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## Food and Nutrition

### 5. List of Permitted Food Enzymes (Lists of Permitted Food Additives)

This List of Permitted Food Enzymes sets out the authorized food enzymes that are capable of catalyzing a chemical reaction and that are used as a food additive. It is incorporated by reference in the [Marketing Authorization for Food Additives That May Be Used as Food Enzymes](#).

Note: A [transition guide](#) has been created to provide stakeholders with further information on the Lists of Permitted Food Additives as well as guidance on how to interpret and use these lists.

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Access [archived versions](#) of this list.

#### List of Permitted Food Enzymes

Item No.	Column 1 Additive	Column 2 Permitted Source	Column 3 Permitted in or Upon	Column 4 Maximum Level of Use and Other Conditions
A.01	α-Acetolactate decarboxylase	Bacillus subtilis ToC46 (pUW235)	(1) Brewers' Mash	(1) Good Manufacturing Practice
			(2) Distillers' Mash	(2) Good Manufacturing Practice
A.02	Aminopeptidase	Lactococcus lactis	(1) Cheddar cheese; (naming the variety) Cheese	(1) Good Manufacturing Practice
			(2) Dairy based flavouring preparations	(2) Good Manufacturing Practice
			(3) Hydrolyzed animal, milk and vegetable protein	(3) Good Manufacturing Practice
A.1	Amylase	Aspergillus niger var. ; Aspergillus oryzae var. ; Bacillus amyloliquefaciens var. ; Bacillus subtilis var. ; Rhizopus oryzae var. ; Barley Malt	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Bread; Flour; Whole wheat flour	(2) Good Manufacturing Practice
			(3) Cider; Wine	(3) Good Manufacturing Practice

	(4) Chocolate syrups	(4) Good Manufacturing Practice
	(5) Distillers' Mash	(5) Good Manufacturing Practice
	(6) Malt-flavoured dried breakfast cereals	(6) Good Manufacturing Practice
	(7) Single-strength fruit juices	(7) Good Manufacturing Practice
	(8) Pre-cooked (instant) breakfast cereals	(8) Good Manufacturing Practice
	(9) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(9) Good Manufacturing Practice
	(10) Unstandardized bakery products	(10) Good Manufacturing Practice
	(11) Plant-based beverages	(11) Good Manufacturing Practice
	(12) Infant cereal products	(12) Good Manufacturing Practice
Aspergillus niger STz18-9 (pHUda7)	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
	(2) Distillers' Mash	(2) Good Manufacturing Practice
	(3) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(3) Good Manufacturing Practice
Bacillus amyloliquefaciens EBA 20 (pUBH2); Bacillus licheniformis; Bacillus licheniformis BML 592 (pAmyAmp); Bacillus licheniformis BML 730 (pAmyAmp); Bacillus licheniformis LA 57 (pDN1981); Bacillus licheniformis LAT8 (pLAT3); Bacillus licheniformis LiH 1159 (pLiH1108); Bacillus licheniformis LiH 1464 (pLiH1346); Bacillus licheniformis MOL2083 (pCA164- LE399); Bacillus licheniformis PL 1303 (pPL1117)	(1) Distillers' Mash	(1) Good Manufacturing Practice
	(2) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(2) Good Manufacturing Practice
	(3) Brewers' mash	(3) Good Manufacturing Practice
Bacillus licheniformis 3253	(1)	(1)

		(pICatH-3253); <i>Bacillus licheniformis</i> 3266 (pICatH-3266oril); <i>Bacillus stearothermophilus</i> ; <i>Bacillus subtilis</i> Bl.109 (pCPC800)	Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	Good Manufacturing Practice
			(2) Distillers' Mash	(2) Good Manufacturing Practice
			(3) Brewers' Mash	(3) Good Manufacturing Practice
			(4) Bread; Flour; Whole wheat flour	(4) Good Manufacturing Practice
			(5) Unstandardized bakery products	(5) Good Manufacturing Practice
		<i>Bacillus subtilis</i> Bl.109 (pCPC720) (ATCC 39, 705)	(1) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(1) Good Manufacturing Practice
		<i>Bacillus licheniformis</i> MDT06-228	(1) Bread	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
		<i>Bacillus licheniformis</i> JS1252	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
		<i>Pseudomonas fluorescens</i> DC88	(1) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(1) Good Manufacturing Practice
			(2) Distillers' Mash	(2) Good Manufacturing Practice
		<i>Bacillus subtilis</i> NBA (DS 68703)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
A.2	Amylase (maltogenic)	<i>Bacillus subtilis</i> BRG-1 (pBRG1); <i>Bacillus subtilis</i> DN1413 (pDN1413); <i>Bacillus subtilis</i> LFA 63 (pLFA63); <i>Bacillus subtilis</i> RB-147 (pRB147)	(1) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(1) Good manufacturing practice
			(2) Bread; Flour; Whole wheat flour	(2) Good manufacturing practice

