher yield strength of steel sheets contributes to crash energy management. It is important to measure the dynamic yield strength correctly in order to evaluate the crash energy absorption property. However, it is difficult to measure the yield strength under dynamic loading condition. In this study, the tensile tests were carried out to determine the accurate yield strength on the ultra high strength sheet steels under dynamic loading condition. Four kinds of steel sheets with various strength levels are selected for this study. The dynamic tensile properties are measured with the split-Hopkinson bar apparatus at the strain rate of 1000 /s. Moreover, it is evaluated the effects of bake hardening (BH) treatment on the dynamic yield strength, because the influence of BH treatment on the yield strength has not been adequately clarified under dynamic loading condition. BH treatment is done in some samples at 443K x1200sec. The effects of BH property on the strain rate dependence of the yield strength are discussed in the ultra high strength steel sheets.

Coffee Break