Crack edge or broken edge is a defect which occurs in hot rolled coils. A survey of literature indicates that inclusions and rimhole structure are responsible for crack edges in hot rolled steels. It is found that the information available in literature on edge cracking in steel is mostly confined to killed and rimming steels.

In this study, the effect of deoxidation on edge cracking in hot rolled low carbon semikilled steel has been studied. Our study indicates that the deoxidation has profound influence on edge cracking. Five methods of deoxidation have been tried and capabilities of the different methods to give high ingot to slab yield and low crack edge coil percentage have been assessed.

Results of our study are summarised below.

Manganese is helpful in reducing edge cracks. Decrease in sulphur causes decrease in edge cracking. At higher level of sulphur, higher degree of deoxidation is required to overcome the problem of edge cracking. With increase in silicon level, the percentage of crack edge coils decreases. With ferrosilicon and ferromanganese deoxidation, the optimum level of silicon is found to be 0.060 to 0.080%. Aluminium addition in the ladle does not
very much help in reducing edge cracking. With aluminium deoxidation, about 54% the coils produced have crack edges. When aluminium shots are added in the mould during teeming at the rate of 0.125 Kg/T to the steel already deoxidized with ferromanganese and ferrosilicon, reproducible deoxidation is easily achieved. With this type of deoxidation practice, an ingot to slab yield of 87 to 88% and crack free edges in more than 97% of the coil production can be achieved.