SAFEGUARDS
SGS CONSUMER TESTING SERVICES

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PUNGENCY OF SPICES

Like the content of proteins is a measure for the commercial value of some grain products, Scoville Heat Units are a measure for the piquancy or "hotness" and hereby of the commercial value of spices. This is not applicable for all spices but only valid for spices containing capsaicinoids. Capsaicinoids are a group of the chemical compounds which stimulates chemoreceptor nerve endings in the skin, especially the mucous membranes causing a sharp, burning, piquant mouth feeling.

The spices containing those capsaicinoids are red pepper, chilli pepper, cayenne pepper, jalapeno pepper and red pepper oleoresins. It does not matter whether the spices are grounded or crushed.

As the pungency is based on the presence of capsaicinoids and also related to its concentration the analytics of the piquancy are based on the quantification of the capsaicinoids. The preferred technique is of course HPLC. On a C18 column the capsaicinoid group is separated in its 3 major compounds: nordihydrocapsaicin (N), capsaicin (C) and dihydrocapsaicin (D). Two detectors can be considered for the detection: a UV-VIS or a fluorescence detection system but to avoid interferences the fluorimetric detector is preferred.

The concentration of those 3 compounds is determined by the use of the standard N-vanillyl-n-nonamide. The results for the 3 constituents are calculated in microgram per gram of product and the capsaicinoids are calculated as the sum of these compounds (N+D+C).

The commercially used Scoville Heat Units (SHU) are calculated starting from the sum of the 3 major capsaicinoids. 1 microgram of total capsaicinoids / g product corresponds to 15 SHU. The used method is applicable for the determination of 750 – 650. 000 SHU of capsaicinoids in Capsicums and their extractives.

SCOPE OF PRODUCT	TEST ITEMS	TECHNIQUE	UNIT
Ground and crushed Red Pepper Chili pepper Ground cayenne pepper Ground jalapeno pepper Red Pepper oleoresins and etc.	**Pungency (Sum of Capsaicinoids)** • Capsiacin (C) • Dihydrocapsaicin (D) • Nordihydrocapsaicin (N)	High Performance Liquid Chromatography	Scoville Heat Unit (SHU)

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