



Guide to Modified Atmosphere Packaging					
Food Items	% O₂	% CO₂	% N₂	T. °C	Achievable shelf-life
Raw red meat					
Beef, Goat, Hare, horse, Lamb, Pork, Rabbit, Veal, Venison and Wild Boar	Retail				
	*70	*30		-1°C to +2°C	In air: 2-4 days In MAP: 5-8 days
	* Exceptions: Venison, Wild Boar = 80% O ₂ , 20% CO ₂				
	Bulk				
	**65	**35		-1°C to +2°C	In air: 2-4 days In MAP: 5-8 days
	** Exceptions: Pork = 80% CO ₂ , 20% N ₂ ; Venison, Wild Boar = 80% O ₂ , 20% CO ₂				
	Primal				
	***50	***50	-1°C to +2°C	In air: 2-4 days In MAP: 5-8 days	
*** Exceptions: Pork = 80% CO ₂ , 20% N ₂					
Raw offal					
Feet or Trotters, Foile gras, Giblets, Heart, Kidney, Liver, Neck, Oxtail, Sweetbreads, Tongue and Tripe	Retail				
	80	20		-1°C to +2°C	In air: 2-6 days In MAP: 4-8 days
	Bulk				
	80	20		-1°C to +2°C	In air: 2-6 days In MAP: 4-8 days
Raw poultry and game					
Capon, Chicken, Duck, Goose, Grouse, Guinea, Hen, Partridge, Pheasant, Pigeon, Poussin/Cornish Hen, Quail and Turkey	Retail				
		30	70	-1°C to +2°C	In air: 4-7 days In MAP: 10-21 days
	Bulk				
			100	-1°C to +2°C	In air: 4-7 days In MAP: 10-21 days
Poultry, dark portions and cuts					
Dark Poultry Mince, Other Skin-off Poultry, Skin-off Chicken, Skin-off Turkey, Sliced Dark Poultry, Turkey Mince	Retail				
	70	30		-1°C to +2°C	In air: 3-5 days In MAP: 7-14 days
	Bulk				
	70	30		-1°C to +2°C	In air: 3-5 days In MAP: 7-14 days
Raw, low fat white fish and seafood					
Bream, Brill, Catfish, Cod, Coley, Croaker, Dab, Dover and Lemon Sole, Flounder, Grouper, Haddock, Hake, Halibut, Hoki, Huss, Jackfish, John Dory, Mullet, Monkfish, Pike, Plaice, Pollack, Red Snapper, Sea Bass, Shark, Skate, Turbot, Whiting	Retail				
	30	40	30	-1°C to +2°C	In air: 2-3 days In MAP: 4-6 days
	Bulk				
		70	30	-1°C to +2°C	In air: 2-3 days In MAP: 4-6 days
Raw high fat oily fish and seafood					
Bluefish, Carp, Eel, Greenland Halibut, Herring, Mackerel, Pilchard, Rock Salmon, Salmon, Sardines, Shad, Sprats, Swordfish, Trout, Tuna, Whitebait	Retail				
		40	60	-1°C to +2°C	In air: 2-3 days In MAP: 4-6 days
	Bulk				
		70	30	-1°C to +2°C	In air: 2-3 days In MAP: 4-6 days
Crustaceans and molluscs					
Abalone, Clams, Cockles, Conch, Crab, Crayfish, Cuttlefish, Lobster, Mussels, Octopus, Oysters, Prawns, Scallops, Sea Urchins, Shrimps, Squid, Whelks, Winkles	Retail				
	30	40	30	-1°C to +2°C	In air: 2-3 days In MAP: 4-6 days
	Bulk				
		70	30	-1°C to +2°C	In air: 2-3 days In MAP: 4-6 days



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Cooked, cured and processed meat products					
Bacon, Beefburgers, Black Pudding, Charcuterie, Chopped Pork and Ham, Cooking Sausages, Corned Beef, Frankfurters, Haggis, Hams, Luncheon Meats, Meat Jerky, Meat Slices, Ox Tongue, Pastrami, Patés, Pepperoni, Potted Meats, Rillettes, Roast Meats, Salami, Smoked Reindeer, Smoked Venison, Terrines, Wurst Sausages	Retail				
		30	70	0°C to +3°C	In air: 1-3 weeks*
					In MAP: 3-7 weeks**
	Bulk				
		50	50	0°C to +3°C	In air: 1-3 weeks*
					In MAP: 3-7 weeks**
*Except Salami etc.: 3-6 months; **Except Salami etc.: 4-8 months.					
