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Polymer Concrete Pipes

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POLYMER CONCRETE PIPES

THE NEED

Materials are needed for piping applications that have high strength and are resistant to corrosive chemicals.

FIGURE 1 EXAMPLE POLYMER CONCRETE PIPES

THE TECHNOLOGY

Polymer concrete pipes are one solution to this problem. These pipes are made by mixing a high strength, thermosetting resin with oven-dried aggregate to form a type of concrete. The resin within the mix provides for bonding the aggregate much like Portland Cement does in traditional concrete pipes.

The pipe sections are cast vertically with an inner and outer form and are vibrated for compaction. After the forms are removed, the section is heated in a kiln to finish curing the resin. These pipes can typically be used to carry highly aggressive wastes, for pipe jacking as they have very high compressive strengths (up to 17,000 psi), or for microtunnelling. (Bloomfield) They can also be used for gravity flow or pressure applications. Some manufacturers are also making polymer pipes in sizes appropriate for use as manholes.

THE BENEFITS

Polymer concrete pipes have several benefits including high strength, corrosion resistance (they can be used in environments with pH ranges of 1 to 13), low wall roughness, and high abrasion resistance.

STATUS

The use of polymer concrete pipes is becoming more common in the following areas: direct bury, slip lining, jacking and microtunneling, tunneling, and above the ground applications. Manufacturers like Hobas Pipe USA provide polymer concrete pipes that have been manufactured under the most strict quality control and assurance standards.

BARRIERS

The use of polymer concrete pipes has not been widely accepted by governmental agencies, and not enough standards have been approved by state and federal codes.

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REVIEWERS

Peer reviewed as an emerging construction technology

DISCLAIMER

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