

Hot sauces with low Scoville numbers by Tom Johnson, Southwest Bio-Labs, 2018

The first thing to realize is that the standard way people test hot and super-hot peppers is as a pure dry powder. This gives the highest Scoville Heat Unit (SHU) value since most of the water (about 85%) has been evaporated through drying; however, many hot sauce makers don't use powders for hot sauces. When you start with fresh peppers, they have lots of water in them, so the SHU heat value is only about 10% of the dry powder SHU value due to natural dilution. Then you also add spices, vinegar, etc. and this further lowers the SHU value. However, this lower heat value does not make fresh peppers or sauces seem less hot to our senses when we eat them.

Here is an example of what I am talking about:

A customer sent in some fresh red Carolina Reaper pepper pods to be tested. The result was 130,000 SHU. Should it have been 1.3 million SHU? He contacted me about the result being "low", so I dried the same peppers and ground them into a powder, and the result was now about 1.3 million SHU. The cause of this is water/moisture in the fresh peppers and in this case about 90% water, therefore fresh peppers test much lower or 10% of the original in this case. In a sauce, you dilute the heat even further with vinegar, juices, and spices (even though the sauce will "hurt" you still). The percentages of all the ingredients will then give you an estimate of the final heat.

For example, Reaper hot sauce recipe may be like this:

Fresh Carolina Reaper Pods: 60% by weight estimated at 130,000 SHU (Fresh pods)

Vinegar, spices, and other things that don't contribute heat: 40%

So, 60% of the sauce contributes heat, so...

Fresh Reaper pods contribute 60% or $[130,000 \text{ SHU} \times 0.60 = 78,000 \text{ SHU}]$ to the sauce

So, the estimated sauce Scoville heat is about 78,000 SHU. Most natural super-hot sauces, without additional oleoresin oils, etc., are from 40,000 SHU to 80,000 SHU. Tabasco has about 4,000 SHU.

In the end, some sauce makers put on their bottles or websites that their sauces are made from a 1.3 million SHU peppers, but don't list the actual SHU value further adding confusion to the actual SHU value of the sauce. It is conventional to still use mild, medium, hot, or compare to a type of pepper that people know about.

Most of our work related to hot sauces and salsas is with companies who are doing routing quality control of batches so they can meet a goal by either mixing milder or hotter batches (blending tanks) or adding an oleoresin to meet target SHU ranges.