Cooked, cured and processed fish and seafood products					
Bloaters, Bombay Duck, Buckling, Cod's Roe, Cold Smoked Fish, Fish Galantine, Fish Rillettes, Fish Terrines, Hot Smoked Fish, Kippers, Potted Fish, Potted Shellfish, Salt Cod, Salted Anchovies, Salted Caviar, Salted Fish Roes, Salted Jellyfish, Seafood Patés, Smoked Haddock, Smoked Halibut, Smoked Mackerel, Smoked Salmon, Smoked Trout, Taramasalata	Retail				
		30	70	0°C to +3°C	In air: 5-10 days
					In MAP: 7-21 days
	Bulk				
		70	30	0°C to +3°C	In air: 5-10 days
					In MAP: 7-21 days
Cooked, cured and processed poultry and gamebird products					
Capon Galantine, Chicken Ballotine, Chicken Roll, Cured Game Birds, Cured Poultry, Duck Galantine, Pheasant Galantine, Pigeon Galantine, Smoked Chicken, Smoked Duck, Smoked Poussin, Smoked Turkey, Turkey Bacon, Turkey Ballotine, Turkey Galantine, Turkey Roll	Retail				
		30	70	0°C to +3°C	In air: 5-10 days
					In MAP: 7-21 days
	Bulk				
		70	30	0°C to +3°C	In air: 5-10 days
					In MAP: 7-21 days
Ready meals and other cook-chill products					
Casseroles, Ready Meals containing Fish, Ready Meals containing Game-Bird, Goulsh, Ready Meals containing Meat, Ready Meals containing Offal, Ready Meals containing Pasta, Ready Meals containing Poultry, Sauces, Ready Meals containing Seafood, Soups, Ready Meals containing Vegetables	Retail				
		30	70	0°C to +3°C	In air: 2-5 days
					In MAP: 5-10 days
	Bulk				
		50	50	0°C to +3°C	In air: 2-5 days
					In MAP: 5-10 days
Combination products					
Battered Fish, Battered Meats, Battered Poultry, Battered Seafood, Bouchée, Breaded Fish, Breaded Meats, Breaded Poultry, Breaded Seafood, Burritos, Enchiladas, Falafels, Filled Crepes, Filled Pancakes, Filled Rolls, Pasta containing Fish, Pies containing Fish, Kebabs, Pasta containing Meat, Pies containing Meat, Omelettes, Pasties, Patés and Croutes, Pizzas, Pasta containing Poultry, Pies containing Poultry, Quiche, Roule au Fromage, Sandwiches, Satays, Sausage Rolls, Pasta containing Seafood, Pies containing Seafood, Soufflés, Spring Rolls, Stuffed Pitta Bread, Tacos, Tostadas, Vol au Vents	Retail				
		30	70	0°C to +3°C	In air: 2-7 days
					In MAP: 3-21 days
	Bulk				
		50	50	0°C to +3°C	In air: 2-7 days
					In MAP: 3-21 days
Fresh pasta products					
Capelli d'angelo, Fettuccine, Funghini, Fusilli, Linguine, Maccheroni, Pasta Shells, Spaghetti, Tagliarini, Tagliatelle, Trenette, Tubetti, Vermicelli, Zitioni	Retail				
		50	50	0°C to +5°C	In air: 1-2 weeks
					In MAP: 3-4 weeks
	Bulk				
	50	50	0°C to +5°C	In air: 1-2 weeks	
				In MAP: 3-4 weeks	



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Bakery products					
Bagels, Bread Pudding, Breads, Buns, Cheesecakes, Crêpes, Croissants, Crumpets, Danish Pastries, Fruit Breads, Fruit Cakes, Fruit Pies, Fruit Strudels, Fruit Tarts, Meringue Cakes, Muffins, Nad Breads, Pancakes, Par-Baked Breads, Pitta Bread, Pizza Bases, Pretzels, Sponge Layer Cakes, Swiss Rolls, Taco Shells, Tortillas, Vegetable Breads, Waffles	Retail				
		50	50	Ambient *	In air: 4-14 days In MAP: 4-12 weeks
	Bulk				
		70	30	Ambient *	In air: 4-14 days In MAP: 4-12 weeks
	* Exceptions: Cheesecakes, crêpes, croissants, crumpets, pancakes, pizza bases: 0°C to +5°C.				
