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(// , // // //)

چکیده

(IF)

(BH)

واژه های کلیدی: پخت سختی - فولادهای عاری از عناصر بین نشین - تصویر قطبی - بافت

مقدمه

$(\%N < 0.0040, \%C < 0.0030)$

{ }

[]

[]

(\bar{r}_m)

[]

/

[]

()

(VAR)

V Nb Ti

[]

°C

{ } { }

(r_m)

°C

°C

%

°C

[]

[]

(r_m)

°C/hour

X' Pert

[]

{ } { }

ODF

%

{ }

{ }

X' Pert

{ }

%

Bang

(r_m)

I{ }/I{ }

%

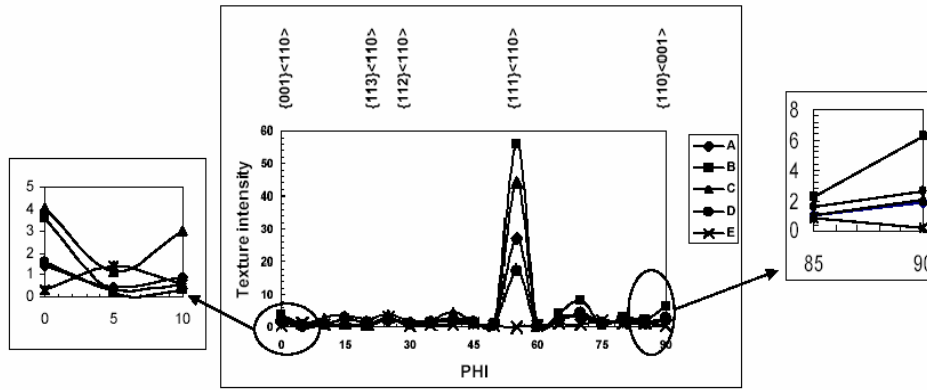
{ }

ASTM-B557M

روش پژوهش

IF

Steel	%C	%N	%S	%P	%Ti	%Nb	%V	%Mn	%Si
A	0.0070	0.0040	0.0013	0.0035	0.040	-	-	0.036	0.0046
B	0.0069	0.0040	0.0013	0.0036	-	0.039	-	0.034	0.0042
C	0.0074	0.0046	0.0040	0.0033	0.014	-	0.031	0.035	0.0040
D	0.0080	0.0085	0.0030	0.0060	0.040	-	0.040	0.040	<0.01
E	0.0080	0.0047	0.0040	0.0060	0.040	-	0.050	0.050	<0.01



شکل ۱: مقایسه تغییرات شدت فیبرهای RD برای پنج فولاد.

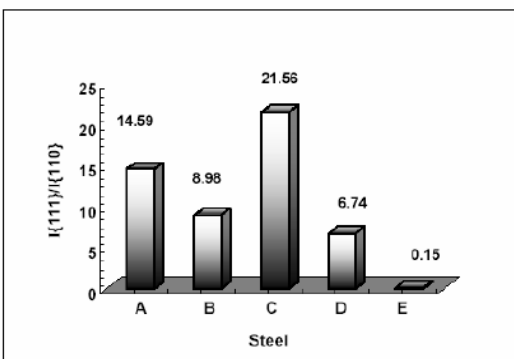
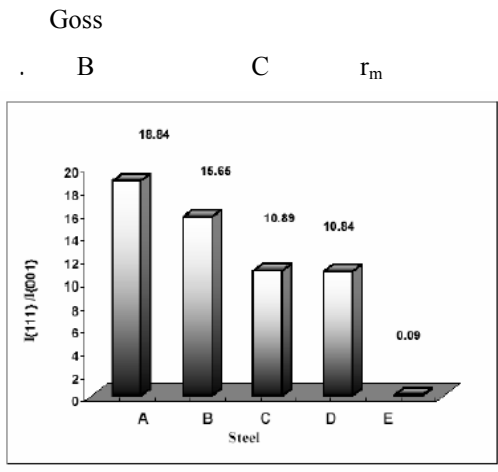
$\{ \quad \} < \quad >$
 (Goss) $\{ \quad \} < \quad >$ ° C
 B
 $\{ \quad \} < \quad >$
 °C/Sec
 Goss
 E C
 % %
 ° C

Steel	r ₀	r ₄₅	r ₉₀	r _m	Δr
A	2.11	1.92	2.45	2.1	0.18
B	1.8	1.3	2.71	1.77	0.47
C	1.89	2.25	1.409	1.95	-0.3
D	2.11	1.28	2.127	1.69	0.41
E	1.43	0.98	2.40	1.44	0.46

