

Pass/Fail Criteria- "Potentially Hazardous Foods"

Product	Ingredients	pH	aw	Processing	Packaging	Distrib. T	Storage T	Shelf-Life	Criteria	Pass/Fail
Margarine (1)	Fat (80%), water & milk protein (19%), salt (.9%) K-sorbate (.1%)	4.8			Wrapper		Ambient	3 mo	pH, salt, sorbic acid	Pass
Pure Oil and Fats (2)									no growth/no data provided	Pass
20 Salad Dressings (3)		<4.6					Ambient		pH	Pass
Italian Salad Dressing (4 - Paper)	Cheese, parsley, eggs, oregano	3.5-3.6					Ambient		Salmonella challenge	Pass
67 Salad Dressings (5A)	Eggs, soybean oil, buttermilk, tomato paste, onion, garlic, spices, lemon juice, vinegar (2.5 - 5.4% salt), K-sorbate	3.5-4.2		Cold blended/filled	Plastic or glass bottle or jar	Ambient	Ambient	7-9 mo	No Salmonella-Challenge/ 72 h	Pass after 24, 48, 72
Sweet Sour (6)	Water (49%), sugar (39%), Acetic acid (1.66%), sorbic acid (.06%), salt (1.47%)	4.7	<.93				Ambient	6 mo	pH, aw, acetic and sorbic acid	Pass
Chinese Style (7)	Water (50%), sugar (24.6%), acetic acid (1%), sorbic acid (.05%), salt (12.67%)	4.5					Ambient	6 mo	pH, salt, acetic and sorbic acid	Pass
B-B-Q Style (8)	Water (57%), sugar (20%), acetic acid (.99%), sorbic acid (.07%), salt (9.5%)	4.2					Ambient	6 mo	pH, salt, acetic and sorbic acid	Pass
3 Barbecue Sauces (5B)				Cold blended/filled	Plastic or glass bottle or jar	Ambient	Ambient	7-9 mo	No Salmonella-Challenge/ 72 h	Pass after 24, 48, 72
Curry (9)	Water (51%), sugar (16.6%), acetic acid (1.5%), sorbic acid (.06%), salt (10%)	4					Ambient	6 mo	pH, salt, acetic and sorbic acid	Pass
4 Sauces (10)		>4.6					Chilled		pH	Fail
17 Sauces (11)		<4.6					Ambient		pH	Pass
Garlic Bread Sauce (12)		4.83	0.43				Ambient		pH/aw combination	Pass

