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Methodology of bainite/martensite characterisation

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Quantitative analysis of second phase

Usibor steel: Fe-0.22C-2Mn

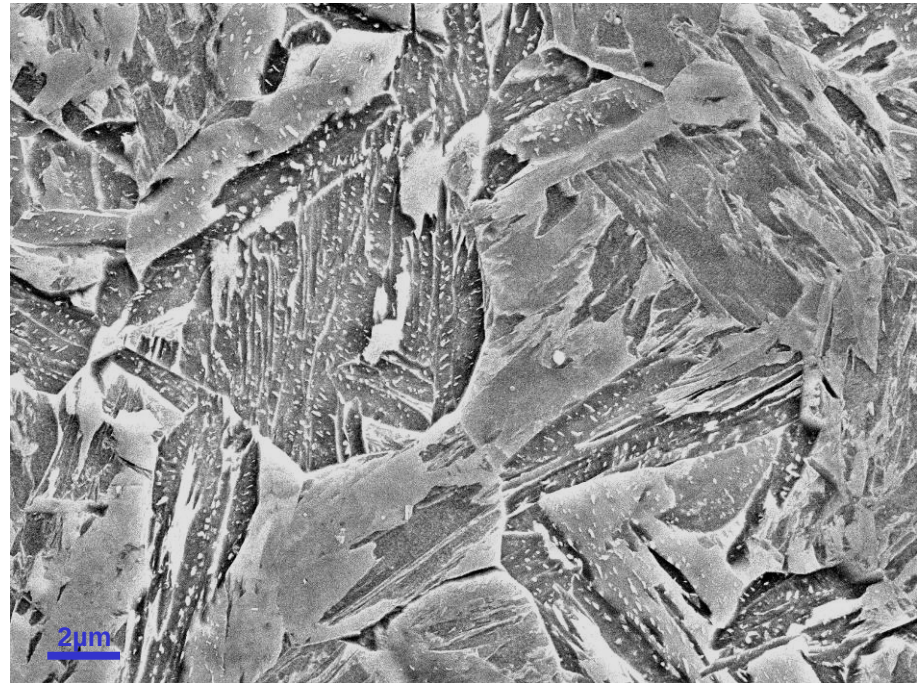
880°C 5min + 425°C 30s

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Nital → OM