نتایج و بحث

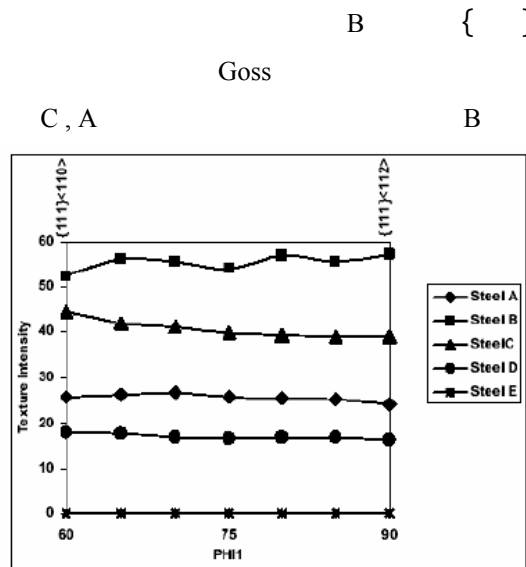
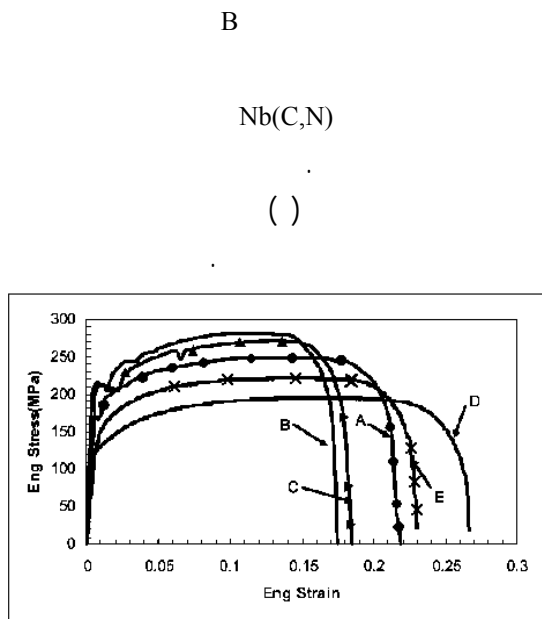
1/Sec
 (LC) IF (ULC)
 : []
 (RD) α -
 < >
 A (ND) γ -
 < >
 ε -
 ND RD
 < > TD
 ()
 B φ RD
 B ()
 C A B
 (. C A B r_m) E { } < >

{ } C
 { } () { }
 % / () C B $\frac{I\{111\}}{I\{001\}}$
 ()
 % / C B A
 B { }
 C { } { }
 A



B C r_m
 ()
 C B $\frac{I\{111\}}{I\{001\}}$
 ()
 C r_m B
 Goss
 ({ } < >)
 { } :
 { }
 { } :
 { }
 Goss [] { }
 Goss ($\frac{I\{111\}}{I\{110\}}$)
 C
 Goss C
 { }
 B C r_m
 ()
 { } ()
 { }
 { }
 { }
 () C A
 () { }
 A r_m
 B r_m
 $\frac{I\{111\}}{I\{001\}}$
 $\frac{I\{111\}}{I\{110\}}$
 r_m

