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( / / : / / : )

(OCC)

Archive of SID

( )

( ) Qinglin.

نتیجه آن تولید تخته‌هایی با سطوح صاف و متراکم می‌باشد ( ).

OCC

( )

OCC

Hunt .

( )

(OCC)

cm

(%)		(%)		( )			
				( )	<b>OCC</b>	( )	/
M2	M1	R2	R1	F3	F2	F1	

Kg/Cm

MOR (MOR) / MOR %

DIN

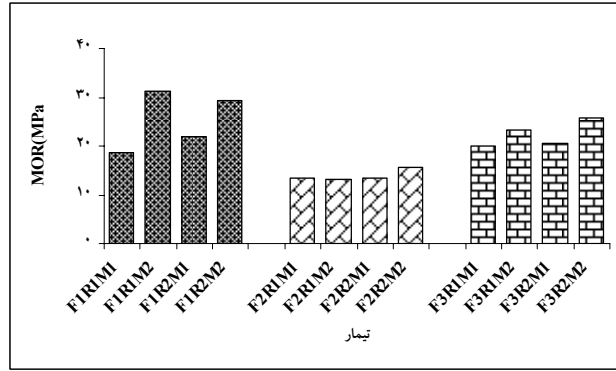
ASTM DIN D

% % ISO

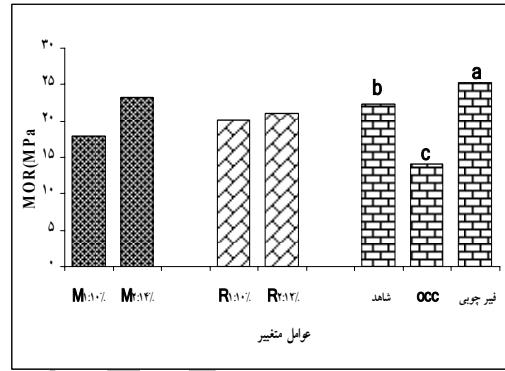
MOR (CRD) / MOR SPSS

Modulus of Rapture

Completely Randomized Design



MOR



MOR

(.)

(MOE)

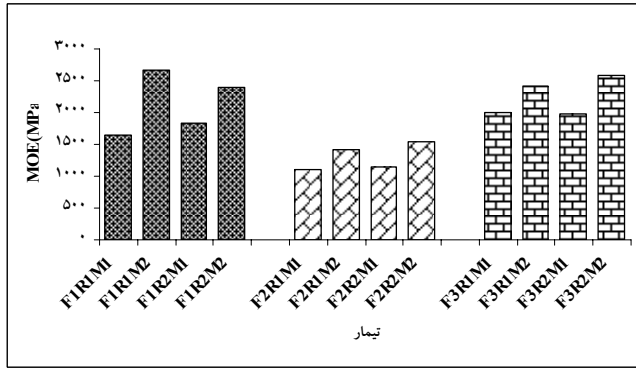
MOE

%

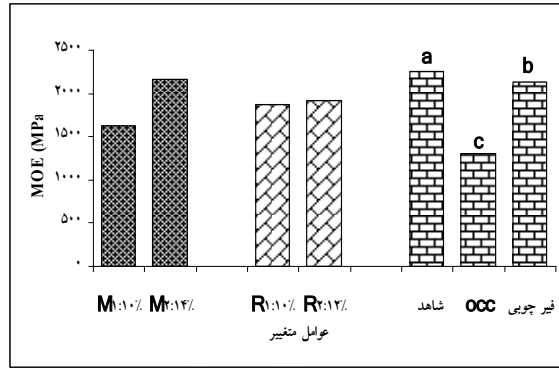
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MOE

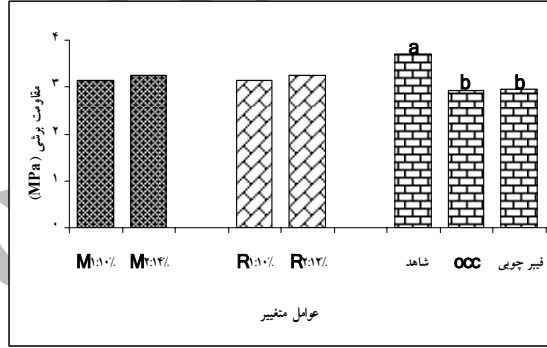
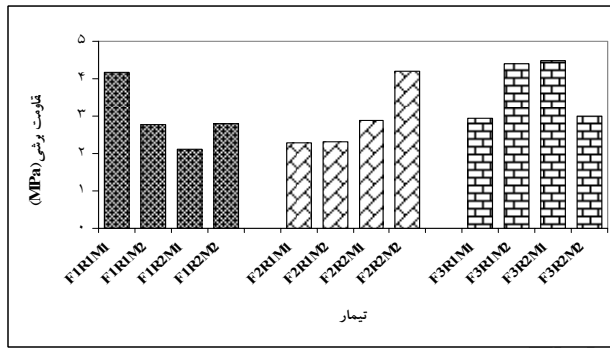
Modulus of Elasticity