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Pumpkin Pie (13)		5.1		Baking	Cool, then in box		Ambient	3-4 d	pH, Na benzoate, Na propionate, challenge	Pass
Pumpkin Pie (14)				Baking					Challenge	Pass
Lemon-Meringue Pie (15)	Filling: water, sugar, modified food starch, corn syrup solids, margarine, lemon juice solids, high fructose corn syrup, sodium citrate, agar agar, K-sorbate, natural flavor, locust bean gum, artificial color (F.D. & C. Yellow no.5)	Mer: 4.2 Int: 3.5 Fill: 3.4	0.94 0.95 0.45	Crust Baking: 400F, add meringue, bake 85F, 10-12 min	Cool, then in box		Ambient	3 d	E. coli (-), Salmonella (-), pH, challenge	Pass(?) but process control
Hush Puppy Mix (16)	Enriched white corn meal, enriched bleached wheat flour, dehydrated onion, sugar, defatted soy flour, leavening, salt, whey, soy protein concentrate, egg	6.8	0.98				Ambient	4 h	onions, challenge	Pass
*Baked Cream Cheese/ Fruit-Filled Danish (17)	Flour, shortening, water, whole egg, shortening, bakers yeast, crème custard flavor, high fructose corn syrup, salt, baking powder, mono- and diglycerides, spice, sodium stearoyl lactylate, vanilla, lemon juice flav., imit. cream cheese (skim milk, cream, cheese cultures, enzymes, K-sorbate); fruit filling (cherries, apples, or blueberries, sugar, water, mod. corn starch, sodium citrate, citric acid, sodium benzoate, K-sorbate, salt, erythorbic acid, gellan gum, locust bean gum, carrageenan, color: Red 40, Blue 1	Cr: 6.9, Ch: 4.3, Fruit: 3.5	0.9, 0.97, 0.95	Baked in store	Poly bag; in box	Raw; frozen	Ambient	12-18 h, post-baked	Challenge w/S. aureus, L monocytogenes, Salmonella, E. coli	Pass
*Cream-Filled Eclaires (18)	Pastries: water, eggs, flour, hydrog. veg. oil, baking powder, sodium acid pyrophosphate, baking soda, corn starch, monocalcium phosphate, salt, malted barley; filling: water, sugar, mod. corn starch, dextrose, veg. oil, cottonseed, mono and diglycerides, salt, carrageenan, glucono delta lactone, sodium benzoate and K-sorbate (0.02%), polysorbate 60, soy lecithin, nat. & artific. flav. colored w/Yellow	Shell 7.2 Fill 5.1-5.8	0.87, .96-.98	Cream 190F, cooled to 41 F in 4 h; shell > 200 F, cooled to ambient	In bulk	0 or below	Refrigerated	3 d at <41 F, 180 d frozen	Challenge with S. aureus; L mono, Salmonella: lag phase or no toxin for 1.5% shelf-life	Fail
Chocolate Pie and Donut Filling (19)	Water, sugar, corn starch, cocoa, egg, hydrogenated shortening, potassium sorbate (.49%), salt, sodium propionate (.02%), phosphoric acid, flavors	5.5-6.2	0.97	Heated to 190 F, hot filled at 160 F	HDPE pails w/ lids	<45 F	Ambient	6 mo closed, open?	Challenge w/S. aureus, L. mono., C. sporogenes, B. cereus, Salmonella: lag phase or no toxin for 1.5% shelf-life	Pass

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Plain Focaccia (20)	Oil, romano cheese, garlic powder, oregano	5.5-5.3	.97-.95	Baked			Ambient	3 d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-) for 6 d	Pass
Pepper Focaccia (21)	Roasted sliced red peppers, oil, romano cheese, garlic powder, oregano	3.9-4.1	0.99	Baked			Ambient	3d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-) for 6 d	Pass
Tomato Focaccia (22)	Plum tomatoes, oil, romano cheese, garlic powder, oregano	4.1-4.3	0.99	Baked			Ambient	3 d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-) for 6 d	Pass
Asiago Potato Cheese Bread (23)	No data	5.9 - 5.84	0.88	Aseptic baking	Aseptic packaging		Ambient	3 d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-) for 6 d	Pass
Garlic Focaccia (24)	No data	5.7	0.88	Aseptic baking	Aseptic packaging		Ambient	3 d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-), <i>L. mono</i> for 6 d	Pass
South of the Border Focaccia (25)	No data	5.4-5.5	.87-.88	Aseptic baking	Aseptic packaging		Ambient	3 d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-), <i>L. mono</i> for 6 d	Pass
Italiano Focaccia (26)	No data	5.6	0.87	Aseptic baking	Aseptic packaging		Ambient	3 d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-), <i>L. mono</i> for 6 d	Pass
Jalepeno/Cheddar Focaccia (27)		5.6-5.7	0.86-0.87	Aseptic baking	Aseptic packaging		Ambient	3 d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-), <i>L. mono</i> for 6 d	Pass
Vegetable Medley Focaccia (28)		5.9-5.8	0.88	Aseptic baking	Aseptic packaging		Ambient	3 d	<i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> (-), <i>L. mono</i> for 6 d	Pass
Meats (29)	No data						Chilled		possible abuse during handling	Failed
Fermented Sausage (30)		<5.1		Acidulated or fermented, then cooked	Packed		Ambient, chilled for quality		pH, challenge <i>L. mono</i> , <i>Salmonella</i> , <i>S. aureus</i> , <i>C bot.</i> , % brineit =6%	Pass

