

# Concrete Technology in Focus

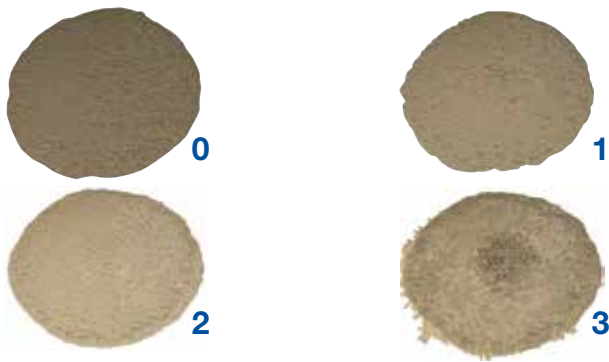
## Self-Consolidating Concrete

### Visual Stability Index (VSI)

#### Introduction

This information is provided as a visual tool to assist concrete producers in consistently applying the Visual Stability Index (VSI) to concrete production. The VSI was originally developed by BASF as an excellent reference when producing self-consolidating concrete. The stability of self-consolidating concrete can be observed visually by examining the concrete mass and therefore can be used for quality control of self-consolidating mixtures.

The table below contains Visual Stability Index (VSI) values with corresponding criteria to qualitatively assess the stability of self-consolidating concrete.



#### Procedure

According to ASTM C 1611, after spreading of the concrete has stopped, visually inspect the concrete mixture by observing the distribution of the coarse aggregate within the concrete mass, the distribution of the mortar fraction particularly along the perimeter, and the bleeding characteristics. Assign a Visual Stability Index (VSI) value to the concrete spread using the criteria shown in the table and the photos provided.

#### Visual Stability Index Values

VSI Value	Criteria
0 = Highly Stable	No evidence of segregation or bleeding.
1 = Stable	No evidence of segregation and slight bleeding observed as a sheen on the concrete mass.
2 = Unstable	A slight mortar halo $\leq 0.5$ in. ( $\leq 10$ mm) and/or aggregate pile in the center of the concrete mass.
3 = Highly Unstable	Clearly segregating by evidence of a large mortar halo $\geq 0.5$ in. ( $\geq 10$ mm) and/or a large aggregate pile in the center of the concrete mass.

First published by BASF<sup>1</sup>, in two papers presented at the Second International Symposium on SCC, the VSI has subsequently been modified and adopted by ASTM as referenced in ASTM International, Designation C 1611 – “Standard Test Method for Slump Flow of Self-Consolidating Concrete.”

<sup>1</sup>Daczko, Joseph A., Kurtz, Mark A., “Development of High Volume Coarse Aggregate Self-Compacting Concrete”, Proceedings of the Second International Symposium on Self-Compacting Concrete, 23-25 October, 2001, Tokyo, Japan, pp.403-412.

Daczko, Joseph A., Phillips, Stephen, H.E., “Self-Compacting Concrete in Underground and Mining Applications”, Proceedings of the Second International Symposium on Self-Compacting Concrete, 23-25 October, 2001, Tokyo, Japan, pp. 671-680.

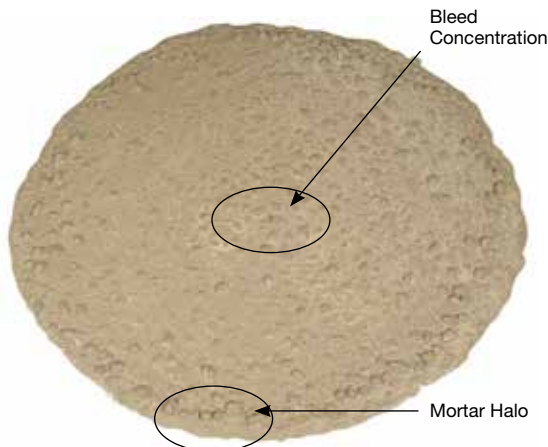
# Self-consolidating concrete



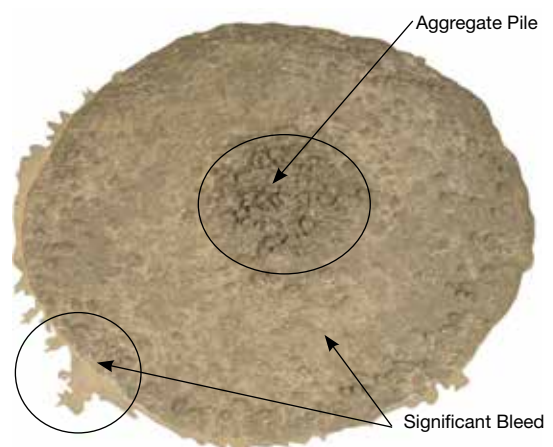
**0-Highly Stable**



**1-Stable**



**2-Unstable**



**3-Highly Unstable**

## More Information

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## Contact

**United States**  
23700 Chagrin Boulevard  
Cleveland, Ohio 44122-5544  
Tel: 800 628-9990 ■ Fax: 216 839-8821

**Canada**  
1800 Clark Boulevard  
Brampton, Ontario L6T 4M7  
Tel: 800 387-5862 ■ Fax: 905 792-0651