
*

(/ / : // :)

(HDPE)

:

(%) , H₂O₂ (%) , HCl (%) , NaClO (%) NaOH(%)

(SO) H₂O₂

NaClO

(AC)

HCl

:

...

()

(WPC)

()

()

()

()

() UV

)

(

WPC

(.)

WPC

(.)

WPC

(HDPE)

(/ kg °C) g/ min

/ g/cm

(KF)

(WF)

(RH)

(NP)

WPC

WPC

(.)

High Density Polyethylene

Wood Flour

- Kenaf Fiber

- Newspaper

- Rice Hulls

(...

)

Wood Plastic Composites

()

()

%

() MAPE

(%wt)

(%)	(%)	(%)	
			PE
			PE-WF25%
			PE-WF50%
			PE-RH25%
			PE-RH50%
			PE-KF25%
			PE-KF50%
			PE-NP25%
			PE-NP50%

= NP , = RH , = KF , = WF , =PE

/

/

ASTM

/

ASTM

/

...

(%)

(%)	(%)	(%)	(%)	
/		/		
/				
/				
		/		

() ASTM D543-95

± °C

(%) NaOH

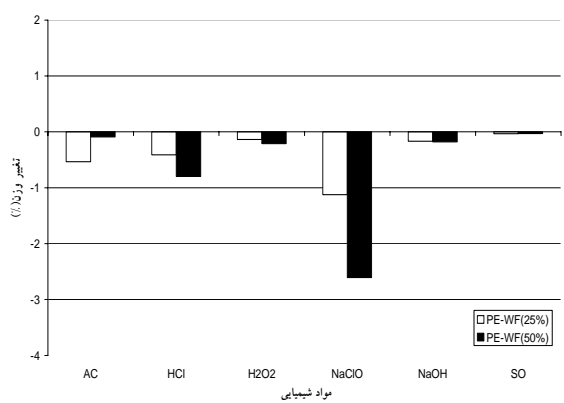
(%) H₂O₂ (%) HCl (%) NaClO
(%)

± °C

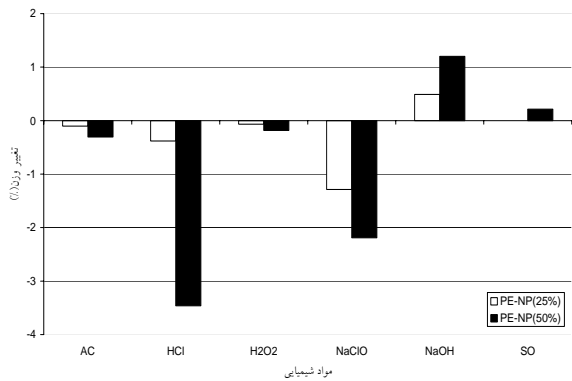
NaClO (HDPE)

HCl

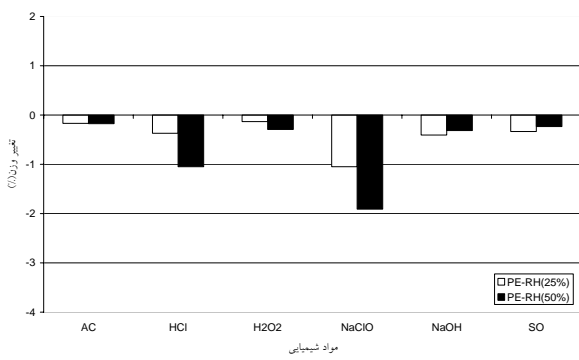
HCl NaClO



()

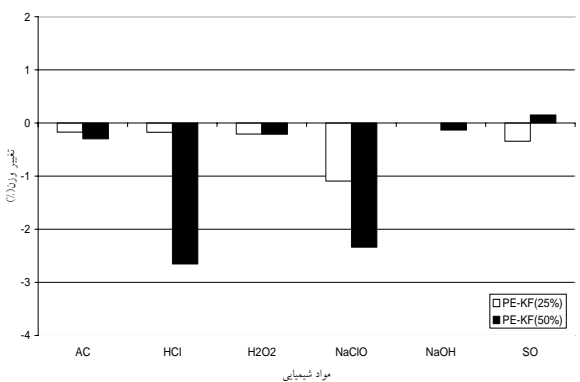


HCl NaClO



HCl NaClO

HCl NaClO



NaOH

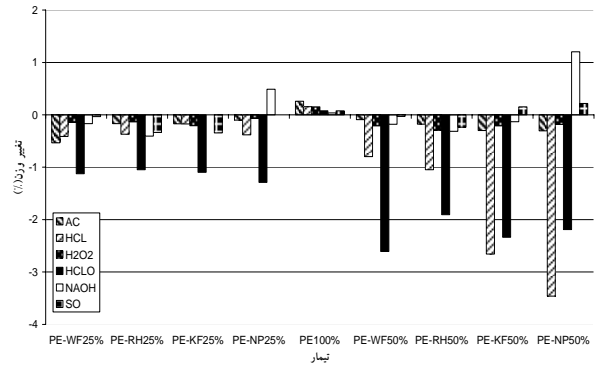
HCl

NaClO

H₂O₂ (AC)

HCl

NaClO



NaOH

NaClO

NaOH

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NaClO

HCl

HCl

Kazemi

NaClO HCl

HCl NaClO

NaClO HCl :

NaOH

H₂O₂

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Chemical resistance of natural fiber/high density polyethylene (HDPE) composites

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Abstract

Chemical resistance of natural fiber (wood flour- rice hulls- kenaf fiber and newsprint)- high density polyethylene composite was studied in terms of their weight loss after seven days immersion in different chemicals. Composite containing 25% and 50% of various natural fiber and high density polyethylene were prepared and immersed in NaOH(10%), NaClO(13%), HCl(10%), H₂O₂(3%), soap solution(1%) and acetone. Results indicated that H₂O₂, soap solution and acetone had very negligible effects on all composites. On the other hand, the effects of NaClO and HCl were found to be statistically significant. Different fibers exhibited different behaviors regarding their chemical resistance. Generally it was concluded that NaClO and HCl had the highest impact on natural fiber-high density polyethylene composites.

Keywords: Natural fibers, Composites, High density polyethylene, Chemical resistance