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Fettuccine Alfredo w/ Chicken (31)		5.8	0.98	Heated to 205 F, filled and sealed at 176. Cooled to 40F in 2 h	MAP in plastic tray		40 F	60 d	C. botulinum challenge, no toxin for 5 d at 70 F or 60 d at 54 F	Pass
Canned Salads (32) (Ham, Chicken, Tuna)		<5	0.96	Pasteurize in container	Canned		80 F		C. botulinum challenge (data not included)	Pass
Only general (33)										
No such products (34)										
Chopped Lettuce (35)							Ambient	<8 h	Challenge w/Salmonella & L. mono	Pass (?)
Chopped Onions (36)							Ambient	<8 h	Challenge w/Salmonella & L. mono	Pass (?)
Fresh Tomatoes (37)							Ambient	<4 h	Challenge with Salmonella	Pass (?)
Poultry/Bacon/Cheese-Filled Bread (38)	Turkey, bacon, process cheese, pastry covering, salt, spices, glycerol	5.6-5.8	.88-.98	Baked to 165-170F internal	MAP-100%N2 barrier pouch	40-45 F	Ambient ?	Refrigerated: 90 d	C. botulinum challenge, no toxin	Pass aw<.93, Fail aw.98
Chicken/Cheese-Filled Bread (39)	Chicken, process cheese, spices, salt, glycerol, pastry covering	5.8-6.0	.88-.98	Baked to 165-170F internal	MAP-100%N2 barrier pouch	40-45 F	Ambient ?	Refrigerated: 90 d	C. bot. challenge, no toxin	Pass aw<.93, Fail aw.98
Cheese-Filled Bread (40)	Cheese, tomato sauce, spices, glycerol, salt, pastry covering	5.0-5.1	.94-.98	Baked to 165-170F internal	MAP-100%N2 barrier pouch	40-45 F	Ambient ?	Refrigerated: 90 d	C. botulinum challenge, no toxin	Pass aw<.98
Ham/Cheese-Filled Bread (41)	Cured ham, process cheese, spices, glycerol, salt, pastry covering	5.4-5.6	.89-.98	Baked to 165-170F internal	MAP-100%N2 barrier pouch	40-45 F	Ambient ?	Refrigerated: 90 d	C. botulinum challenge, no toxin	Pass aw<.93, Fail aw.98

