A Guide to MAP Gas Mixtures

Raw Red Meat

Recommended gas mix

Retail: 70% O₂, 30% CO₃ Exceptions: Venison, wild boar -80% O₂, 20% CO₃ Bulk: 65% O₂, 35% CO₂ Exceptions: Pork - 80% CO₃, 20% N₃, Venison, wild boar - 80% O2, 20% CO2 **Primal:** 50% CO₂, 50% N₂ Exceptions: Pork - 80% CO₂, 20% N₂

Food items

Beef, goat, hare, horse, lamb, pork, rabbit, veal,

venison and wild boar

Typical types of package Retail: Traysealed and thermoformed

packages Bulk and primal: Bag-in-box, master pack



Bulk



Retail

Raw Offal

Recommended gas mix

Retail: 80% O₂, 20% CO₃ **Bulk:** 80% O₂, 20% CO₂

Food items

Feet or trotters, foie gras, giblets, heart, kidney, liver, neck,

oxtail, sweetbread, tongue and tripe

packages

Typical types of package Retail: Traysealed and thermoformed Bulk and primal: Bag-in-box, master pack

Raw Poultry and Game Recommended gas mix

Retail: 30% CO₃, 70% N₃ or 20% CO₂, 80% O₂

Food items Capon, chicken, duck, goose, grouse, guinea hen, partridge, pheasant, pigeon, poussin/cornish hen,

Typical types of package

Poultry, Dark Portions and Cuts

Bulk: 100% CO.

quail and turkey

Retail: Traysealed and thermoformed packages Bulk: Bag-in-box, master pack

Retail: 70% O₂, 30% CO₃ Bulk: 70% O₂, 30% CO₂ skin-off turkey, sliced dark poultry, turkey mince

Recommended gas mix

Food items Dark poultry mince, other skin-off poultry, skin-off chicken,

Typical types of package Retail: Traysealed and thermoformed packages Bulk: Bag-in-box, master pack

Raw Low Fat White Fish and Seafood Recommended gas mix **Food items**

Retail: 30% O₂, 40% CO₂, 30% N₂ **Bulk:** 70% CO₂, 30% N₂

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

Typical types of package Retail: Traysealed and thermoformed packages Bulk: Bag-in-box, master pack

Typical types of package

Bulk: Bag-in-box, master pack

packages

packages

Retail: Traysealed and thermoformed

Retail: 40% CO., 60% N. Bluefish, carp, eel, greenland halibut, herring, mackerel, pilchard, rock salmon, salmon, sardines, shad, sprat,

Raw High Fat Oily Fish and Seafood

Bulk: 70% CO₂, 30% N₂

Recommended gas mix

Recommended gas mix

Bulk: 70% CO₂, 30% N₂

Retail: 30% O₂, 40% CO₂, 30% N₂

swordfish, trout, tuna, whitebait

Food items

Shellfish, Crustaceans and Molluscs **Food items** Abalone, clams, cockles, conch, crab, crayfish, cuttlefish,

lobster, mussels, octopus, oysters, prawns, scallops, sea

Bacons, beefburgers, black pudding, charcuterie, chopped

pork and ham, cooking sausages, corned beef, frankfurters,

haggis, hams, luncheon meats, meat jerky, meat slices, ox

tongue, pastrami, pâtés, pepperoni, potted meats, rillettes,

urchins, shrimp, squid, whelks, winkles

Typical types of package

Retail: Traysealed and thermoformed

Bulk: Bag-in-box, master pack

Typical types of package

packages, flow packages

Bulk: Bag-in-box, master pack

Retail: Traysealed and thermoformed

Cooked, Cured and Processed Meat Products Recommended gas mix **Food items**

Recommended gas mix

Retail: 30% CO₃, 70% N₃

Bulk: 70% CO₂, 30% N₂

Retail: 30% CO₂, 70% N₂

Bulk: 50% CO₂, 50% N₂

roast meats, salami, smoked reindeer, smoked venison, terrines, wurst sausages

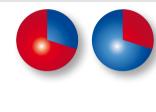
Cooked, Cured and Processed Fish and Seafood Products **Food items** Bloaters, bombay duck, buckling, cod's roe, cold smoked fish, fish galantine, fish rillettes, fish terrines, hot smoked fish, kippers, potted fish, potted shellfish, salt cod, salted anchovies, salted caviar, salted fish roes, salted jellyfish, seafood pâtés, smoked

haddock, smoked halibut, smoked mackarel, smoked salmon,

birds, cured poultry, duck ballotine, duck pâté, duck galan-

Typical types of package Retail: Traysealed and thermoformed packages, flow packages

