ASAE S380 DEC1975 (R2015)
Test Procedure to Measure Mixing Ability of Portable Farm Batch Mixers

STANDARD

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Developed by the ASAE Animal Feed Processing Implements Subcommittee of the Power and Machinery Division Standards Committee; approved by the Power and Machinery Division Standards Committee; adopted by ASAE as a Tentative Standard December 1975; reaffirmed December 1976, December 1977, December 1978, December 1979; reclassified as a full Standard March 1981; reaffirmed December 1985, December 1990; December 1995, January 2001, February 2006, January 2011, December 2015.

Keywords: Mixers, Mixing, Test

1 Purpose and Scope

1.1 The purpose of this Standard is to define a uniform test procedure and measurement to evaluate the mixing ability of on the farm, portable batch mixers.

1.2 This Standard is applicable to batch mixers mixing dry granular ingredients of different particle size and density. The test shall consist of measuring the mix of an ingredient of smaller particle size and/or one of larger particle size with one base material.

2 Performance Criteria

2.1 The performance criteria is the uniformity of dispersion of the ingredients throughout the entire batch.

3 Test Procedure

3.1 Test formula. The formula for testing the performance of a batch mixer shall consist of a mixture of 0.5% salt and/or 5.0% whole kernel shelled corn by weight mixed into a base material of ground shelled corn, U.S. Grade No. 2 of less than 14% moisture. The base material, corn, shall be ground to a fineness of a log mean diameter within 0.90 to 1.30 mm and a logarithmic standard deviation of 2.50 or less (see ASAE Standard S319, Method of Determining and Expressing Fineness of Feed Materials by Sieving). Most hammer mills should obtain this grind with a 9.7 mm (0.38 in.) screen. The salt tracer shall have a log mean diameter of within 0.35 to 0.55 mm and a logarithmic standard deviation of 1.75 or less. The whole kernel corn tracer shall have no more hulls and cracked kernels than allows 2.5% to pass through a 4.70 mm (0.185 in.) screen.

3.2 Mixing procedure. The mixing procedure shall be the same as that recommended to the customer by the manufacturer such as optimum mixing time and batch size. The exact mixing procedure used to obtain the results for this standard test procedure shall be reported. This shall include:

3.2.1 Sequence when ingredients were added.

3.2.2 Machine location where ingredients were added.

3.2.3 Mixer speed such as full rated speed or portion thereof.

3.2.4 Tracer, if only one is used.

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