Dairy products					
Aerosol Creams, Blue and White Mould-Ripened Cheeses*, Butter, Cream Cakes, Creams, Custards, Fresh Cheeses, Grated Cheeses, Hard Cheeses, Margarine, Semi-Hard Cheeses, Slices Cheeses, Soft Cheeses, Yoghurts	Retail				
		100**		0°C to +5°C	In air: 1-4 weeks In MAP: 2-12 weeks
	Bulk				
		100**		0°C to +5°C	In air: 1-4 weeks In MAP: 2-12 weeks
* Mould-ripened blue and white cheeses are not usually MA packed since CO ₂ /N ₂ gas mixtures would inhibit desirable mould growth	** Except mould ripened cheese; Grated and soft cheeses except mould ripened cheese for Retail & Bulk : 30% CO ₂ + 70% N ₂ ; Other dairy products for Retail & Bulk : 100% N ₂ .				
Dried food products					
Cocoa Powders, Coffees, Dehydrated Milk, Dried and Salted Fish, Dried and Salted Seafood, Dried Beans, Dried Cereals, Dried Colourings, Dried Flavourings, Dried Fruits, Dried Herbs, Dried Lentils, Dried Mushrooms, Dried Pasta, Dried Snack Foods, Dried Spices, Dried Vegetables, Flours, Nuts, Potato Chips, Teas	Retail				
			100	Ambient	In air: 4-7 months In MAP: 1-2 years
	Bulk				
			100	Ambient	In air: 4-7 months In MAP: 1-2 years
Liquid food and beverage products					
Beers, Carbonated Soft Drinks, Ciders, Cordials, Fruit Juices, Lagers, Liqueurs, Liquid Yoghurt, Milk, Mineral Waters, Oils, Spirits, Vegetable Juices, Wines	Retail				
			100	Ambient *	In air: > 6 months ** In MAP: > 1 year ***
	Bulk				
* Exception: Fruit juices, liquid yoghurt, milk, vegetable juices: 0°C to +3°C			100	Ambient *	In air: > 6 months ** In MAP: > 1 year ***
** In air: Milk 3 days; Fruit juices, vegetable juices 1 week; Liquid yoghurt 10 days					
*** In MAP: Milk 4-7 days; Fruit juices, vegetable juices, Liquid yoghurt 2-3 weeks					
Cooked and dressed vegetable products					
Bean Chillies, Bhajis, Broccoli in Cheese, Bubble and Squeak, Cauliflower Cheese, Coleslaw, Cooked Beans, Cooked Beetroot, Cooked Potatoes, Corn Fritters, Nut Cutlets, Lentil Cutlets, Garlic Mushrooms, Lentil Cutlets, Nut Cutlets, Other Dressed Salads, Pakoras, Pasta Salads, Pilafs, Potato Cakes, Potato Salads, Quorn™ Dishes, Rice Salads Rissoles, St+A166uffed Aubergines, Stuffed Peppers, Stuffed Tomatoes, Stuffed Vine Leaves, Vegetable Bakes, Vegetable Chillies, Casseroles containing Vegetables, Vegetable Pastas, Vegetable Crumbles, Vegetable Curries, Vegetable Dosas, Vegetable Flans, Vegetable Pilau, Vegetable Shepherd's Pie, Vegetarian Burgers	Retail				
		30	70	0°C to +3°C	In air: 3-14 days In MAP: 7-21 days
	Bulk				
		50	50	0°C to +3°C	In air: 3-14 days In MAP: 7-21 days



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Food Items	% O₂	% CO₂	% N₂	T. °C	Achievable shelf-life
Fresh whole and prepared fruit and vegetable products					
Alfalfa sprouts, Apples, Apricots, Artichoke, Asparagus, Aubergine, Avocado Bananas, Bean Sprouts, Beetrot, Blackberries, Blueberries, Broad beans, Broccoli, Brussels sprouts, Cabbages, Cauliflowers, Carrots, Celery, Cherries, Chicory, Courgettes, Cranberries, Cucumber, Cumquats, Fennel, Garlic, Gooseberries, Grapefruit, Grapes, Green beans, Guava, Kale, Kiwi fruit, Leek, Lemons, Lettuces, Limes, Lychees, Mandarins, Mango, Mangosteen, Marrow, Melon, Mixed fruits salads, Mixed vegetables salads, Mulberries, Nectarines, Okra, Onions, Oranges, Papayas, Parsnips, Passion-fruit, Peaches, Pears, Peas, Peppers, Pineapple, Plums, Potatoes, Priky pear, Radish, Rambutans, Raspberries, Rhubarb, Rocket, Shallot, Spinach, Star apples, Strawbwrries, Sweetcorn, Swede, Tomatoes, Turnip, Water chestnuts, Water cress, Watermelon, Yams	Retail				
	5	5	90	0°C to +3°C	In air: 2-7 days
					In MAP: 5-35 days
	Bulk				
	5	5	90	0°C to +3°C	In air: 2-7 days
					In MAP: 5-35 days