

ACI ITG-10R-18

# Practitioner's Guide for Alternative Cements

Reported by ACI Innovation Task Group 10



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## **Pracitioner's Guide for Alternative Cements**

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# Practitioner's Guide for Alternative Cements

Reported by ACI Innovation Task Group 10

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*As performance demands of concrete increase, and given recent initiatives to address the sustainability of construction, owners, architects, and engineers are actively seeking alternatives to portland cement for concrete. An alternative cement is intended to be a replacement for portland cement in some applications. In some cases, alternative cements may also be used in combination with portland or blended hydraulic cements. This document covers currently available and emerging alternative cements and is intended to provide information to help guide practitioners seeking to implement alternative cements.*

**Keywords:** alkali-activated fly ash cement; alkali-activated glass cement; alkali-activated slag cement; alkali activation; alternative cements; calcium aluminate cement; calcium sulfoaluminate cement; carbonated calcium silicate cement; durability; functional addition; geopolymer; magnesium oxychloride cement; magnesium phosphate cement; reactive belite cement; specifications; supersulfated cement; sustainability; test method.

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## CHAPTER 1—INTRODUCTION AND SCOPE

### 1.1—Introduction

This guide is intended as an introduction for engineers, architects, contractors, and owners who are interested in using an alternative cement on a project, but lack experience with these materials. This guide assumes the reader has experience with conventional concrete materials and construction, and is seeking knowledge on how these new cement technologies compare to portland cement when used in concrete.

The alternative cement properties summarized in this document are those reported for properly designed and placed alternative cement concretes. As with all types of concrete, material quality, mixture design, curing method-

ACI ITG-10R-18 was adopted and published April 2018.

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