



Date: October 1, 2023
Re: Pathogen Testing of Granulated Sugar

United Sugar Producers and Refiners (United) is committed to manufacturing safe and wholesome products. Since refined sugar is a very low risk product for pathogenic organisms, United has discontinued the quarterly pathogen-testing program for granulated sugar at the end of 2003. The reasons for discontinuing the end-product testing for pathogens are as follows:

- 1. There have been no positive results obtained from pathogen testing of the products produced by United's eleven facilities since testing began in 1993.
2. Microbes pathogenic to humans are comfortable growing at normal body temperature of 98.6 °F. Pathogenic microbes are not capable of surviving sugar-processing temperatures of 212°F.
3. The water activity (AW) of sugar (granulated sugar AW = 0.622) does not allow for the growth of pathogenic microbes, which have higher AW growth requirements in the range of 0.83-0.97 as given in the table below.

Table with 2 columns: Organism, Lowest AW that organism can grow. Rows include Clostridium botulinum (0.93), Staphylococcus aureus (0.83), Bacillus cereus (0.95), Salmonella (0.93), Listeria monocytogenes (0.90), Yersinia (0.96), Vibrio (0.94), Clostridium perfringens (0.95), Escherichia coli (0.97).

- 4. Each facility within United has a very stringent GMP (Good Manufacturing Practices) program as well as a HACCP (Hazard Analysis Critical Control Points) program that ensure the cleanliness of the facilities and that the products produced are not adulterated.

United will test for pathogens under necessary circumstances. These include, but are not limited to the following:

- GMP's have been violated and the possibility of product contamination is evident.
• The product has been stored in an unsanitary manner (placed in an area with standing water, leaking roof, infestation, etc.) due to unforeseen circumstances.

Please contact Janet Harriman if you have any further questions.

Janet A. W. Harriman
Director of Quality and Safety
United Sugar Producers and Refiners

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Corporate Office:
8000 West 78th Street • Suite 300
Edina, MN 55439
800.984.3585

Service Center:
2060 Sheyenne Street • Suite 300
West Fargo, ND 58078
800.566.5116

unitedsugarpr.com