			(3) Unstandardized bakery products	(3) Good manufacturing practice
		Bacillus subtilis BS154	(1) Bread; Flour; Whole wheat flour	(1) Good manufacturing practice
			(2) Unstandardized bakery products	(2) Good manufacturing practice
A. 3	Asparaginase	Aspergillus niger AGN7-41	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized foods	(2) Good Manufacturing Practice
		Aspergillus niger ASP72	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized foods	(2) Good Manufacturing Practice
		Aspergillus oryzae (pCaHj621/BECh2#10); Bacillus subtilis MOL2940	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized foods	(2) Good Manufacturing Practice
			(3) Green Coffee	(3) Good Manufacturing Practice
B. 1	Bovine Rennet	Aqueous extracts from the fourth stomach of adult bovine animals, sheep and goats	Cheddar cheese; Cottage cheese; Cream cheese; Cream cheese spread; Cream cheese spread with (naming the added ingredients); Cream cheese with (naming the added ingredients); (naming the variety) Cheese	Good Manufacturing Practice
B. 2	Bromelain	The pineapples Ananas comosus and Ananas bracteatus	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Bread; Flour; Whole wheat flour	(2) Good Manufacturing Practice
			(3) Sausage casings	(3) Good Manufacturing Practice
			(4) Hydrolyzed animal, milk and vegetable protein	(4) Good Manufacturing Practice
			(5)	(5)

			Cuts of prepared meat; Cuts of prepared poultry meat	Good Manufacturing Practice
			(6) Meat tenderizing preparations	(6) Good Manufacturing Practice
			(7) Pumping pickle for the curing of beef cuts	(7) Good Manufacturing Practice in accordance with paragraph B. 14. 009 (g)
			(8) Sugar wafers, waffles, pancakes	(8) Good Manufacturing Practice
C. 01	Carboxypeptidase	Aspergillus niger PEG-1	Cheddar cheese; Dairy based flavouring preparations; Mascarpone; (naming the variety) Cheese; Preserved meat (Division 14); Sausage	Good Manufacturing Practice
C. 1	Catalase	Aspergillus niger var.; Micrococcus lysodeikticus; Bovine (Bos taurus) liver	(1) Soft drinks	(1) Good Manufacturing Practice
			(2) Liquid egg-white (liquid albumen), liquid whole egg or liquid yolk, destined for drying	(2) Good Manufacturing Practice in accordance with the requirements of B. 22. 034, B. 22. 035 and B. 22. 036
			(3) Liquid whey treated with hydrogen peroxide in accordance with item H.1 of the List of Permitted Food Additives With Other Generally Accepted Uses	(3) Good Manufacturing Practice
C. 2	Cellulase	Aspergillus niger var.	(1) Distillers' Mash	(1) Good Manufacturing Practice
			(2) Liquid coffee concentrate	(2) Good Manufacturing Practice
			(3) Natural flavour and colour extractives; Spice extracts	(3) Good Manufacturing Practice
		Rasamsonia emersonii (previous name: Talaromyces emersonii)	(1) Brewers' Mash	(1) Good Manufacturing Practice
		Trichoderma longibrachiatum QM9414 (previous name: Trichoderma reesei QM9414)	(1) Single-strength fruit juices	(1) Good Manufacturing Practice
			(2)	(2)

