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× mm² (/)

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Chaharmahali et al. (2008)

(Morton & Lossi, 2003)

Morton & Lossi,)

(2003

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(...

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Kazemi-Najafi et)

al., 2006; Espert et al., 2004; Khavkine et al.,
Malvar et al.,) (2001; Han, 1998

Khavkine et al., 2001;) (2001

U.V (Anonymous, 2003

(Anonymous, 2003)

+ /

Tajvidi et al. (2006) .

MAPP

(%)

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g / min

SI-080

rpm

(MAPP)

WPC-

kg) g/10min

/ (= °C = /

()

()

% (HCl)

% (NaClO)

Scharlau

(NaOH)

Scharlau

±

±

)

Applichem

(

ASTM

* *

D

* *

%

± °C

(%)

(%)

(%)

PW
PWM

(C°)

(rpm)

...

$$WA (w') = \frac{W_o' - W_w}{W_o'} \times 100 \quad ($$

(g) WA(w') %
 (g) W_o' %
 (g) W_w %

()

cm

mm/min

D543-95

ASTM

ASTM

D7031-4

(MOR)

(MOE)

DARTEC

± °C

kN

/ g

ASTM

D256

()

IZOD

J/m

/ g

$$WA (w) = \frac{W_w - W_o}{W_o} \times 100 \quad ($$

)

(

W_w (g)

WA(w)

W_o

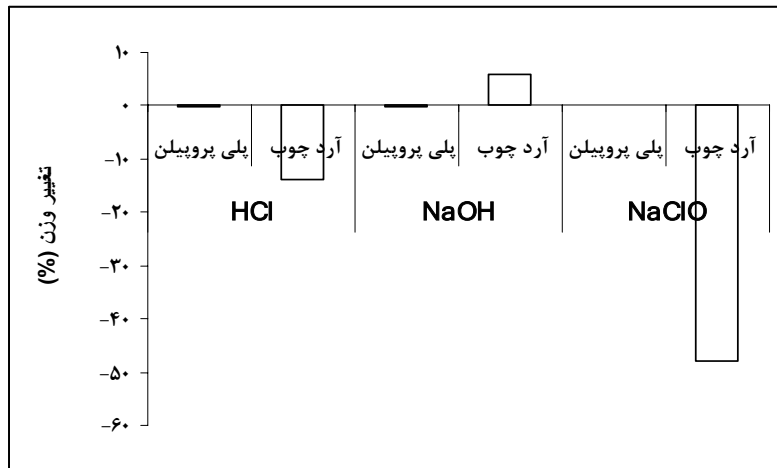
(g)

± °C

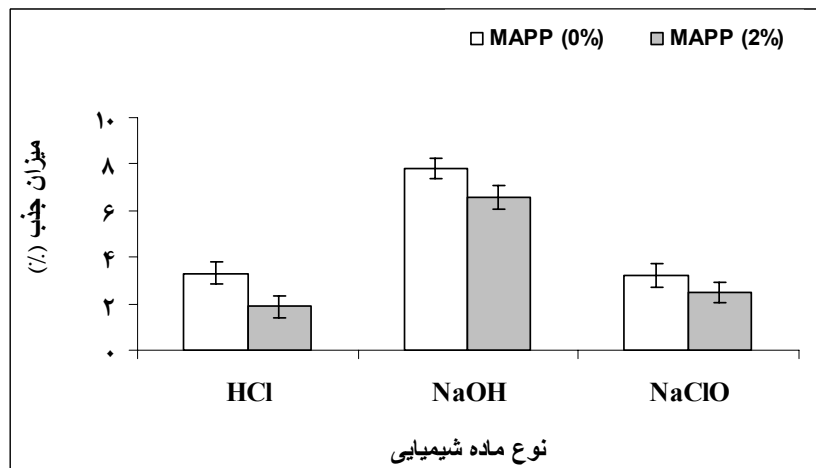
¹ Un-notched

()
)