Bulk: Bag-in-box, master pack



Recommended gas mix **Food items** Typical types of package Capon galantine, chicken ballotine, chicken roll, cured game Retail: Traysealed and thermoformed

turkey ballotine, turkey galantine, turkey roll

Cooked, Cured and Processed Poultry and Game Bird Products

smoked trout, taramasalata

Retail: 30% CO₃, 70% N₃ **Bulk:** 70% CO₂, 30% N₂

Recommended gas mix

Ready Meals

Retail: 30% CO₂, 70% N₂

Bulk: 50% CO₂, 50% N₂

tine, pheasant galantine, pigeon galantine, smoked chicken, smoked duck, smoked poussin, smoked turkey, turkey bacon,

Food items Casseroles, ready meals containing fish, ready meals containing game bird, goulash, 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

Bouchée/breaded: fish, seafood, meats and poultry;

Burritos, enchiladas, falafels, filled crêpes, pancakes and rolls,

kebabs, omelettes, pasties, pâtés en croûtes, pizzas, pasta and pies containing meat, poultry, fish and seafood, quiche, roule au fromage, sandwiches, satays, sausage rolls, soufflés, spring rolls, stuffed pitta bread, tacos, tostadas, vol au vents

Typical types of package Retail: Traysealed and thermoformed

packages, flow packages

Bulk: Bag-in-box, master pack

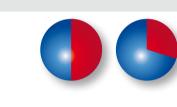
packages Bulk: Bag-in-box, master pack

Typical types of package

packages, flow packages

Bulk: Bag-in-box, master pack

Retail: Traysealed and thermoformed



Recommended gas mix Retail: 30% CO₂, 70% N₂ Battered: fish, seafood, meats and poultry;

Convenience Food Products

Bulk: 50% CO₂, 50% N₂

Recommended gas mix

Retail: 50% CO₂, 50% N₂

Bulk: 50% CO₂, 50% N₂

Fresh Pasta Products

Food items

Food items

Capelli, fettucine, funghini, fusilli, linguine, macaroni, pasta shells, spaghetti, tagliarini, tagliatelle, trenette, tubetti, vermicelli, zitioni

Bagels, bread puddings, breads, buns, cheesecakes, crépes,

croissants, crumpets, danish pastries, fruit breads, fruit cakes, fruit pies, fruit strudels, fruit tarts, meringue cakes, muffins,

nan bread, nut breads, pancakes, par-baked breads, pitta bread, pizza bases, pretzels, sponge laver cakes, swiss rolls.

taco shells, tortillas, vegetable breads, waffles

Retail: Traysealed and thermoformed packages, flow packages Bulk: Bag-in-box

Typical types of package

Typical types of package

Typical types of package

packages, flow packages

Bulk: Bag-in-box

Bulk: Bag-in-box

packages Bulk: Bag-in-box

Retail: Traysealed and thermoformed

packages, flow packages

Bulk: Bag-in-box

Retail: Traysealed and thermoformed

Typical types of package



Recommended gas mix Retail: 50% CO₃, 50% N₃ Bulk: 70% CO., 30% N.

Bakery Products

Retail: 100% CO.

