Storage and Release Control of Admixtures in Concrete through Hard Encapsulation

Contact: Dr. Rick Swatloski
Director - OTT
(205) 348-8583
RPSwatloski@ua.edu

Status: Seeking R&D and/or licensing partner

Inventor: Dr. Jialai Wang
Associate Professor
Civil, Construction and Environmental Engineering

Advantages of Storage and Release Control of Admixtures in Concrete through Hard Encapsulation

- High stiffness, strength, stability, and durability
- Compatibility
  - Small size of cenospheres allows for a more uniform spatial distribution
- Cost efficiency along with ease of manufacturing
  - Cenospheres are low-cost industrial waste
- Large amounts of admixture
  - Cenospheres have high water absorptions (120% or higher)
- Superior in latent heat storage capacity
  - Compared to commercially available MEPCMs, CenoPCM has relatively high melting and freezing latent heat (119.83 J/g melting and 128.04 J/g freezing)

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- Versatile, low cost tool called “hard encapsulation” to store and control the release of admixtures in concrete
  - Minimizes or avoids undesired effects on the hydration of cement
- Two step process
  - Produce perforated cenospheres to load admixtures
  - Apply a nanosilica coating to the perforated cenospheres

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