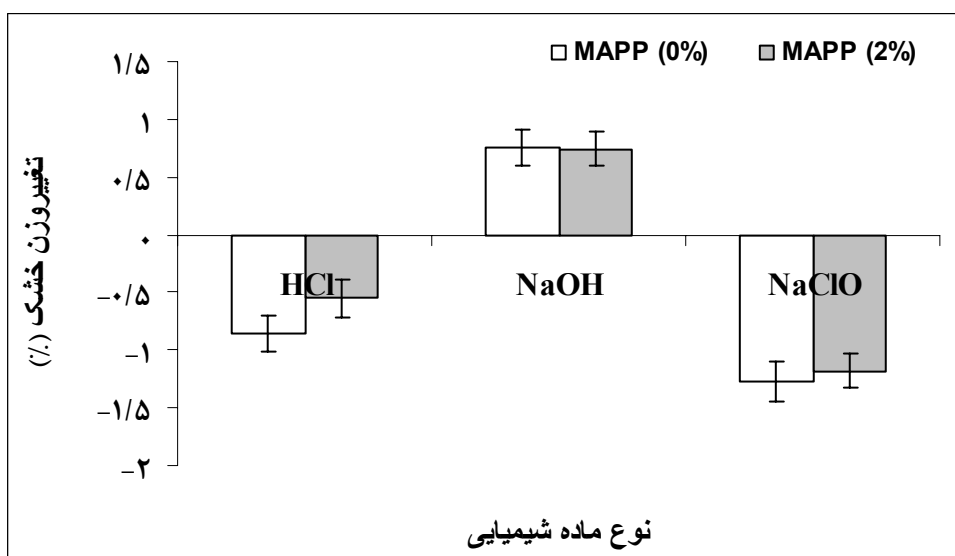
(



MAPP



MAPP



)