B ()
 Nb ND
 Nb(C,N) B { } < >
 [] Ti(C,N) ()
 ()
 °C/Sec Goss



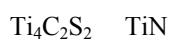
% :
 .BH
 UTS YS

آزمایش پخت سختی

() %
 D

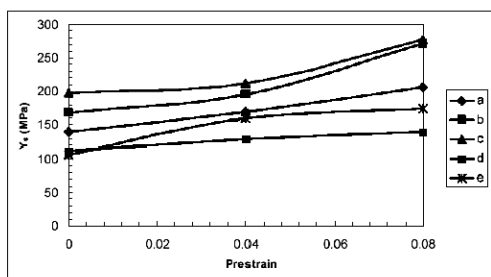
() B BH
 D [] BH
 D BH

BH



) (.
 () . ()
 B
 D A E C

BH



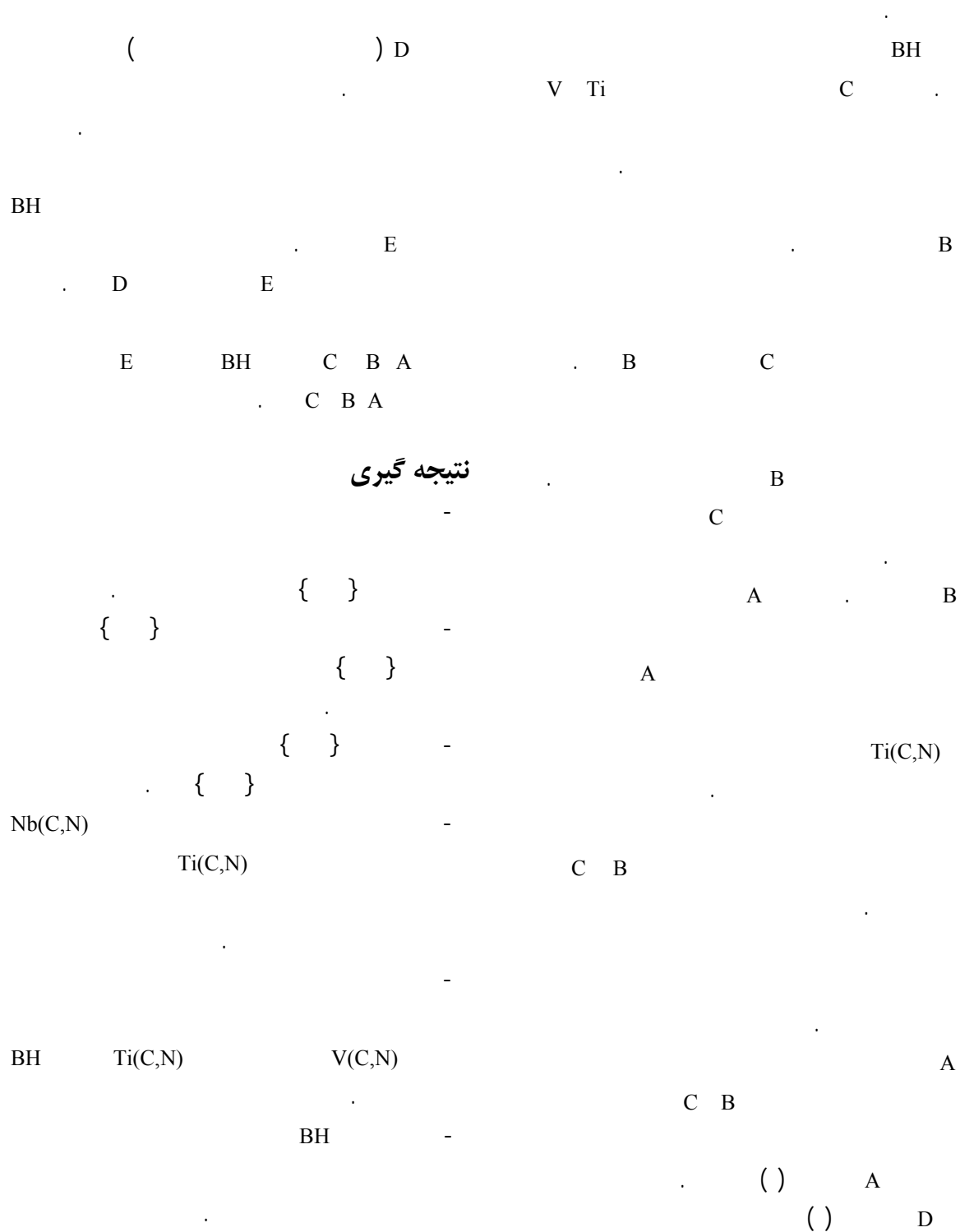
.BH

BH

B

B

Ti(C,N)
 V(C,N) Nb(C,N)
 D
 V(C,N)
 Ti(C,N)
 V
 E
 V
 Ti
 V(C,N)
 D
 V(C,N)
 Ti(C,N)
 D BH E
 D (C + N)
 E E
 E V
 Ti
 C D E []
 D
 E
 D C
 D E C A E
 A
) E D C



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واژه های انگلیسی به ترتیب استفاده در متن

- 1 - Bake Hardening (BH)
- 2 - Interstitial Free Steels (IF)
- 3 - Vacuum Arc Remelting (VAR)
- 4 - Stress Relief
- 5 - Batch Anneal
- 6 - Orientation Distribution Function
- 7 - Pole Figures
- 8 - Low Carbon Steels (LC)
- 9 - Ultra Low Carbon Steels (ULC)
- 10 - Pinning