
Mn Fe⁺³ Fe⁺²

DTPA

Al⁺³ Cu⁺² +2

ISO

Fe⁺²

DTPA

ISO

CMP

K/S

ISO

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// : // : -

(E-mail:mirshokr@pnu.ac.ir)

...

(CMP) .()

: .()
mlCSF
Cm³/g ()
mNm²/g .()
kPam²/g
TAPPI

DTPA

: .()

DTPA
PH .()

DTPA .()

.()

NaOH/H₂O₂ .()

pH

()

()

()

()

()

CMP

T272om-92

DTPA

DTPA pH .

CMP

DTPA /

SAS

ISO

T260om-92 T524om-94, T452om-92

CMP

FeSO4.7H2O Cu SO4.5H2O MnSO4.H2O

FeCl3.6H2O AlCl3.5H2O

() ()

ISO

Fe ⁺³	Fe ⁺²	Cu ⁺²	Al ⁺³	Mn ⁺²
ppm	ppm	ppm	ppm	ppm

/

ISO

Technibitemiro TB- IC

UV

()

Phillips

black light

DTPA

DTPA /

(K/S)

() PC

$$F(K\infty) = \frac{k}{s} = \frac{(1 - R\infty)^2}{2R\infty}$$

()

Fe⁺²

$$PC = 100[F(R\infty)_{after} - F(R\infty)_{before}]$$

K/S

/

Fe⁺²

/

:k

:s

DTPA /

()

(ISO)

:R[∞]

ISO

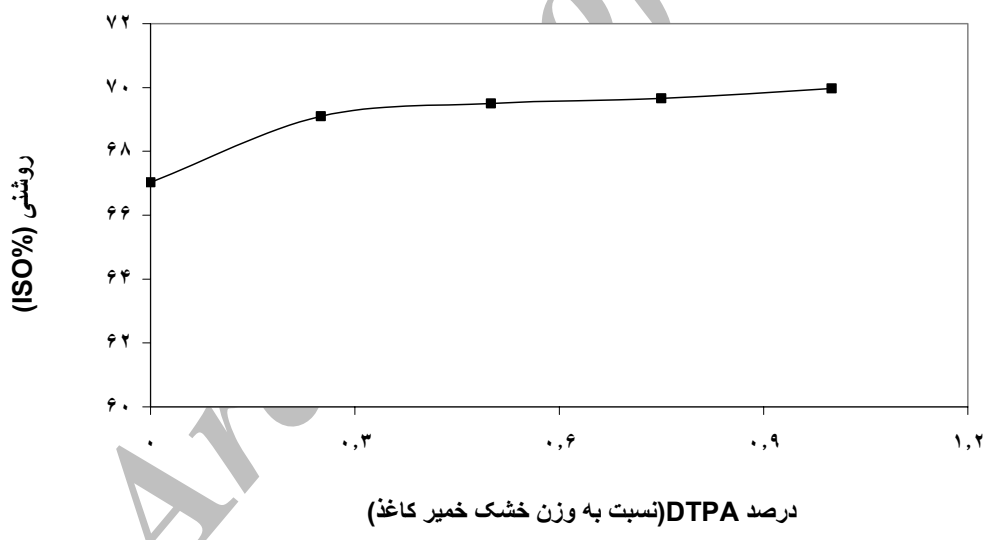
...

CMP

P.C		PC			H2O2
		52.9			67.89
'	'	60.54	'	'	57.57
'	'	63.83	'	'	61.37
'	'	67.04	'	'	63.95
'	'	68.33	'	'	66.41
'	'	69.1	'	'	67.37

K/S

K/S



(CMP

)

DTPA

(k/s)

DTPA

						DTPA	
							Al+3 ppm
							Fe+2 ppm
							Fe+3 ppm
							Cu+2 ppm
							Mn+2 ppm

PC

()
()
()

pH

pH

()

()

...