(

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(

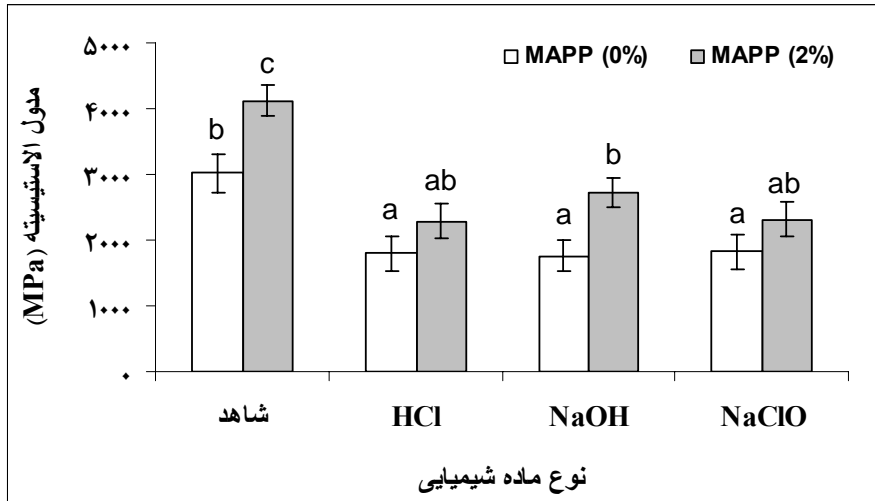
MAPP

P	F
/	/
/	/
/	/

MAPP

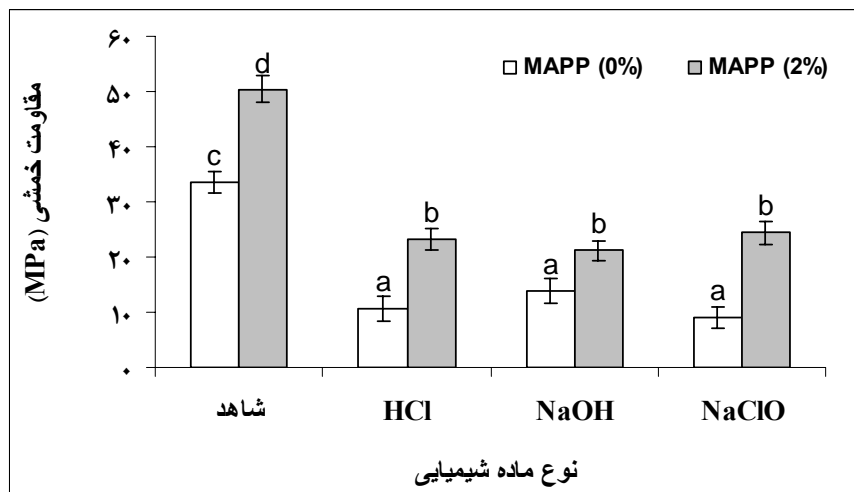
MAPP

MAPP

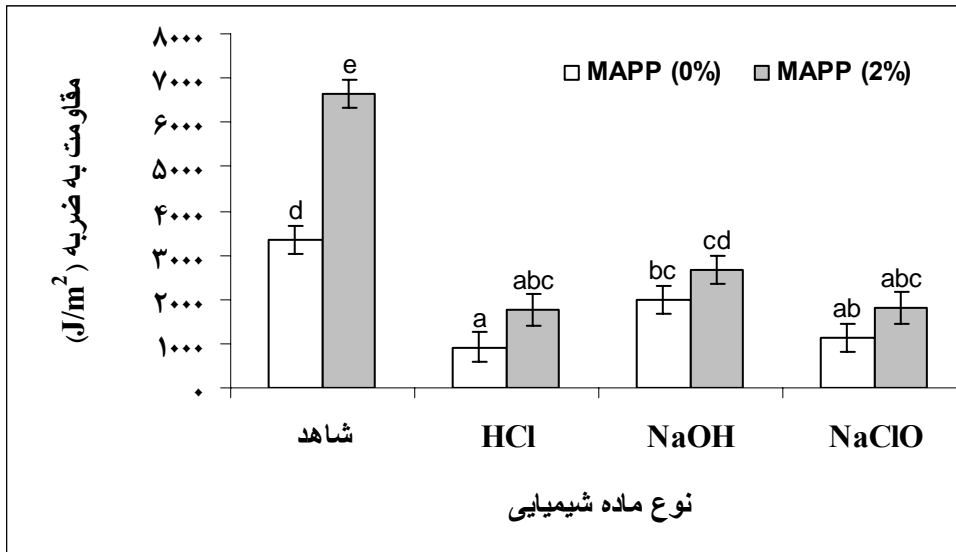


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Tajvidi et al. (2006)

Chaharmahali et al. (2008)

(Thwe & Liao, 2003; Taib et al., 2006)

(Sjöström, 1981)

(Sjöström, 1981)

MAPP

Myers et al.(2006)

Thwe & Liao,)

(2003

COOH

(Thwe &Liao, 2003)

MAPP

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(Stark & Rowlands, 2003)

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Oksman & Clemons 1997;)

Rozman et al., 2001; Thwe & Liao,2003;

MAPP (Sombatsompap et al.,2005

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Liao et al., 1999; Karama et)

(al., 1993; Kajorncheappunnegam et al., 2003

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Sanadi et al., 1995; Sain)

(et al., 2005

¹ Decomposition

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Effect of Chemical Reagents on Physical and Mechanical Properties of Wood Flour-Polypropylene Composites

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Abstract

In this research, the effects of different chemical reagents on physical and mechanical properties of wood flour-polypropylene composites were investigated. For this purpose, wood flour and polypropylene were compounded (at 50% fiber loading) in a counter-rotating twin-screw extruder in the presence or absence of MAPP to produce the composites. The nominal cross section of the manufactured composites was 70*10 mm². The specimens were immersed in NaOH (10%), HCl (10 %) and NaClO (2 %). After one week of immersion, the specimens were oven-dried and changes of oven-dried weight and mechanical properties (flexural modulus, flexural strength and un-notched impact strength) were determined. The mechanical properties of the composites immersed in chemical solutions were compared with the non-immersed composites (as control). From the results, the composites immersed in NaOH exhibited higher oven dried weight whereas those immersed in HCl and NaClO exhibited lower oven dried weights. All chemical reagents significantly reduced the mechanical properties of the composites. The addition of 2% MAPP could not considerably reduce the effect of chemical reagents on mechanical properties of studied formulations.

Keywords: Wood flour-polypropylene composites, NaOH, HCl, NaClO, physical and mechanical properties