			Tea leaves for the production of tea solids	Good Manufacturing Practice
		Trichoderma longibrachiatum A83 (previous name: Trichoderma reesei A83)	(1) Apple juice; Grape juice; Grapefruit juice; Lemon juice; Lime juice; (Naming the fruit) juice; Orange juice; Pineapple juice	(1) Good Manufacturing Practice
			(2) Bread; Flour; Whole wheat flour	(2) Good Manufacturing Practice
			(3) Unstandardized bakery products	(3) Good Manufacturing Practice
C. 3	Chymosin (i) Chymosin A	Escherichia coli K-12, GE81 (pPFZ87A)	(1) Cheddar cheese; (naming the variety) cheese; Cottage cheese; Cream cheese; Cream cheese with (naming the added ingredients); Cream cheese spread; Cream cheese spread with (naming the added ingredients); Sour cream	(1) Good Manufacturing Practice
			(2) Unstandardized milk-based dessert preparations	(2) Good Manufacturing Practice
	(ii) Chymosin B	Aspergillus niger var. awamori, GCC0349 (pGAMpR); Kluyveromyces marxianus var. lactis, DS1182 (pKS105)	(1) Cheddar cheese; (naming the variety) cheese; Cottage cheese; Cream cheese; Cream cheese with (naming the added ingredients); Cream cheese spread; Cream cheese spread with (naming the added ingredients); Sour cream	(1) Good Manufacturing Practice
			(2) Unstandardized milk-based dessert preparations	(2) Good Manufacturing Practice
		Kluyveromyces lactis CIN	(1) Cheddar cheese; (naming the variety) Cheese; Cottage cheese; Cream cheese; Cream cheese with (naming the added ingredients); Cream cheese spread; Cream cheese spread with (naming the added ingredients); Sour cream	(1) Good Manufacturing Practice
			(2) Unstandardized milk-based dessert preparations	(2) Good Manufacturing Practice
			(3) Kefir; Quark; Yogurt	(3) Good Manufacturing Practice
		(iii) Chymosin	Aspergillus niger var. awamori (pCCEx3)	(1) Cheddar cheese; (naming the variety) cheese Cottage cheese; Cream cheese; Cream cheese spread; Cream cheese spread with (naming the added ingredients); Cream cheese with (naming the added ingredients); Sour cream

			(2) Unstandardized milk-based dessert preparations	(2) Good Manufacturing Practice
C. 4	Cyprosin	<i>Cynara cardunculus</i> L. var. <i>altilis</i> DC.	Cottage cheese; Cream cheese; Cream cheese with (naming the added ingredients); (naming the variety) Cheese	Good Manufacturing Practice
F. 1	Ficin	Latex of fig tree ( <i>Ficus</i> sp.)	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Sausage casings	(2) Good Manufacturing Practice
			(3) Hydrolyzed animal, milk and vegetable protein	(3) Good Manufacturing Practice
			(4) Cuts of prepared meat; Cuts of prepared poultry meat	(4) Good Manufacturing Practice
			(5) Meat tenderizing preparations	(5) Good Manufacturing Practice
			(6) Pumping pickle for the curing of beef cuts	(6) Good Manufacturing Practice in accordance with paragraph B. 14. 009 (g)
G. 1	Glucoamylase (Amyloglucosidase; Maltase)	<i>Aspergillus niger</i> var. ; <i>Aspergillus oryzae</i> var. ; <i>Rhizopus</i> <i>oryzae</i> var.	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Bread; Flour; Whole wheat flour	(2) Good Manufacturing Practice
			(3) Chocolate syrups	(3) Good Manufacturing Practice
			(4) Distillers' Mash	(4) Good Manufacturing Practice
			(5) Pre-cooked (instant) breakfast cereals	(5) Good Manufacturing Practice
			(6) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(6) Good Manufacturing Practice
			(7) Unstandardized bakery products	(7) Good Manufacturing

		Practice
Aspergillus niger 126-PE001-32	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
	(2) Unstandardized bakery products	(2) Good Manufacturing Practice
	(3) Breakfast cereals	(3) Good Manufacturing Practice
	(4) Infant cereal products	(4) Good Manufacturing Practice
Aspergillus niger	(1) Apple juice; Banana juice; Grape juice; Grapefruit juice; Lemon juice; Lime juice or lime fruit juice; Orange juice; Pear juice; Pineapple juice	(1 ) Good Manufacturing Practice
	(2) Infant cereal products	(2) Good Manufacturing Practice
Aspergillus niger STz18-9 (pHUda7)	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
	(2) Distillers' Mash	(2) Good Manufacturing Practice
	(3) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(3) Good Manufacturing Practice
Rhizopus niveus var.	(1) Distillers' Mash	(1) Good Manufacturing Practice
	(2) Mash destined for vinegar manufacture	(2) Good Manufacturing Practice
Rhizopus delemar var. multiplicisporus	(1) Brewers' Mash	(1) Good Manufacturing Practice
	(2) Distillers' Mash	(2) Good Manufacturing Practice
	(3) Mash destined for vinegar manufacture	(3) Good Manufacturing Practice
	(4) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids	(4) Good Manufacturing Practice



