Caterpillar, some time after a change in forging heats, found that fracture splitting manufacturing differences yielded changes in heat. A study was performed to assess the discrepancy through analysis of the microstructure and the fracture behavior of fractured Charpy V-notch bars. It was found that larger prior austenite grains and less proeutectoid ferrite corresponded to the best fracture behavior. Also, parts that had problems fracturing tended to have larger shear lips than the parts that did not have problems.

Project Background
Caterpillar uses fracture splitting to manufacture the connecting rods in large engines - using a wedge to completely fracture the bearing starting from two connecting rods. To achieve this strength they completely fracture the bearing starting from two.