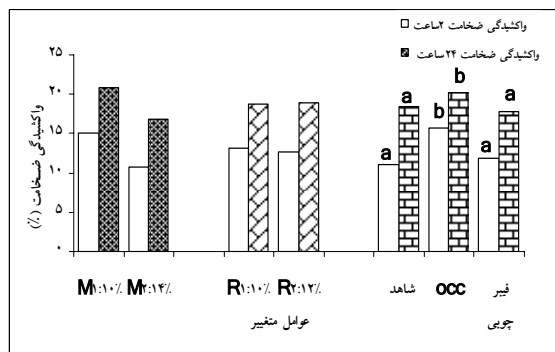
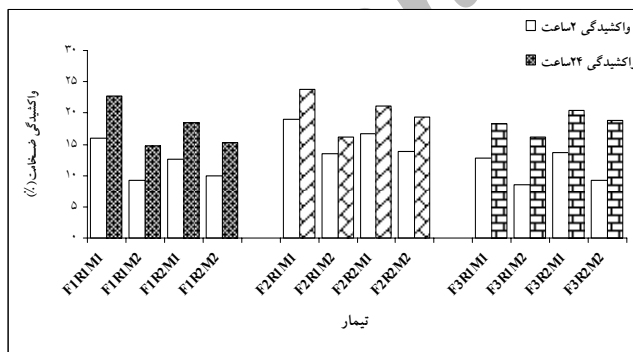
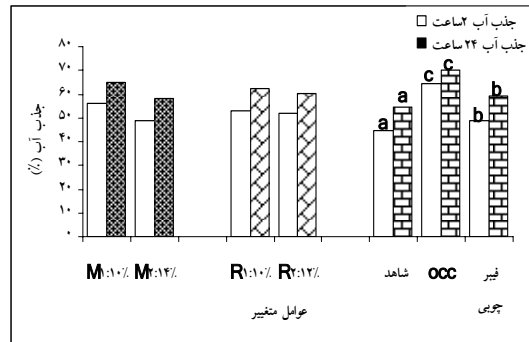
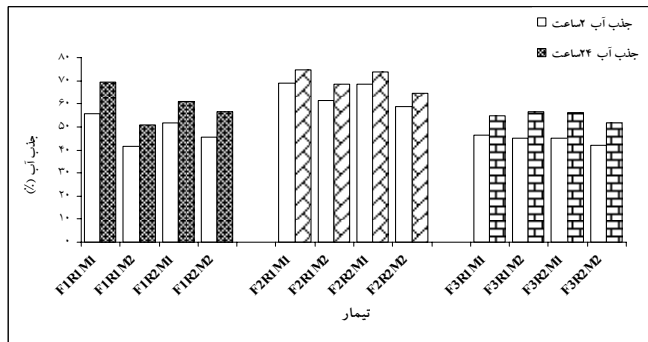
MOE



MOE



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- 5- Hunt, J.E., D.P. Harper & K.A. Friedrich, 2004. 38<sup>th</sup> International Wood Composites Symposium Proceedings. 204-216
- 6- Jonson, A., 1967. The effect of component removal upon the porous structure of the cell wall of wood. II: Swelling in water and fiber saturation point.
- 7- Qinghn, W., 2001. Investigation on the use of recycled newsprint fiber in wood – based fiberboard. School of forestry, Wildlife and Fisheries, Louisiana state university.
- 8- Scallen, A.M., 1965. A study of cell wall structure by nitrogen adsorption. Pulp and paper. May. Canada 66(8): T 407-414.
- 9- Suchsland, O., S. Hiziroglu, T. Seam & G. Iyengar, 1998. Laboratory experiments on the use of recycled newsprint in wood composites. Forest Products Journal 48 (11/12): 55-64.
- 10- Sun, C.H. & R.N. Hawke, 1997. Properties of polyisocyanate resin consolidated composites made from secondary fibers of corrugated containers, Forest Products Journal. 44(2): 80-88.



## **Investigation of the feasibility of utilization of wood fiber and old corrugated container in surface layers of three – layer particleboard and their effect on properties of particleboard**

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### **Abstract**

In this study, the feasibility of utilization of old corrugated container (OCC) and wood fiber on the surface layers of three-layer particleboard was studied. The effects of variable factors including mat moisture content, content of adhesive and type of materials in the surface layers were assessed on the operational properties of manufactured particleboards. The results indicated that moisture content has significant and more prominent effect on the properties of particleboards. Increasing moisture content from 10 to 14 percent and adhesive content from 10 to 12 percent resulted in increasing modulus of rupture and modulus of elasticity and decreasing shear strength. Utilization of wood fiber on the surface layers in comparison with OCC fiber improved the modulus of rupture. Water absorption and thickness swelling after 2 and 24 hours are decreased when using wood fiber with low moisture content and low adhesive content in the surface layers.

**Keywords:** Three – layer particleboard, Old corrugated container, Modulus of rupture, Adhesive, shear strength, Water absorption, Thickness swelling

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