G. 2	Glucanase	Aspergillus niger var. ; Bacillus amyloliquefaciens var. ; Bacillus subtilis var.	(dried glucose syrup) or maltose	
			(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Corn for degermination	(2) Good Manufacturing Practice
			(3) Distillers' Mash	(3) Good Manufacturing Practice
			(4) Mash destined for vinegar manufacture	(4) Good Manufacturing Practice
		(5) Unstandardized bakery products	(5) Good Manufacturing Practice	
		Disporotrichum dimorphosporum DXL-1; Rasamsonia emersonii (previous name: Talaromyces emersonii)	(1) Brewers' Mash	(1) Good Manufacturing Practice
		Humicola insolens var.	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Distillers' Mash	(2) Good Manufacturing Practice
		Trichoderma reesei A83	(1) Apple Juice; Grape juice; Grapefruit juice; Lemon juice; Lime juice; (Naming the fruit) juice; Orange juice; Pineapple juice	(1) Good Manufacturing Practice
G. 3	Glucose oxidase	Aspergillus niger ZGL528-72	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
		Aspergillus niger var. ; Aspergillus oryzae Mtl-72 (pHUda107)	(1) Soft drinks	(1) Good Manufacturing Practice
			(2) Liquid egg-white (liquid albumen), liquid whole egg or liquid yolk, destined for drying	(2) Good Manufacturing Practice in accordance with paragraphs B. 22. 034 (b), B. 22. 035 (b) and B. 22. 036 (b)
			(3) Bread; Flour; Whole wheat flour	(3) Good

				manufacturing practice
			(4) Unstandardized bakery products	(4) Good manufacturing practice
G. 4	Glucose Isomerase	Actinoplanes missouriensis var. ; Bacillus coagulans var. ; Microbacterium arborescens NRRL B-11022; Streptomyces murinus DSM 3252; Streptomyces olivaceus var. ; Streptomyces olivochromogenes var. ; Streptomyces rubiginosus ATCC No. 21,175; Streptomyces rubiginosus SYC 5406 (pSYC5239)	(1) Glucose (glucose syrup) to be partially or completely isomerized to fructose	(1) Good Manufacturing Practice
H. 1	Hemicellulase	Bacillus amyloliquefaciens var. ; Bacillus subtilis var.	(1) Distillers' Mash	(1) Good Manufacturing Practice
			(2) Liquid coffee concentrate	(2) Good Manufacturing Practice
			(3) Mash destined for vinegar manufacture	(3) Good Manufacturing Practice
H. 2	Hexose oxidase	Hansenula polymorpha (B13-HOX4-Mut45)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
			(3) Milk, partly skimmed milk, skim milk and sterilized milk, heat-treated to at least 100° C	(3) Good Manufacturing Practice
			(4) Part skim pizza mozzarella cheese; Pizza mozzarella cheese	(4) Good Manufacturing Practice
I. 01	Inulinase	Aspergillus niger var. Tieghem	Inulin	Good Manufacturing Practice
I. 1	Invertase	Aspergillus japonicus	Sucrose used in the production of fructooligosaccharides	Good Manufacturing Practice
		Saccharomyces sp.	(1) Unstandardized soft-centred and liquid-centred confectionery	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
L. 1	Lactase	Bacillus licheniformis PP3930	(1) Lactose-reducing enzyme preparations	(1) Good Manufacturing Practice