DTPA

()

DTPA

DTPA

()

()

ISO

DTPA

()

DTPA

(ISO)

DTPA

		DTPA	

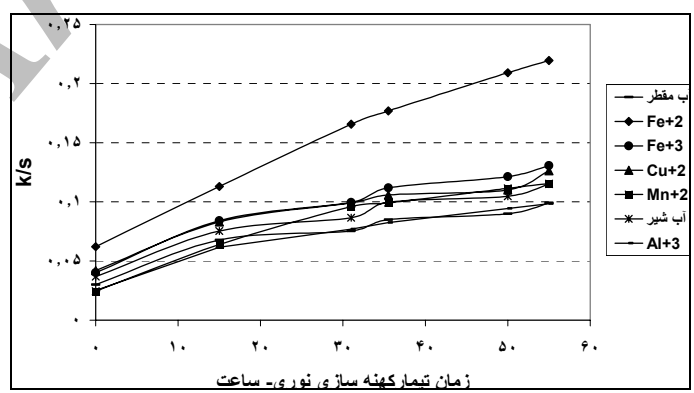
Cu⁺² Fe⁺³ ()

(K/S)

Fe⁺³

Fe⁺²

Al⁺³



CMP

k/s

Fe²⁺

()

()

()

()

Fe²⁺, Fe³⁺

DTPA

()

Zn²⁺, Mn²⁺, Ba²⁺

Fe³⁺

Fe²⁺

Fe²⁺ / ppm

(k/s)

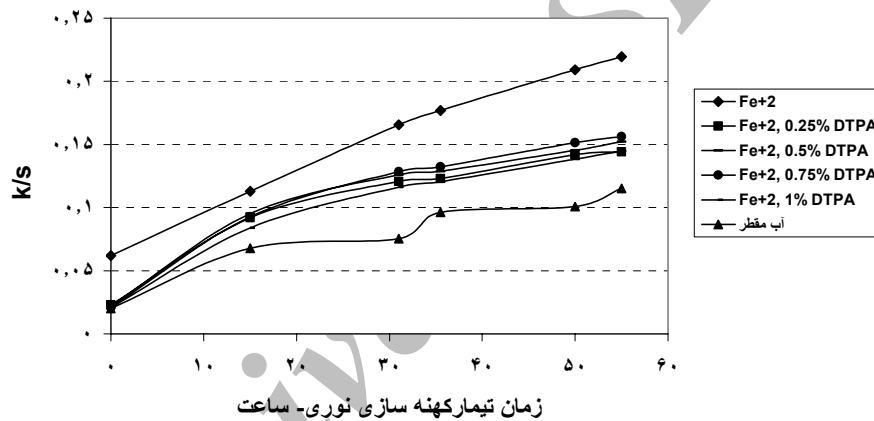
()

Al³⁺

Cu²⁺

Mn²⁺

Fe³⁺



Fe²⁺

CMP

(k/s)

DTPA

DTPA

CMP

DTPA

()

DTPA

DTPA

DTPA

()

DTPA

Al

/

3+

DTPA .

()

janson & Forsskahl

Ni et al.

DTPA

ISO

DTPA

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Effect of Metal Ions on the Optical Properties of Chemomechanical Pulp of Hardwoods Species

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A. Abdulkhani²

Abstract

The effect of transition metal ions on optical properties of hydrogen peroxide bleached chemomechanical pulp of a mixture of northern Iran hardwoods was studied. Handsheets were made using deionized water, tap water and water containing Al^{+3} , Cu^{+2} , Mn^{+2} , Fe^{+3} , Fe^{+2} ions. Also, the effect of DTPA spray on minimizing the impact of these metal ions in the processing water on brightness as well as its stability both before and after accelerated photo aging was investigated. The results indicated that brightness loss due to metal ions is as high as 4-5 points. It was also shown that using DTPA in small amounts could recover the brightness that was lost due to the presence of transition metal ions.

Keywords: Chemomechanical pulp, Transition metal ions, Tap water, Peionized water, Yellowing, DTPA, Accelerated aging.

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