

ADVANCEMENTS OF HEAT ANALYSIS STANDARDS

The analysis for the heat bearing components of red peppers has been with us since 1912 when a Pharmacologist named Wilbur Scoville developed the original “Scoville Method” which determined the Scoville Heat Unit (SHU) test, using a panel of five (5) human taste testers. In the early 1960’s, the American Spice Trade Association (ASTA) slightly revised the “Scoville Method” and adopted ASTA Method 21.0 (Sensory Method). While these two methods were very similar, they were highly subjective and had a large variability of results. In the early 1980’s the ASTA developed and introduced ASTA Method 21.1 (HPLC Method). Over the years as analytical instrumentation became better, the analytical methodology for heat determination has been one of constant evolution with a great deal of activity in the past two decades.

In 1996 the American Organization of Analytical Chemists (AOAC) issued AOAC Official Method 995.03 entitled *Capsaicinoids in Capsicums and Their Extractives*. Like ASTA Methods 21.0 & 21.1, this method also declared that pure capsaicin was 15 Million SHU. In 1997, the ASTA revised Methods 21.0 (Sensory Method) and 21.1 (HPLC Method), both of which continued to maintain that pure capsaicin was 15 Million SHU. However, although revised, these methods still had their problems. Two of which were:

- ASTA Method 21.1 was developed by a single laboratory and without input from other industry experts.
- In its modified form, ASTA method 21.1 required the use of some chemicals that today, are no longer deemed safe by the Federal Government.

In December 1998, ASTA Method 21.2 (Sensory Method) and 21.3 (HPLC Method) were introduced. These revisions were very important for two very specific reasons:

1. For the very first time a collaborative method was developed by the ASTA in conjunction with the AOAC.
2. For the very first time, ASTA confirmed that pure Capsaicin was in fact 16 Million SHU’s.

Just 3 months later in March of 1999, because of the collaborative effort between the 2 organizations, the AOAC revised Official Method of Analysis 995.03 to coincide with ASTA Method 21.3, also stating that pure Capsaicin was 16 Million SHU’s. Consequently, In June of 2001 and since ASTA Methods 21.2 and 21.3 are the result of the collaboration between ASTA & AOAC, the Executive Committee of the ASTA Technical Group determined that all previous ASTA methods of analysis (21.0 & 21.1) to be obsolete.

HISTORY OF HEAT ANALYSIS STANDARDS

<u>Year</u>	<u>Action Taken by Organization</u>	<u>Pure Capsaicin</u>
1912	Wilbur Scoville developed the original Scoville (sensory) Method.	15 Million SHU
1960’s	ASTA adopted and issued Sensory Method 21.0.	15 Million SHU
1980	ASTA adopted and issued Analytical Method 21.1.	15 Million SHU
1996	AOAC adopted and issued Official Method of Analysis 995.03.	15 Million SHU
1997	ASTA revised Analytical Methods 21.0 and 21.1.	16 Million SHU
1998	ASTA adopted and issued Analytical Methods 21.2 and 21.3.	16 Million SHU
1999	AOAC revised Official Method of Analysis 995.03.	16 Million SHU
2001	ASTA deemed Analytical Methods 21.0 and 21.1 obsolete.	16 Million SHU

Sources: All data stated above provided by ASTA & AOAC 2003

