

FALEX MILLER NUMBER SLURRY ABRASIVITY TEST MACHINE

Measures for SAR and Miller Numbers!



The Falex Miller Number Slurry Abrasivity Test Machine can be used to develop data from which either the relative abrasivity of any slurry (Miller Number), or the response of different materials to the abrasivity of different slurries (SAR Number), can be determined, meeting the requirements of ASTM G75, "Test Method for Determination of Slurry Abrasivity (Miller Number) and Slurry Abrasion Response of Materials (SAR Number)."

The Miller Number is an index of the relative abrasivity of slurries. Its primary purpose is to rank the abrasivity of slurries in terms of the wear of a standard reference material. The wear damage on the block is worse as the Falex Miller Number gets higher.

The SAR Number is an index of the relative abrasion response of materials as tested in any particular slurry of interest. The SAR Number is a generalized form of the Miller Number applicable to materials other than the referenced material used for the Miller Number determination. A major purpose is to rank construction materials for use in a system for pumping and fluid handling equipment for a particular slurry. The slurry damage on the specimen of material being tested is worse as the SAR Number gets higher.

Standard Test Methods

ASTM G 75, Standard Test Method for Determination of Slurry Abrasivity (Miller Number) and Slurry Abrasion Response of Materials (SAR Number).

Specifications & Features

Falex Miller Number Slurry Abrasivity Test Machine

220 V, 60 Hz P/N 079-001-001

Standard System Includes:

- » Machine with Motor
- » Electronic Predetermining Counter
- » Four-Trough Slurry Container
- » List of Miller Number Test Results
- » Operation Manual

Ordering Information

Part Number Description

Options & Accessories

079-011-002	Lap, Neoprene Molded (Set of 4)
079-021-001	Block Holder, Delrin

Test Consumables

079-560-005	Wear Block, 27% Chrome Iron, 12/box
010-500-070	AFS 50-70 Sand for wear testing, 50 pounds

Falex Corporation follows a policy of continuous product improvement. Specifications are subject to change without notice.

This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.



Designation: G75 – 15

Standard Test Method for Determination of Slurry Abrasivity (Miller Number) and Slurry Abrasion Response of Materials (SAR Number)¹

This standard is issued under the fixed designation G75; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscripted e indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers a single laboratory procedure that can be used to develop data from which either the relative abrasivity of any slurry (Miller Number) or the response of different materials to the abrasivity of different slurries (SAR Number), can be determined.

1.2 The test data obtained by this procedure is used to calculate either a number related to the rate of mass loss of duplicate standard-shaped 27 % chromium iron wear blocks when run for a period of time in the slurry of interest (Miller Number), or to calculate a number related to the rate of mass loss (converted to volume loss) of duplicate standard-shaped wear specimens of any material of interest when run for a period of time in any slurry of interest (SAR Number).

1.3 The requirement for a finished flat wearing surface on the test specimen for a SAR Number test may preclude application of the procedure where thin (0.051 to 0.127-mm), hard, wear-resistant coatings will not allow for surface finishing. The 6 hours total duration of the SAR Number Test may not allow establishment of a consistent rate-of-mass-loss of the unfinished surface.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

- 2.1 *ASTM Standards:*²
G40 Terminology Relating to Wear and Erosion

¹ This test method is under the jurisdiction of ASTM Committee G02 on Wear and Erosion and is the direct responsibility of Subcommittee G02.30 on Abrasive Wear.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

2.2 Military Standard:

MIL-R-6855C Rubber, Synthetic, Sheets, Strips, Molded or Extruded Shapes³

3. Terminology

3.1 Definitions:

3.1.1 Definitions used in this test method are in accordance with Terminology G40 as follows:

3.1.2 *abrasive wear*—wear due to hard particles or hard protuberances forced against and moving along a solid surface.

3.1.3 *corrosive wear*—wear in which chemical or electrochemical reaction with the environment is significant.

3.1.4 *abrasion-corrosion*—a synergistic process involving both abrasive wear and corrosion in which each of these processes is affected by the simultaneous action of the other and, in many cases is thereby accelerated.

3.1.5 *cumulative erosion-time curve*—a plot of cumulative erosion versus cumulative exposure duration, usually determined by periodic interruption of the test and weighing of the specimen. This is the primary record of an erosion test. Most other characteristics, such as the incubation period, maximum erosion rate, terminal erosion rate, and erosion rate-time curve, are derived from it.

3.1.6 *erosion*—progressive loss of original material from a solid surface due to mechanical interaction between that surface and a fluid, a multi-component fluid, or impinging liquid or solid particles.

3.1.7 *erosion-corrosion*—a conjoint action involving corrosion and erosion in the presence of a corrosive substance.

3.1.8 *instantaneous erosion rate*—the slope of a tangent to the cumulative erosion-time curve at a specified point on that curve.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *mass concentration*—the mass of solid particles per unit mass of mixture, expressed in percent.

³ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

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