Lower bainite + fresh martensite



Picral +Nital → FEG-SEM

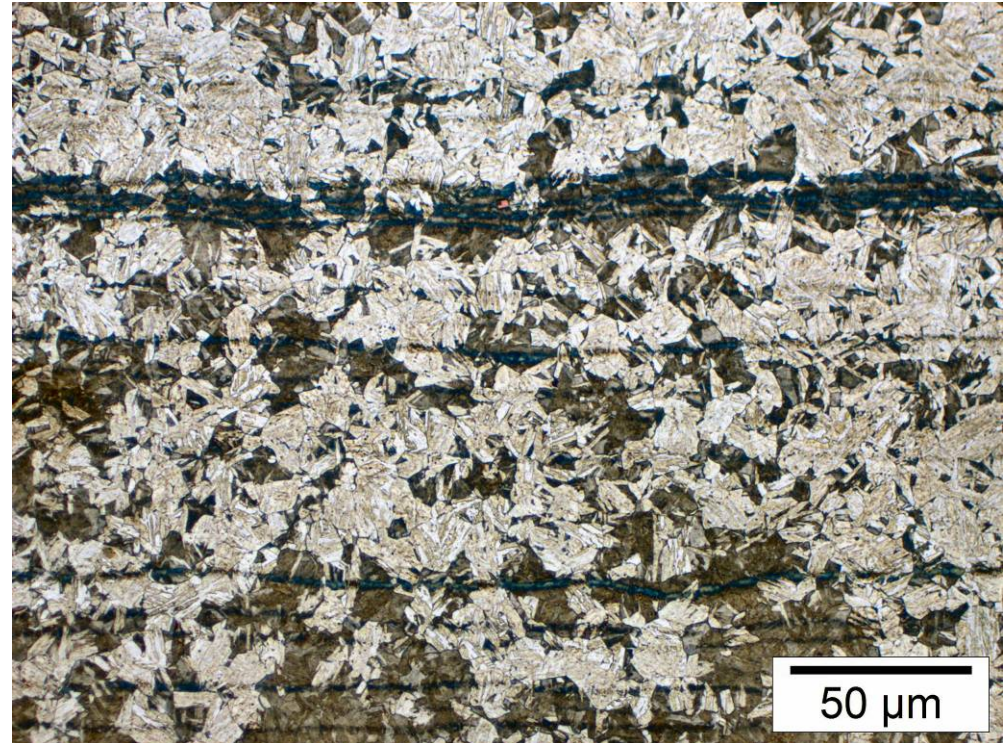
Quantitative analysis of second phase



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Colored etching

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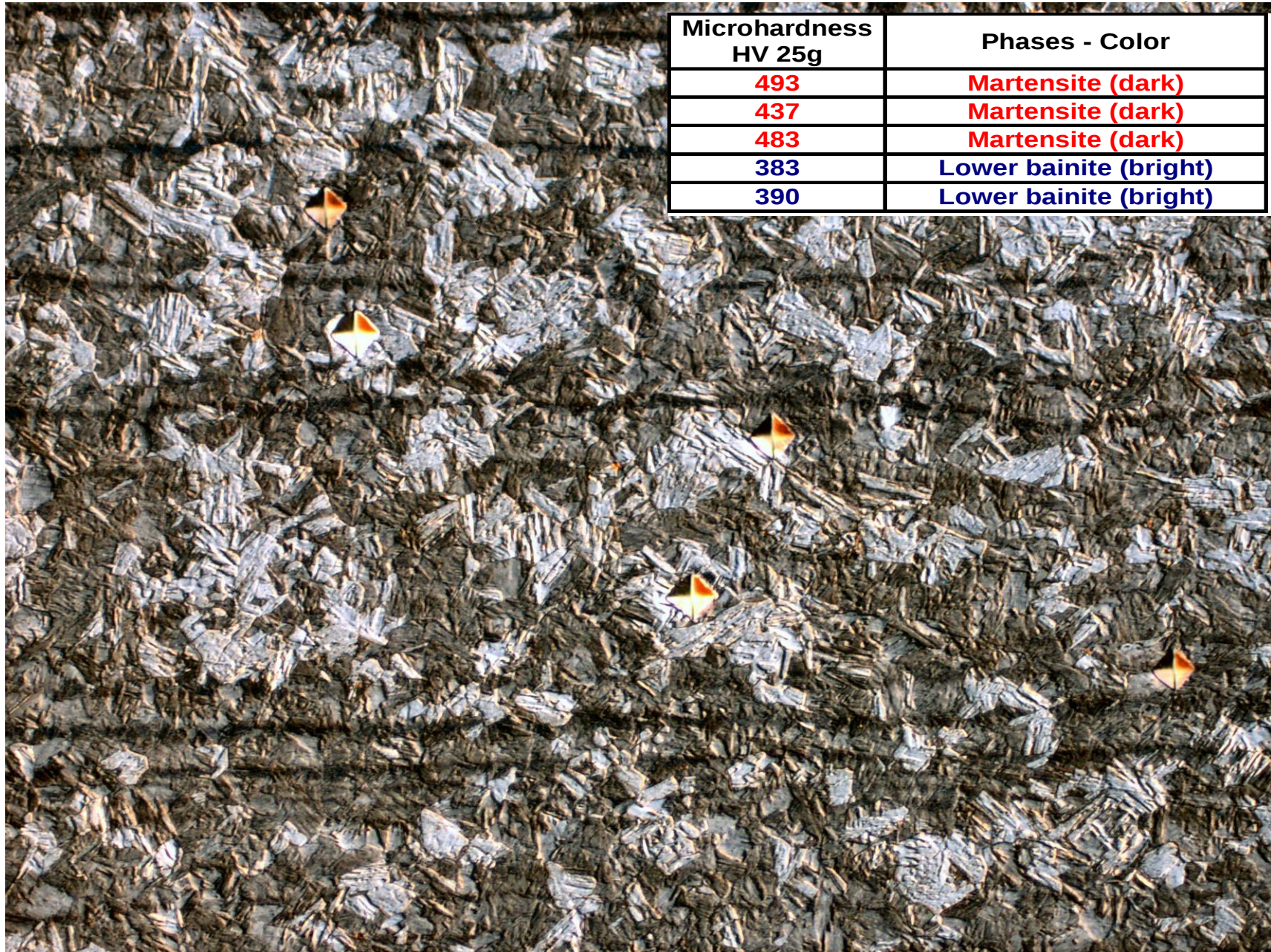
Microstructure obtained after double
etching of Nital/Picral + Nitrate of
Beaujard

