

MATERIALS & RESEARCH DIVISION

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RESEARCH UPDATE

NUMBER U93-3

TIMBREX, A 100% RECYCLED COMPOSITE MATERIAL

REFERENCE: Work Plan 90-R-15

HISTORY:

The Materials and Research Division, is evaluating Timbrex, a composite material consisting of 100% recycled plastic and sawdust produced by the Mobil Chemical Company. This evaluation will test the long term performance of Timbrex in a wet environment.

Timbrex is impervious to rot, insect damage, soil acidity and is non-corrosive. It is presently used for parking bumpers, roadway posts, docks, landscaping timbers and picnic tables.

A rack, 4'wide, 12'long and 4' high was built using 2" x 4" and 4" x 4" Timbrex members. The rack is the structural support for shelves in a concrete moisture curing room, which is kept at 70% constant humidity and at a water temperature of 86 degrees F.

Although Timbrex is not recommended for interior construction, it was decided that due to the room's wet conditions and constant water spray there was little chance of fire.

COST:

Timbrex is available in many lengths, and dimensions. The wholesale price for a 2" x 4" section of Timbrex 8'long is \$9.12 and for a 4" x 4" (3.5 "x 3.5") section 12' long is \$18.90. The comparable prices for pressure treated wood are \$3.34 and \$9.34 respectively but due to Timbrex's extended life cycle, it could be cost effective.

STATUS:

The room is used daily and the rack is observed for signs of failure. To date, the product has performed satisfactorily in this unusual application with no sign of splitting, swelling, rusting, or rotting of the members.

STATUS Continued:

The material is also being tested at the U. S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory (CRREL) in Lebanon, New Hampshire. The material has also been crash tested and approved by the FHWA for guardrail blockouts, and crash testing of guardrail posts fabricated with Timbrex is underway.

SUMMARY:

Timbrex is an environmentally safe, composite material, made of 100% recycled plastic and sawdust. When damaged or no longer usable it is recyclable. The product has good workability, similar to timber, and can be easily cut using standard carpentry tools.

FOLLOW-UP:

The product will remain under observation and will be evaluated in other applications as preliminary testing is completed.

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