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Ground Beef/Process Cheese-Filled Bread (42)	Ground beef (pre-cooked), process cheese, spices, glycerol, salt, pastry covering	5.5-5.8	.89-.98	Baked to 165-170F internal	MAP-100%N2 barrier pouch	40-45 F	Ambient ?	Ref: 90 d	C. <i>botulinum</i> challenge, no toxin	Pass aw<.93 Fail aw .98
Cheese-Filled Bread (43)	Process cheese, pastry covering, salt, glycerol	5.6-5.7	.90-.97	Baked to 165-170F, internal	MAP-100%N2 barrier pouch	40-45 F	Ambient ?	Ref: 90 d	C. <i>botulinum</i> challenge, no toxin	Pass aw<.93 Fail aw .98
Process Cheese (44) (Monterey Jack or Swiss)	Swiss or Monterey Jack cheese, Milkfat, water, citrate and phosphate emulsifiers, salt (1.9-2.5%), sorbic acid (2000 ppm max), color	5.7-6.0	.94-.95	160F for 30 s, hot filled	slices or bulk	Refrigerate	Refrigerate	180-210 d. if refrigerated	Challenge with <i>L. mono</i> , <i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> 0157:H7, no growth at 86 F	Swiss: pass 96 h Monterey: pass at 24 h, failed at 48, 72, 96 h
Process Cheese (44C) (American)	American cheese, Milkfat, water, citrate and phosphate emulsifiers, salt (2.3-2.6), sorbic acid (2000 ppm max), color	5.5-5.8	.94-.95	160F for 30 s, hot filled	slices or bulk	Refrigerate	Refrigerate	180-210 d. if refrigerated	Challenge with <i>L. mono</i> , <i>S. aureus</i> , <i>Salmonella</i> , <i>E. coli</i> 0157:H7, no growth at 86 F	no data included
Cottage Cheese Hot Pack (45)	Cultured pasteurized milk, Grade A skim milk, milk and cream, water, whey; <1 food starch, salt, natural flavors, enzymes, gums and Vitamin A	4.8 - 5.4	N/A	Past., ferm., hot filled	Thermo-formed, cups, lid	35-45 F	Ambient ?	60 d	C. <i>botulinum</i> challenge, no toxin	Pass
Cheeses (46)	No data	>4.6					Chilled, unless past		<i>S. aureus</i> challenge, no toxin during process possible abuse during handling	Pass Failed
18 Process Cheeses Slices (47) (Cream)	Cheese, cream, milkfat, water, citrate and phosphate emulsifiers, salt (1.9-2.86%), whey, nonfat dry milk, color, sorbic acid (2000 ppm)	5.5-6.1	0.9	160F for 30 s, hot filled into slices	Slices	Refrigerate	Refrigerate	180-210 d. if refrigerated	Challenge with <i>C. bot.</i> for 4, 8 wk; no toxin at 86 F	Depends on formulation, salt
Processed Cheese (48)									C. <i>botulinum</i> challenge	?

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Sliced Cheeses (paper -49)				Processed			30 C	96 h	Challenge w/ <i>S. aureus</i> , <i>L. mono</i> , <i>Salmonella</i> , <i>E. coli</i> , <i>O.157:H7</i>	Pass
14 Process Cheeses (50) (Sauce)	Corn syrup solids, milk protein concentrate, cheese, salt (1-1.4%), phosphate emulsifiers, alginate, tapioca, butter, cheese powder, yeast extract, color, water, lactic acid (.1%), sorbic acid (0.05%)	5.7-6.2	0.98	160F for 30 s, hot filled	Jars	Refrigerate	Refrigerate	5-7 mo	Challenge with <i>C. botulinum</i> , no toxin at 86 F, 45, 55, 65	Fail (no data)
Process Cheese Sauce with Spices (51)	Cheddar cheese, soybean oil, whey, corn syrup solids, maltodextrin, phosphate emulsifiers, salt (1.82%), lactic acid, Worcestershire sauce, mustard flour, sodium alginate, color	5.71	52.50%	160F for 30 s, hot filled	Pouches	Refrigerate	Refrigerate	10 mo	Challenge with <i>C. bot.</i> , no toxin at 86 F	Pass
Process Cheese Spread (52)	Skim cheese, corn syrup solids, maltodextrin, nonfat dry milk, carrageenan, salt (1.4-2.2%), sorbic acid (.1%), phosphate emulsifiers	5.8-6.0	.94-.95	160F for 30 s, hot filled	Loaves	Refrigerate	Refrigerate	10 mo	Challenge with <i>C. bot.</i> , no toxin at 86 F	Depends on formulation
Process Cheese Spread (53)	Cheese, butter, skim milk powder, whey, rennet casein, phosphate emulsifiers, salt (1.5-1.8%), lactic acid, water	5.5-5.6	53-62%	140 F for 12 s, hot filled	Tubes	Refrigerate	Refrigerate	6 mo	Challenge with <i>C. botulinum</i> no toxin at 45, 55, 65, 86 F	Depends on formulation
Cheese Blend (Pizza) (54)	Sodium chloride 1.81%, nitrite level <1ppm	5.56	0.978	Baked			Ambient	Use Period (10h)	hazardous level <i>S.aureus</i> or <i>B. cereus</i> , no-toxin	Pass
* Model used unknown										