reference

Quantitative analysis of second phase



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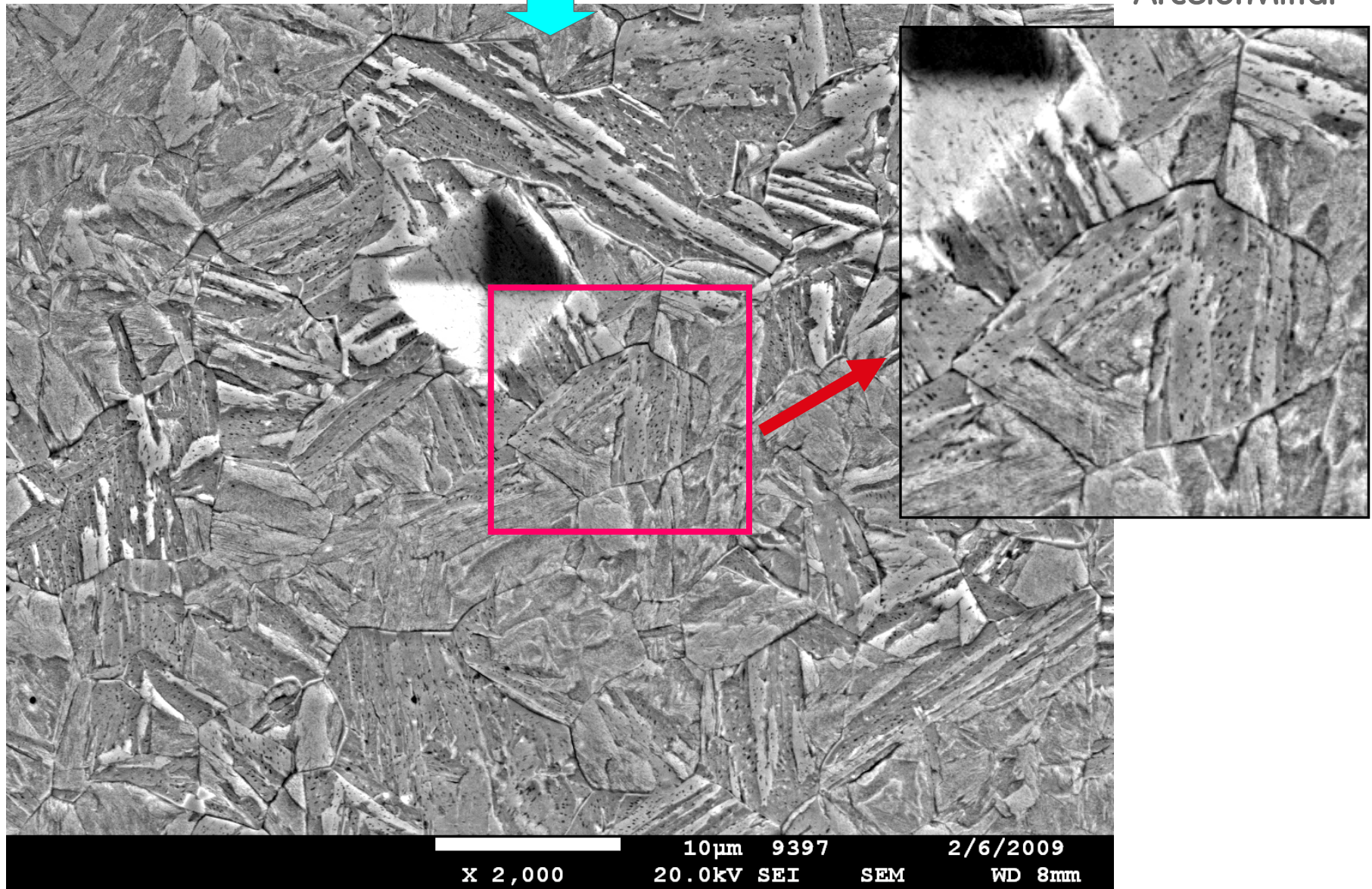
Microhardness HV 25g	Phases - Color
493	Martensite (dark)
437	Martensite (dark)
483	Martensite (dark)
383	Lower bainite (bright)
390	Lower bainite (bright)