			(2) Milk destined for use in ice cream mix	(2) Good Manufacturing Practice
			(3) (naming the flavour) Malted milk; (naming the flavour) Milk; (naming the flavour) Partly skimmed milk; (naming the flavour) Partly skimmed milk with added milk solids; (naming the flavour) Skim milk; (naming the flavour) Skimmed milk with added milk solids	(3) Good Manufacturing Practice
		Aspergillus niger var. ; Aspergillus oryzae var. ; Kluyveromyces fragilis(Kluyveromyces marxianus var. marxianus); Kluyveromyces lactis(Kluyveromyces marxianus var. lactis); Saccharomyces sp.	(1) Lactose-reducing enzyme preparations	(1) Good Manufacturing Practice
			(2) Milk destined for use in ice cream mix	(2) Good Manufacturing Practice
			(3) Bread; Flour; Whole wheat flour	(3) Good Manufacturing Practice
			(4) (naming the flavour) Malted milk; (naming the flavour) Milk; (naming the flavour) Partly skimmed milk; (naming the flavour) Partly skimmed milk with added milk solids; (naming the flavour) Skim milk; (naming the flavour) Skimmed milk with added milk solids	(4) Good Manufacturing Practice
		Cell-free extracts from Candida pseudotropicalis	(1) Milk destined for use in ice cream mix	(1) Good Manufacturing Practice
			(2) Yogurt	(2) Good Manufacturing Practice
			(3) Whey	(3) Good Manufacturing Practice
			(4) (naming the flavour) Malted milk; (naming the flavour) Milk; (naming the flavour) Partly skimmed milk; (naming the flavour) Partly skimmed milk with added milk solids; (naming the flavour) Skim milk; (naming the flavour) Skimmed milk with added milk solids	(4) Good Manufacturing Practice
L. 2	Lipase	Animal pancreatic tissue; Aspergillus niger var. ; Aspergillus oryzae var. ; Edible forestomach tissue of calves, kids or	(1) Dairy based flavouring preparations	(1) Good Manufacturing Practice

lambs; <i>Rhizopus oryzae</i> var.	(2) Dried egg-white (dried albumen); Liquid egg-white ( liquid albumen)	(2) Good Manufacturing Practice
	(3) Cheddar cheese; (naming the variety) Cheese; Processed cheddar cheese	(3) Good Manufacturing Practice
	(4) Bread; Flour; Whole wheat flour	(4) Good Manufacturing Practice
	(5) Unstandardized bakery products	(5) Good Manufacturing Practice
	(6) Hydrolyzed animal, milk and vegetable protein	(6) Good Manufacturing Practice
Aspergillus niger (LFS-54)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
	(2) Unstandardized bakery products	(2) Good Manufacturing Practice
Aspergillus niger (pCaHj600/MBin118#11)	Modified fats and oils	Good Manufacturing Practice
Aspergillus oryzae (MLT-2) (pRML 787) (p3SR2); <i>Rhizomucor miehei</i> (Cooney and Emerson) (previous name: <i>Mucor miehei</i> (Cooney and Emerson)); <i>Rhizopus niveus</i>	(1) Modified fats and oils	(1) Good Manufacturing Practice
	(2) Cheddar cheese; (naming the variety) Cheese	(2) Good Manufacturing Practice
	(3) Dairy based flavouring preparations	(3) Good Manufacturing Practice
	(4) Hydrolyzed animal, milk and vegetable protein	(4) Good Manufacturing Practice
Aspergillus oryzae AI-11 (pBoel 960)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
	(2) Unstandardized bakery products	(2) Good Manufacturing Practice
	(3) Modified fats and oils	(3) Good Manufacturing Practice
Aspergillus oryzae BECh2#3 (pCaHj559); <i>Aspergillus oryzae</i> (MStr115) (pMStr20)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice

			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
			(3) Modified lecithin	(3) Good Manufacturing Practice
			(4) Unstandardized egg products	(4) Good Manufacturing Practice
		Candida rugosa; Mucor circinelloides f. circinelloides (previous name: Mucor javanicus); Penicillium roquefortii	(1) Dairy based flavouring preparations	(1) Good Manufacturing Practice
		Mucor circinelloides f. circinelloides (previous name: Mucor javanicus)	(1) Dairy based flavouring preparations	(1) Good Manufacturing Practice
		Penicillium camembertii	Edible fats and oils	Good Manufacturing Practice
L. 3	Lipoxidase	Soyabean whey or meal	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
L. 4	Lysozyme	Egg-white	Cheddar cheese; (naming the variety) Cheese	Good Manufacturing Practice
M. 1	Milk coagulating enzyme	Mucor pusillus Lindt by pure culture fermentation process or Aspergillus oryzae RET-1 (pBoel777)	(1) Cheddar cheese; Cottage cheese; (naming the variety) Cheese; Sour cream	(1) Good Manufacturing Practice
			(2) Dairy based flavouring preparations	(2) Good Manufacturing Practice
			(3) Hydrolyzed animal, milk and vegetable protein	(3) Good Manufacturing Practice
		Rhizomucor miehei (Cooney and Emerson) (previous name: Mucor miehei (Cooney and Emerson))	(1) Cheddar cheese; Cottage cheese; (naming the variety) Cheese; Sour cream	(1) Good Manufacturing Practice
			(2) Dairy based flavouring preparations	(2) Good Manufacturing Practice
			(3) Hydrolyzed animal, milk and vegetable protein	(3) Good Manufacturing Practice
			(4) Cheese analogues	(4) Good Manufacturing Practice
		Endothia parasitica by pure culture fermentation processes	(1) Emmentaler (Emmental, Swiss) Cheese	(1) Good Manufacturing Practice

