



Designation: E 1395 – 90 (Reapproved 1997)^{ε1}

Standard Test Method for Sensory Evaluation of Low Heat Chilies¹

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ε¹ NOTE—Sections 2 and 7 were corrected editorially in July 1998.

1. Scope

1.1 This test method describes standardized procedures for the sensory evaluation of heat in low heat chili peppers ranging from 200 to 2500 Scoville heat units.

1.2 This test method is intended as an alternative to the Scoville heat test (see ASTA Method 21.0 and ISO 3513), but results can be expressed in Scoville heat units (S.H.U.).

1.3 This test method does not apply for ground red pepper or oleoresin capsicums.

1.4 The values stated in SI units are to be regarded as the standard.

1.5 *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.* Specific precautionary statements are given in Section 8.

2. Referenced Documents

2.1 ASTM Standards:

E 1083 Test Method for Sensory Evaluation of Red Pepper Heat²

2.2 ASTA Standard:

ASTA Method 21.0 Official Analytical Methods³

2.3 ISO Standard:

ISO 3513-1977 (E), Spices and Condiments—Chilies—Determination of Scoville Index⁴

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *approaching strong heat*—*N*-vanillyl-*n*-nonamide, 1.30 ppm. This is 13.0 cm on the 15-cm line scale. It is unusual

to see a ground red pepper stronger than this. But in the event that a pepper with more than expected heat is tested, there remains the last 2 cm on the 15-cm line scale.

3.1.2 *low heat chilies*—variety of red pepper (capsicum) containing less than 0.1 % capsaicin (less than 2500 Scoville heat units).

3.1.3 *moderate heat*—*N*-vanillyl-*n*-nonamide, 0.80 ppm. This is a “moderate” amount of pepper heat. It reads 10 cm on the 15-cm line scale.

3.1.4 *rinse*—to purge the oral cavity with unsalted soda crackers and 20°C spring or distilled water by slowly chewing and swallowing the cracker, followed by swirling the water around in the mouth and swallowing. This procedure is repeated as often as is natural and comfortable for the panelist.

3.1.5 *Scoville heat units (S.H.U.)*—the commonly accepted unit for expressing heat levels in capsicum products (see ISO 3513 and Footnote 4). S.H.U. range from 0 to 1 500 000.

3.1.6 *slight heat*—*N*-vanillyl-*n*-nonamide, 0.40 ppm. This is a “slight” amount of pepper heat. It reads 5 cm on the 15-cm line scale.

3.1.7 *strong heat*—best defined by concept. Hotter than the 1.30 ppm *N*-vanillyl-*n*-nonamide sample. It reads 15 cm on the 15-cm line scale.

3.1.8 *threshold heat*—best defined by concept rather than by a standard dilution of *N*-vanillyl-*n*-nonamide. Threshold is that point where a panelist just barely senses burn and heat, or both. It reads 1.25 cm on the 15-cm line scale.

3.1.9 *zero heat*—*N*-vanillyl-*n*-nonamide, 0 ppm. No sensory heat. It reads 0 cm on the line scale.

4. Summary of Test Method

4.1 Ground low heat chili peppers are steeped in hot water with polysorbate-80 for 20 min, filtered, and the filtrate diluted in room temperature water. Trained panelists compare the heat in the pepper extract to a known concentration of a standard solution of synthetic capsaicin (*N*-vanillyl-*n*-nonamide) using a 15-cm line scale. The testing procedure is timed and takes 2 min for one test sample and 9 min for two test samples.⁵

¹ This test method is under the jurisdiction of ASTM Committee E-18 on Sensory Evaluation of Materials and Products and is the direct responsibility of committee E18.06 on Food, Beverage, and Tobacco Evaluation.

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² *Annual Book of ASTM Standards*, Vol 15.07.

³ Available from American Spice Trade Association, Box 1267, Englewood Cliffs, NJ 07632.

⁴ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

⁵ Gillette, M. H., Appel, C. E., and Lego, M., “A New Method for the Sensory Evaluation of Red Pepper Heat,” *Journal of Food and Science*, Vol 49, No. 4, 1984, p. 1028.