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.

### Visual Stability Index Values

<table>
<thead>
<tr>
<th>VSI Value</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = Highly Stable</td>
<td>No evidence of segregation or bleeding.</td>
</tr>
<tr>
<td>1 = Stable</td>
<td>No evidence of segregation and slight bleeding observed as a sheen on the concrete mass.</td>
</tr>
<tr>
<td>2 = Unstable</td>
<td>A slight mortar halo ≤0.5 in. (≤ 10 mm) and/or aggregate pile in the center of the concrete mass.</td>
</tr>
<tr>
<td>3 = Highly Unstable</td>
<td>Clearly segregating by evidence of a large mortar halo ≥ 0.5 in. (≥ 10 mm) and/or a large aggregate pile in the center of the concrete mass.</td>
</tr>
</tbody>
</table>

First published by BASF®, 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.”


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.
Self-consolidating concrete

More Information
The Master Builders Solutions brand brings all of BASF’s expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry. The know-how and experience of a global community of BASF construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide. We leverage global BASF technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, concrete repair & protection solutions, performance grouts, performance flooring solutions.

LIMITED WARRANTY NOTICE
We warrant our products to be of good quality and will replace or, at our discretion, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, BASF MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and BASF shall have no other liability with respect thereto. Any claims regarding product defect must be received in writing within one (1) year from the date of shipment. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the BASF Technical Manager.

This information and all further technical advice are based on BASF’s present knowledge and experience. However, BASF assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights. BASF SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES (INCLUDING LOSS OF PROFITS) OF ANY KIND. BASF reserves the right to make any changes according to technological progress or further developments.

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

www.master-builders-solutions.basf.us