

A HISTORICAL REVIEW OF RETAINED AUSTENITE AND ITS MEASUREMENTS BY X-RAY DIFFRACTION

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The direct comparison method for x-ray diffraction has been utilized since the advent of the x-ray camera to determine the amount of a second phase in mixtures such as large polycrystalline metals. The technique has become most refined, however, in its use for the determination of retained austenite in hardened steels. This paper examines some of the early film work of researchers that perfected the technique and dealt with the many problems of the experimental measurements. It examines early diffractometer work by pioneers in the field and looks at the group effort among researchers which lead to the definitive publication, SAE SP-453, *Retained Austenite and Its Measurements by X-Ray Diffraction*. The paper comments on the accuracies of the techniques employed over the years and examines the continual use of the technique along with an update on new interpretations which can be determined from "old" data via the use of computerized data analysis.