Accepted Manuscript

The influence of storage time and temperature on the corrosion and pressure changes within tomato paste cans with different filling rates

Seid Mahdi Jafari, Morad Amanjani, Mohammad Ganjeh, Iman Katouzian, Narjes Sharifi

PII:	S0260-8774(18)30057-8
DOI:	10.1016/j.jfoodeng.2018.02.008
Reference:	JFOE 9163
To appear in:	*Journal of Food Engineering*
Received Date:	24 July 2017
Revised Date:	05 January 2018
Accepted Date:	08 February 2018

Please cite this article as: Seid Mahdi Jafari, Morad Amanjani, Mohammad Ganjeh, Iman Katouzian, Narjes Sharifi, The influence of storage time and temperature on the corrosion and pressure changes within tomato paste cans with different filling rates, *Journal of Food Engineering* (2018), doi: 10.1016/j.jfoodeng.2018.02.008

The influence of storage time and temperature on the corrosion and pressure changes within tomato paste cans with different filling rates

Running title: Evaluation of corrosion in tomato paste cans

Seid Mahdi Jafari*, Morad Amanjani, Mohammad Ganjeh, Iman Katouzian, Narjes Sharifi

Department of Food Materials and Process Design Engineering, Gorgan University of Agricultural Science and Natural Resources, Gorgan, Iran.

*Corresponding author:

Tel./fax: +98 17 324 26 432. E-mail address: smjafari@gau.ac.ir (S.M. Jafari).

Abstract

Apart from the advantages that metallic food containers offer, corrosion remains to be one of the major drawbacks of using these containers especially when they come in contact with acidic foods like tomato paste. Accordingly, this research was aimed to explore the fluctuations in the corrosion trend plus the absolute pressure in the metal cans which come into contact with tomato paste as a relatively acidic food product during 6-month storage. Our results revealed that storage temperature and filling rate were the most and least effective parameters on the corrosion and absolute pressure of tomato paste cans, respectively. Storage time also significantly increased the examined factors and had a synergistic effect on corrosion together with temperature augmentation and filling percentage. Finally, it should be noted that filling rate had no impact on the absolute pressure values without considering the effect of temperature.

Keywords: Tomato paste; metal cans; corrosion; image processing.