			(2) Parmesan Cheese	(2) Good Manufacturing Practice
			(3) Romano Cheese	(3) Good Manufacturing Practice
			(4) Mozzarella (Scamorza) Cheese	(4) Good Manufacturing Practice
			(5) Part Skim Mozzarella (Part Skim Scamorza) Cheese	(5) Good Manufacturing Practice
P. 1	Pancreatin	Pancreas of the hog ( <i>Sus scrofa</i> ) or ox ( <i>Bos taurus</i> )	(1) Dried egg-white (dried albumen); Liquid egg-white (liquid albumen)	(1) Good Manufacturing Practice
			(2) Pre-cooked (instant) breakfast cereals	(2) Good Manufacturing Practice
			(3) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(3) Good Manufacturing Practice
			(4) Hydrolyzed animal, milk and vegetable proteins	(4) Good Manufacturing Practice
P. 2	Papain	Fruit of the papaya <i>Carica papaya</i> L. (Fam. Caricaceae)	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Beef before slaughter	(2) Good Manufacturing Practice
			(3) Sausage casings; Water-soluble edible collagen films	(3) Good Manufacturing Practice
			(4) Hydrolyzed animal, milk and vegetable protein	(4) Good Manufacturing Practice
			(5) Cuts of prepared meat; Cuts of prepared poultry meat	(5) Good Manufacturing Practice
			(6) Meat tenderizing preparations	(6) Good Manufacturing Practice
			(7) Pre-cooked (instant) breakfast cereals	(7) Good Manufacturing Practice
			(8) Pumping pickle for the curing of	(8) Good

			beef cuts	Manufacturing Practice
			(9) Unstandardized bakery products	(9) Good Manufacturing Practice
P. 3	Pectinase	Aspergillus niger var. ; Rhizopus oryzae var.	(1) Cider; Wine	(1) Good Manufacturing Practice
			(2) Distillers' Mash	(2) Good Manufacturing Practice
			(3) Single-strength fruit juices	(3) Good Manufacturing Practice
			(4) Natural flavour and colour extractives	(4) Good Manufacturing Practice
			(5) Skins of citrus fruits destined for jam, marmalade and candied fruit production	(5) Good Manufacturing Practice
			(6) Vegetable stock for use in soups	(6) Good Manufacturing Practice
			(7) Tea leaves for the production of tea solids	(7) Good Manufacturing Practice
		Aspergillus oryzae Km-1-1 (pA2PEI)	(1) Cider; Wine	(1) Good Manufacturing Practice
			(2) Single-strength fruit juices	(2) Good Manufacturing Practice
			(3) Unstandardized fruit and vegetable products	(3) Good Manufacturing Practice
P. 4	Pentosanase	Aspergillus niger var. ; Bacillus amyloliquefaciens var. ; Bacillus subtilis var.	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Corn for degermination	(2) Good Manufacturing Practice
			(3) Distillers' Mash	(3) Good Manufacturing Practice
			(4) Mash destined for vinegar manufacture	(4) Good Manufacturing Practice
			(5) Unstandardized bakery products	(5) Good