Quantitative analysis of second phase



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Date

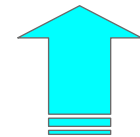
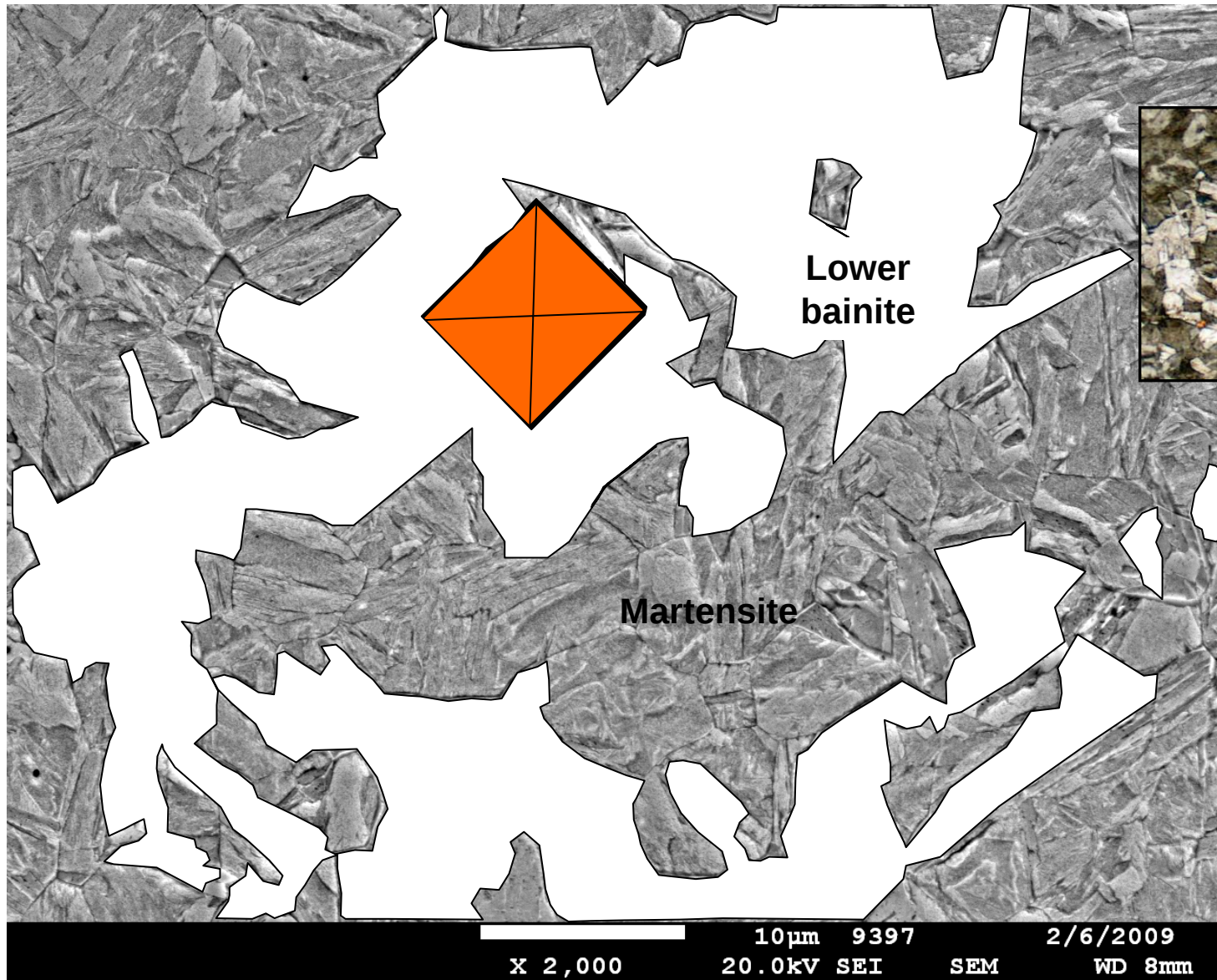
FEG-SEM (Nital/Picral + Nitrate Beaujard)

Quantitative analysis of second phase



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OM

Date

FEG-SEM (Nital/Picral + Nitrate Beaujard)

Quantitative analysis of second phase



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Lower bainite: bright
Martensite: dark

