



FOOD GRADE GASES



The WestAir FreshPak brand of food-grade gases conforms to 'food grade' regulations outlined by FDA guidelines. Modified Atmosphere Packaging (MAP) applications mainly use carbon dioxide, nitrogen and oxygen. These gases are used either alone or in combination. The right gas and/or mixture takes the gas properties, and the interaction of gases with the food ingredients, into account. Other gases that can be added to MAP gas mixtures are the noble gases. These gases are truly non-reactive gases. They include helium, argon, krypton, and xenon. These gases have similar actions as nitrogen. These products are available in various cylinder sizes, packs, liquid containers, microbulk and bulk. Please contact your WestAir representative for additional information and consultation regarding your specific requirements.

FreshPak FOOD GRADE GASES EXPLAINED

COMMON FOOD GASES	INFORMATION
ARGON (Ar)	Argon is used to extend the shelf life of several fruits and berries. Depending on volume requirements, MAP gases are supplied premixed in size 300 cylinders. For larger volumes, micro and mini-bulk installations are available.
CARBON DIOXIDE (CO ₂)	Carbon dioxide is an acid gas. It readily dissolves into water and produces carbonic acid, thereby decreasing the pH of a solution. Carbon dioxide is also soluble in organic compounds and fats. Carbon dioxide does inhibit the growth of some pathogenic bacteria and is an important addition to many MAP gas mixtures. Unfortunately, too much carbon dioxide can lead to package collapse due to the absorption of carbon dioxide by the food product or permeation through the packaging. If package collapse is not desirable, nitrogen can be added to the MAP mixture to prevent or minimize collapse.
CARBON MONOXIDE (CO)	Carbon monoxide is a very flammable, reactive, and toxic gas. However, small amounts of carbon monoxide will enhance desirable pigmentation of red meat. Carbon monoxide is also used to prevent browning of packaged lettuce. Care must be taken when dealing with this flammable and toxic gas.
NITROGEN (N ₂)	Nitrogen is a non-reactive gas that does not support the growth of aerobic micro-organisms and thus can inhibit the growth of spoilage bacteria. Nitrogen, however, does not affect the growth of anaerobic micro-organisms. Since nitrogen does not react or dissolve into food products, it is also used to prevent package collapse caused by the absorption of other MAP gases.
NITROUS OXIDE (N ₂ O)	Nitrous Oxide is used as a food and beverage propellant additive, such as whipped cream, for example.
OXYGEN (O ₂)	Oxygen can be both detrimental as well as beneficial to packaged food items. Oxygen can cause oxidation of fats and pigments. Oxygen also supports the growth of aerobic micro-organisms which are the primary cause of spoilage. On the other hand too little oxygen will cause deleterious changes in the coloration of meats. In addition, too little oxygen can also allow for the growth of anaerobic bacteria which can cause food poisoning. For these reasons, the oxygen concentration must be carefully controlled.



FreshPak GASES AND APPLICATION

FOOD PRODUCT	FRESH PAK GAS PRODUCT COMPOSITION		
	CARBON DIOXIDE	OXYGEN	NITROGEN
RED MEAT	20% TO 30%	70% TO 80%	
RAW OFFAL	20%	80%	
LIVER, KIDNEY	20%	80%	
RAW POULTRY	30% TO 40%	0% TO 20%	60% TO 70%
POULTRY, DARK PORTIONS & CUTS	20% TO 30%	70% TO 80%	
RAW FISH, WHITE	40%	30%	30%
RAW FISH, OILY	40%		60%
CRUSTACEANS	40%	30%	30%
COOKED & CURED MEATS	30% TO 40%		60% TO 70%
COOKED & CURED FISH	30% TO 40%		60% TO 70%
COOKED & CURED POULTRY	30% TO 40%		60% TO 70%
READY MEATS	30%		70%
COMBINATION PRODUCTS	30% TO 40%		60% TO 70%
FRESH PASTA	50%		50%
BAKERY	60% TO 100%		50%
HARD CHEESE (I.E.CHEDDAR)	100%		
GRATED HARD CHEESES	0% TO 30%		70% TO 100%
SOFT CHEESES	40%		60%
DRIED FOOD PRODUCTS			100%
COOKED VEGETABLES	30% TO 40%		60% TO 70%
FRESH FRUITS & VEGETABLES	5%	5%	90%
LIQUID FOOD & BEVERAGES			100%
CARBONATED BEVERAGES	100%		