				Manufacturing Practice
			(6) Bread; Flour; Whole wheat flour	(6) Good Manufacturing Practice
		Trichoderma reesei (QM9414)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Distiller's Mash	(2) Good Manufacturing Practice
			(3) Unstandardized bakery products	(3) Good Manufacturing Practice
P. 5	Pepsin	Glandular layer of porcine stomach	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Cheddar cheese; Cottage cheese; Cream cheese; Cream cheese spread; Cream cheese spread with (naming the added ingredients); Cream cheese with (naming the added ingredients); (naming the variety) Cheese	(2) Good Manufacturing Practice
			(3) Defatted soya flour	(3) Good Manufacturing Practice
			(4) Pre-cooked (instant) breakfast cereals	(4) Good Manufacturing Practice
			(5) Hydrolyzed animal, milk and vegetable proteins	(5) Good Manufacturing Practice
P. 5A	Phospholipase	Streptomyces violaceoruber	(1) Modified lecithin	(1) Good Manufacturing Practice
			(2) Unstandardized egg products	(2) Good Manufacturing Practice
		Aspergillus oryzae (pPFJo142)	Cheddar cheese; (naming the variety) Cheese	Good Manufacturing Practice
		Aspergillus niger (PLA-54)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
			(3) Unstandardized whole egg;	(3) Good



			unstandardized egg yolk	Manufacturing Practice
			(4) Modified lecithin	(4) Good Manufacturing Practice
P. 5.1	Peroxidase	Aspergillus niger MOX-54	Liquid whey treated with hydrogen peroxide in accordance with item H.1 of the List of Permitted Food Additives With Other Generally Accepted Uses	Good Manufacturing Practice
P. 6	Protease	Geobacillus stearothermophilus TP7	(1) Hydrolyzed animal, milk and vegetable protein	(1) Good Manufacturing Practice
			(2) Hydrolyzed yeast	(2) Good Manufacturing Practice
		Fusarium venenatum WTY939-8-3	(1) Hydrolyzed animal, milk and vegetable protein	(1) Good Manufacturing Practice
		Aspergillus niger var. ; Aspergillus oryzae var. ; Bacillus amyloliquefaciens var. ; Bacillus subtilis var.	(1) Ale; Beer; Light beer; Malt liquor; Porter; Stout	(1) Good Manufacturing Practice
			(2) Bread; Flour; Whole wheat flour	(2) Good Manufacturing Practice
			(3) Dairy-based flavouring preparations	(3) Good Manufacturing Practice
			(4) Distillers' Mash	(4) Good Manufacturing Practice
			(5) Sausage casings	(5) Good Manufacturing Practice
			(6) Hydrolyzed animal, milk and vegetable protein	(6) Good Manufacturing Practice
			(7) Industrial spray-dried cheese powder	(7) Good Manufacturing Practice
			(8) Cuts of prepared meat; Cuts of prepared poultry meat	(8) Good Manufacturing Practice
(9) Meat tenderizing preparations	(9) Good Manufacturing Practice			
(10) Pre-cooked (instant) breakfast cereals	(10) Good Manufacturing Practice			
			(11)	(11)

			Unstandardized bakery products	Good Manufacturing Practice
			(12) Colby cheese	(12) Good Manufacturing Practice
			(13) Plant-based beverages	(13) Good Manufacturing Practice
		Micrococcus caseolyticus var.	(1) (naming the variety) Cheese	(1) Good Manufacturing Practice
		Bacillus licheniformis (Cx)	(1) Hydrolyzed animal, milk and vegetable protein	(1) Good Manufacturing Practice
		Bacillus licheniformis S10-34zEK4	(1) Hydrolyzed animal, milk and vegetable protein	(1) Good Manufacturing Practice
		Aspergillus melleus	Hydrolyzed animal, milk and vegetable protein	Good Manufacturing Practice
		Aspergillus oryzae var.	Cheddar cheese; Cheddar cheese for processing (granular curd cheese; Stirred curd cheese; Washed curd cheese)	Good Manufacturing Practice
		Bacillus subtilis Raa1102	(1) Bread; Flour; Whole Wheat Flour	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
P. 7	Pullulanase	Bacillus acidopullulyticus NCIB 11647; Bacillus licheniformis SE2-Pul-int211 (pUBCDEBR A11DNSI)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Starch used in the production of dextrins, dextrose, fructose syrups and solids, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(2) Good Manufacturing Practice
			(3) Unstandardized bakery products	(3) Good Manufacturing Practice
		Bacillus licheniformis BMP 139 (pR11Amp)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Brewers' Mash	(2) Good Manufacturing Practice
			(3) Starch used in the production of dextrins, dextrose, fructose syrups and solids, glucose (glucose syrup), glucose solids	(3) Good Manufacturing Practice

