
L-CYSTEINE

WHAT IS L-CYSTEINE?

L-cysteine and the corresponding disulfide L-cystine, are non-essential amino acids that can be formed in the body through the conversion of the essential amino acid methionine. L-cysteine hydrochloride is used in the baking industry as dough conditioner. Specially, it breaks the disulfide bonds of gluten, which lowers the viscosity of the dough. It is then easier to work with and increases the elasticity of the dough, helping it to rise during baking.

WHY IS IT AN ISSUE FOR THE INDUSTRY?

There are no health issues related to the use of L-cysteine. The potential concern is related to the source of this ingredient. The primary source of this amino acid is goose and duck feathers; however, human hair, swine bristles, and swine hooves have also been identified as sources. These latter sources are not used in Canada. There is also a vegetarian source manufactured through a fermentation process, but due to cost and availability (one manufacturer produces this source), it is not used widely.

Bloggers have commented on two aspects of L-cysteine sources. First, that it is not a vegetarian source and therefore inappropriate for vegans to consume; and second, the ick factor of having either human or animal components in a grain product.

WHAT ARE THE CANADIAN REGULATIONS?

L-cysteine, in the form of L-cysteine hydrochloride, is permitted for use in Canada in bread, flour, and whole wheat flour to a maximum level of 90 ppm. It is also allowed in unstandardized bakery products at levels that follow good manufacturing practice. This is based on Marketing Authorization SOR/2012/203 published March 16, 2014 (<http://laws-lois.justice.gc.ca/PDF/SOR-2012-203.pdf>)

WHAT ABOUT OTHER JURISDICTIONS?

United States Food and Drug Administration lists L-cysteine as a GRAS substance and similar to Canada allows up to 0.009 parts per 100 parts of flour in dough as a dough strengthener.

European Food Safety Authority permits the use of L-cysteine (E920) at levels indicated by quantum satis under regulation No 1129/2011. "Quantum satis" indicates that no maximum level is specified. However, additives must be used in accordance with good manufacturing practice, at a level not higher than is necessary to achieve the intended purpose and provided that they do not mislead the consumer.

Food Standards Australia New Zealand permits the use of L-cysteine (E920) in flour and bakery products, but not wholemeal products.