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Composite Panels Made From Recycled Office Paper and Plastics

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Comparisons of Processing Technologies

- **Processing technologies**
 - Air-laid non-woven mats
 - Melt-blend formed mats using extruded pre-formulated and pelletized stocks
- **Coupling agent** (*to improve bonds between the waste paper and the recycled plastic molecules*)
 - With or without

Testing

- Durability and Mechanical Testing
 - 24-Hour thickness swell(TS) and water absorption(WA)
 - 2-hour water-boil TS and WA
 - Linear expansion, at 90% RH
 - Static bending MOR and MOE
 - Internal bond (IB)

Following test methods described in American Society for Testing and Materials (ASTM D-1037)

Conclusions

- Air-laid panels are better than melt-blend extruded panels in mechanical properties.
- Melt-blend extruded panels are more durable than air-laid panels in water resistance.
- Coupling agent generally improve mechanical and physical properties of panels.
- These composite panels could be used in building and farm construction, interior automobiles parts, and floor tiles that are water resistant and easy to clean.