BOC
A Member of The Linde Group

Your produce helps the country produce.
Friendly agricultural solutions derived from nature's components.

BOC's range includes:

- VAPORMATE® - a highly effective fumigant made from food ingredients designed to leave produce and manufacturing equipment insect free from as quickly as 1 hour after exposure.
- FOGG® - natural carbon dioxide gas used for enrichment in greenhouses and for pest control.
- Plus other products including RIPENING GAS which is used for the ripening of post-harvest produce.

VAPORMATE® is a fast and highly effective fumigant which leaves produce insect free.

VAPORMATE® is a fumigant from BOC designed as an alternative to the ozone depleting Methyl Bromide. VAPORMATE® contains ethyl formate, a Generally Recognised As Safe (GRAS) food additive that breaks down readily to naturally occurring compounds. It is safe to use with low toxicity levels for humans.

What is VAPORMATE® used for?

- Application to horticultural produce post harvest including fruit, vegetables and cut flowers
- Fumigation of grain storage
- Fumigation of food processing equipment

VAPORMATE® vs Methyl Bromide

Features & Benefits	VAPORMATE®	Methyl Bromide
Restrictions upon sale	Y	Y
Ozone depleting active ingredient	N	Y
Effective from 1 hour	Y	N
Maximum residue limit exempt	Y	N
Internationally patented technology	Y	N

Guide to application rates: Australia.

Commodity	Insect	Application Rate
Cereal grains and oilseeds in sealed storage (with moisture content ≤12%) Grain storage premises and equipment	Complete control of all stages of: Lesser grain borer *(Rhyzopertha dominica)*, Flour beetle *(Tribolium castaneum)*, Psocids (various species), Storage moths *(Esphestia* spp., *Plodia* spp.*)*, Sawtoothed grain beetle *(Oryzaephilus* spp.*)*, Flat grain beetle *(Cryptolestes* spp.*)* Complete control of eggs, larvae and adults of: Rice weevil *(Sitophilus oryzae)*	660g/m³ (3 hours exposure) or 420g/m³ (24 hours exposure)
Lettuce (not bagged or similar)	Aphid *(Nasonovia ribisnigri)*	120g/m³ (1 hour exposure)
Onion	Onion thrips *(Thrips tabaci)* (adults only)	160g/m³ (1 hour exposure)
Sweet pepper or capsicum	Western flower thrips *(Frankliniella occidentalis)*	70g/m³ (2 hours exposure)
Kumera and rhubarb	Detritus moth *(Opogona omoscopa)*	30g/m³ (2 hours exposure)
Banana	Mites *(Oligotetranycus spp.)*, Mealybugs *(Dysmicoccus spp.)*, Scale *(Aspidiotus spp.)*	420g/m³ (6 hours exposure)
Pineapple	Mites (Dolichotetranychus floridanus), Mealybugs (*Dysmicoccus neobrevipes)*, Scale *(Diaspis bromiliae)*	420g/m³ (2 hours exposure)
Strawberry	Western flower thrips *(Frankliniella occidentalis)*	160g/m³ (1 hour exposure)
Kiwifruit (excluding Gold Kiwifruit)	Oleander scale *(Aspidiotus nerii)*, Long tailed mealybugs *(Pseudococcus longispinus)*	140g/m³ (6 hours exposure)
Table grapes	Light brown apple moth *(Epiphyas postvittana)*, Red back spiders *(Latrodectus hasselti)*, Two spotted mite *(Tetranychus urticae)*	240g/m³ (4 hours exposure)
	Long tailed mealybug *(Pseudococcus longispinus)*, Western flower thrips *(Frankliniella occidentalis)*, Plague thrips *(Thrips imagines)*	120g/m³ (3 hours exposure)

Important note: Please refer to the product label for further instructions before VAPORMATE® application.

For New Zealand application rates, please refer to the NZ Agricultural Compound and Veterinary Medicines product label.

FOGG® is a natural gas used for enrichment in greenhouses and pest control.

FOGG® is an agricultural grade carbon dioxide that can be effectively delivered for greenhouse enrichment without the common side effect of producing gases toxic to plants caused by burning fuel. FOGG® is produced to extremely strict standards at a purity of 99.5%, meaning it will not form moisture in a greenhouse atmosphere. FOGG® enhances the quality of produce and flowers to be bigger and better. It is available in cylinders and bulk onsite installations.

What is FOGG® used for?

- Greenhouse enrichment of plants and flowers
- Dispensing propellant for pesticides
- Purging gas lines from pesticides and remove blockages

FOGG® for crop enrichment.

Carbon dioxide is commonly used in the United States and Eastern Europe for crop enrichment in greenhouses. Studies and experiments for over 20 years have indicated significant increases in the growth of a wide range of crops.

Crops that have demonstrated benefits from using carbon dioxide in enclosed greenhouses include:

- Tomatoes
- Lettuce
- Gerberas
- Carnations
- Cucumbers
- Eggplants
- Roses

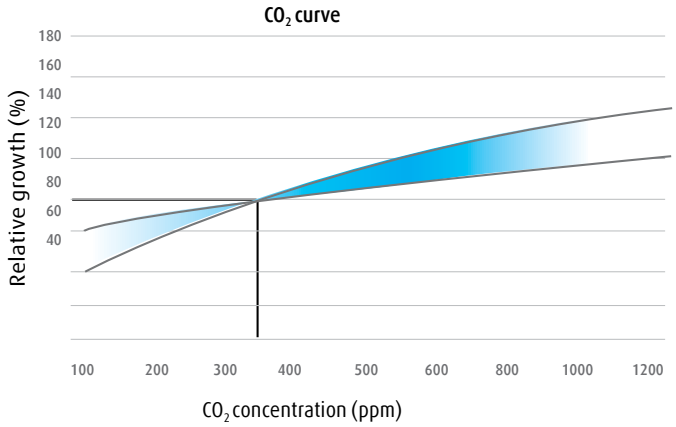
Typical commercial yield improvements* with CO_2 enrichment.

Carnations	38%
Chrysanthemums	30%
Roses	60%
Lettuces	40%
Tomatoes	29%
Cucumbers	28%

*Source: 'CO2 in the Greenhouse' - Airco Industrial Gases

CO_2 concentration vs relative growth.

During plant respiration levels of CO_2 within a greenhouse can drop below ambient levels of 350ppm, resulting in the reduction of plant growth. The addition of CO_2 above ambient levels will improve crop yield as demonstrated in the graph below.



Source: Nederhoff, 1994

Providing innovative solutions to move your business ahead.

RIPENING GAS.

Designed to accelerate the ripening and de-greening process of post-harvest produce including citrus and bananas, RIPENING GAS is a non-flammable mixture of Ethylene and Carbon Dioxide. As with the rest of the BOC agricultural solutions range, RIPENING GAS is produced according to strict standards.

Safety.

BOC is well-known as a national distributor of gas and equipment but we also understand that workplace safety is of vital importance too. If you need head and face protection, protective clothing and footwear or other safety equipment – we're there. Our BOC Safety Specialists are trained to help you achieve your safety initiatives. They can visit your workplace to identify risks, make assessments and offer recommendations for a safer workplace. Just as we protect our own people, you can count on BOC's reputation and commitment to help protect yours.

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