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AquaTop and Aqua X II Block Resistance

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Product code reference: CB-14328, WA-845520
Project reference: 135
Lab book reference: CB-14344

Conclusions:

1. No significant difference in block resistance was observed between these two products.
2. Both products could be recommended for stacking after drying for 7 hours if the environmental conditions are cooler than 90°F and less than 50% RH.

Background: AquaTop (CB-14328) is a modified version of Aqua X II (WA-845520) which is a latex topcoat designed for millwork applications. AquaTop is more efficient to manufacture and does not contain NMP, a solvent that may represent a degree of reproductive toxicity.

Objective: Determine whether block resistance of finished products is diminished by changing from Aqua X II to AquaTop.

Experimental approach: Spray both product onto standard substrates using airless air-assist equipment. Apply per the table, below. Perform a standard blocking test.

Equipment details	**Cycle details**	**Substrates**
Tip: "12" (0.015") Pump ratio: 15:1 Fluid pressure: 60 psi (900 psi) Air assist: 25 psi AquaTop Zahn 3 Sig: 22 sec. Aqua X II Zahn 3 Sig: 25 sec.	Wet film thickness: 3 – 4 mils Flash-to-oven: 52 seconds Oven temp.: 86°F Oven 1: 75 seconds Transit time: 134 seconds Oven temp.: 88°F Oven 2: 73 seconds	-Paper-wrapped particle board jam material -Preprimed finger-joint -Preprimed MDF

Block test: Stack parts face-to-face. Add weight to equal 0.9 psi and store at 90°F and 50% relative humidity (RH) for 24 hours.

Results: After four hours and 7 hours of dry time in the ambient environment (80°F at 45% RH) Aqua X II and AquaTop exhibited equivalent blocking performance. For single-run side-by-side tests values of +/- 1 should be considered equivalent.

Blocking Test Results

	4 hour dry		7 hour dry	
Substrate	**Aqua X II**	**AquaTop**	**Aqua X II**	**AquaTop**
Paper-wrapped particle board jam material	8	8	9	9
Preprimed finger-joint	8	8	9	9
Preprimed MDF	8	7	10	9

Blocking Rating System		
Block Rating	**Type of Separation**	**Performance**
10	no tack	perfect
9	trace tack	excellent
8	very slight tack	very good
7	very slight to slight tack	good to very good
6	slight tack	good to very good
5	moderate tack	fair
4	very tacky, no seal	poor to fair
3	5 - 25% seal	poor
2	25 - 50% seal	poor
1	50 - 75% seal	very poor
0	75 - 100% seal	very poor

Conclusions: No significant difference in block resistance was observed between these two products. Both could be recommended for stacking after drying for 7 hours if the environmental conditions are cooler than 90°F and less than 50% RH.