Bulk: 100% N₂

Hard cheese ex. mould-ripened cheeses:

Exceptions: Aerosol Creams: Nitrous oxide N₂O)

Hard Cheeses Food items Recommended gas mix

cheeses, yoghurts Bulk: 100% CO. Other dairy products: Retail: 100% N_a

Aerosol creams, butter, cream cakes, creams, custards, fresh

cheeses, hard cheeses, margarine, semi-hard cheeses, sliced

Retail: Traysealed and thermoformed packages, flow packages Bulk: Bag-in-box tubs and pots are commonly used for yoghurts, soft cheeses, margarine, creams, custards, and butter



Recommended gas mix **Food items** Grated and soft cheeses ex. mould-Aerosol creams, butter, cream cakes, creams, custards, fresh ripened cheeses: cheeses, grated cheeses, margarine, sliced cheeses, soft

Grated and Soft Cheeses

Retail: 30% CO₂, 70% N₂ Bulk: 30% CO₂, 70% N₂ Other dairy products: Retail: 100% N₂ Bulk: 100% N₂

Recommended gas mix

Retail: 100% No.

Bulk: 100% N₂

or 30% CO₂, 70% O₃

Exceptions: Aerosol Creams: Nitrous oxide N 20) **Dried Food Products (Coffee, Milkpowder, etc.)**

Cocoa powders, coffees, dehydrated milk, dried and salted

dried colourings, dried flavourings, dried fruits, dried herbs,

dried lentils, dried mushrooms, dried pasta, dried snack food,

Bean chillies, bhajis, broccoli in cheese, bubble and squeak,

cauliflower cheese, coleslaw, cooked beans and potatoes,

corn fritters, garlic mushrooms, lentil cutlets, other dressed

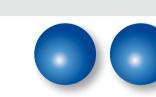
fish, dried and salted seafood, dried beans, dried cereals.

Tubs and pots are commonly used for yoghurts, soft cheeses, margarine, creams, custards, and butter

Typical types of package

Retail: Traysealed and thermoformed

packages, flow packages, cans



dried spices, dried vegetables, flours, nuts, potato crisps, teas **Cooked and Dressed Vegetable Products**

cheeses, yoghurts

Food items

Recommended gas mix

Retail: 30% CO₂, 70% N₂

Bulk: 50% CO₂, 50% N₂

salads, pakoras, pasta and potato salads, pilafs, quorn dishes, rice salads, rissoles, stuffed peppers and tomatoes, vegetable bakes, casseroles containing vegetables, vegetable pastas

Food items

and crumbles, vegetable curries and dosas, vegetable flans, vegetable pilau, vegetable pie, vegetarian burgers **Liquid Food and Beverage Products Food items** Cordials, fruit juices, liqueurs, liquid yoghurt, milk,

mineral waters, oils, spirits, vegetable juices, wines

Typical types of package

Typical types of package

Bulk: Bag-in-box

Bulk: Kegs, stainless steel tanks, barrels, etc.

Retail: Cartonboard gable-top containers,

glass and plastic bottles, aluminium and steel

Bulk: Kegs, stainless steel tanks, barrels, etc.

Typical types of packages

Retail: Traysealed and thermoformed



Carbonated Soft Drinks

Recommended gas mix Retail: 100% CO. Bulk: 100% CO,

Recommended gas mix

Retail: 5% O₂, 5% CO₂, 90% N₂

Bulk: 5% O₂, 5% CO₃, 90% N₃

Oxygen (O₂)

Recommended gas mix

Retail: 100% N_a

Bulk: 100% N_a

Food items

Apples, apricots, artichoke, asparagus, aubergine, avocado,

bananas, bean sprouts, beetroot, beans, broccoli, cabbages,

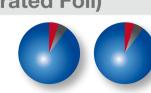
carrots, celery, cherries, cucumber, cumquats, fennel, garlic,

citrus fruits, grapes, guava, kiwi fruit, leek, lettuces, lychees, mango, marrow, melons, fruit and vegetable salads, okra, onions, other sprouts, papayas, parsnips, passionfruit, peaches,

Beers, ciders, carbonated soft drinks, lagers

Fresh Whole and Prepared Fruit and Vegetable Products (EMAP - Laser Perforated Foil) Typical types of package Retail: Traysealed and thermoformed packages, flow packages

Nitrogen (N₂)



pears, peas, peppers, pineapple, plums, potatoes, radish, rhubarb, spinach, star apples, strawberries, other berries, sweetcorn, tomatoes

Carbon Dioxide (CO₂)