			(dried glucose syrup) or maltose	
			(4) Unstandardized bakery products	(4) Good Manufacturing Practice
		Bacillus subtilis B1-163 (pEB301)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Brewers' Mash	(2) Good Manufacturing Practice
			(3) Distillers' Mash	(3) Good Manufacturing Practice
			(4) Starch used in the production of dextrins, dextrose, fructose syrups and solids, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(4) Good Manufacturing Practice
			(5) Unstandardized bakery products	(5) Good Manufacturing Practice
		Bacillus subtilis RB121 (pDG268)	(1) Brewers' Mash	(1) Good Manufacturing Practice
			(2) Distillers' Mash	(2) Good Manufacturing Practice
			(3) Starch used in the production of dextrins, dextrose, glucose (glucose syrup), glucose solids (dried glucose syrup) or maltose	(3) Good Manufacturing Practice
R. 1	Rennet	Aqueous extracts from the fourth stomach of calves, kids or lambs	(1) Cheddar cheese; Cottage cheese; Cream cheese; Cream cheese spread; Cream cheese spread with (naming the added ingredients); Cream cheese with (naming the added ingredients); (naming the variety) Cheese; Sour cream	(1) Good Manufacturing Practice
			(2) Unstandardized milk based dessert preparations	(2) Good Manufacturing Practice
T. 01	Transglutaminase	Streptovercillium mobaraense S-8112	(1) Unstandardized prepared fish products	(1) Good Manufacturing Practice
			(2) Simulated meat products	(2) Good Manufacturing Practice
			(3) Unstandardized cheese products	(3) Good Manufacturing Practice

			(4) Unstandardized processed cheese products	(4) Good Manufacturing Practice
			(5) Unstandardized cream cheese products	(5) Good Manufacturing Practice
			(6) Yogurt	(6) Good Manufacturing Practice
			(7) Unstandardized frozen dairy desserts	(7) Good Manufacturing Practice
			(8) [Removed, 2017-02-15, (See NOM/ADM-0086)]	
			(9) Bread; Flour; Whole wheat flour	(9) Good Manufacturing Practice
			(10) Unstandardized bakery products	(10) Good Manufacturing Practice
			(11) Brawn; Headcheese; Meat by-product loaf; Meat loaf; (naming the prepared meat or prepared meat by-product) with (naming the non-meat ingredients); Prepared meat (Division 14); Prepared meat by-product; Preserved meat (Division 14); Preserved meat by-product; Pumping pickle, cover pickle and dry cure employed in the curing of preserved meat or preserved meat by-product; Sausage	(11) Good Manufacturing Practice
			(12) Prepared poultry meat; Prepared poultry meat by-product; Preserved poultry meat; Preserved poultry meat by-product	(12) Good Manufacturing Practice
T. 1	Trypsin	Pancreas of the hog ( <i>Sus scrofa</i> )	(1) Hydrolyzed animal, milk and vegetable proteins	(1) Good Manufacturing Practice
U. 1	Urease	<i>Lactobacillus fermentum</i>	Sake; Wine	Good Manufacturing Practice
X. 1	Xylanase	<i>Aspergillus oryzae</i> Fa 1-1 (pA2X1TI)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
			(2) Unstandardized bakery products	(2) Good Manufacturing Practice
		<i>Aspergillus oryzae</i> JaL 339 (pJaL537); <i>Bacillus subtilis</i> DIDK 0115 (pUB110 OIS2)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice

		(2) Unstandardized bakery products	(2) Good Manufacturing Practice
	Aspergillus niger (XYL-2) (pXYL3); Bacillus subtilis (XAS); Trichoderma reesei A83	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
		(2) Unstandardized bakery products	(2) Good Manufacturing Practice
	Bacillus licheniformis strain HyGe329	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
		(2) Unstandardized bakery products	(2) Good Manufacturing Practice
	Bacillus subtilis CF 307 (pJHPaprE-xynAss-BS3xylanase#1)	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
		(2) Unstandardized bakery products	(2) Good Manufacturing Practice
	Bacillus subtilis Giz a 3508	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
		(2) Unstandardized bakery products	(2) Good Manufacturing Practice
	Bacillus subtilis RH 6000	(1) Bread; Flour; Whole wheat flour	(1) Good Manufacturing Practice
		(2) Unstandardized bakery products	(2) Good Manufacturing Practice
	Disporotrichum dimorphosporum DXL-1; Rasamsonia emersonii (previous name: Talaromyces emersonii)	(1) Brewers' Mash	(1) Good Manufacturing Practice

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