

# ULTRAHIGH-PRESSURE SALSA & DRESSING



## ***Fresher Under Pressure*® Provides the Highest Quality Foods with Extended Shelf Life**

### ***Fresher Under Pressure Serves the Market***

Consumers expect safe foods, yet foodborne pathogens cause millions of illnesses every year. These preventable illnesses result in thousands of deaths. *Fresher Under Pressure* from Flow International Corporation, the leader in ultrahigh-pressure (UHP) food processing equipment, can eliminate these pathogens and retain fresh quality, extend shelf life and create opportunities for new product development.

### ***Semi-Continuous Processing Benefits***

Highest efficiency processing for pumpable foods  
Post-process packaging allows increased options  
Modular design for capacity growth  
Process is compatible with in-line production methods

### ***Batch Processing Benefits***

Processed in the final consumer package  
Most plastic food packages are suitable, including vacuum and gas-packed  
Integrates with conventional equipment and allows for rapid changeover between product line variations in food type, package size and format

### ***Fresher Under Pressure Advantages***

Products retain fresh or just prepared characteristics without changes in appearance, flavor or nutrition  
Increases food safety without the use of heat  
Pressure transmission is instantaneous and uniform throughout food  
Bacteria inactivation is low energy  
UHP produces no by-products  
Reduction of spoilage organisms without chemical preservatives  
Extended shelf life enables wider product distribution and results in fewer product returns  
Allows the introduction of new premium products

**“Fresher  
under  
Pressure”**

## TOMATO SALSA

### Pressure Inactivation of *Escherichia coli* O157:H7 in Salsa (pH 3.8) Without Preservatives

Time at 80,000 psi [545 MPa] (Seconds)	18 Hours		1 Week		1 Month		2 Months	
	4°C		4°C	RT	4°C	RT	4°C	RT
	Level of <i>E. coli</i> O157:H7 (MPN or CFU/g)							
0	5.5 x 10 <sup>7</sup>	3.6 x 10 <sup>7</sup>	<0.3	<0.3	Positive	Negative	Negative	Negative
30	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
60	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
90	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
120	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3

Data source: Oregon State University, Corvallis, OR.

## TOMATO SALSA

### Pressure Inactivation of *Listeria monocytogenes* in Salsa (pH 3.8) Without Preservatives

Time at 80,000 psi [545 MPa] (Seconds)	18 Hours		1 Week		1 Month		2 Months	
	4°C		4°C	RT	4°C	RT	4°C	RT
	Level of <i>L. monocytogenes</i> (MPN or CFU/g)							
0	7.3 x 10 <sup>7</sup>	1.1 x 10 <sup>6</sup>	7.5	8.9 x 10 <sup>3</sup>	<0.3	<0.3	1.3 x 10 <sup>2</sup>	<0.3
30	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
60	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
90	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
120	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3

Data source: Oregon State University, Corvallis, OR.

## RANCH DRESSING

### Pressure Inactivation of *Salmonella* in Ranch Dressing (pH 4.6) Without Preservatives

Days in Storage	Untreated Control	UHP Treated at 74,000 psi [510 MPa]		
	2°C	2°C	22°C	27°C
	MPN or CFU/g			
0	4.8 x 10 <sup>6</sup>	<3.0	<3.0	<3.0
1	3.8 x 10 <sup>3</sup>	<3.0	<3.0	<3.0
3	<3.0	<3.0	<3.0	<3.0
5	<3.0	<3.0	<3.0	<3.0
10	<3.0	<3.0	<3.0	<3.0
30	<3.0	<3.0	<3.0	<3.0
60	<3.0	<3.0	<3.0	<3.0



Flow

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