



# ZYTHOR®

## GAS FUMIGANT

998 g/kg SULFURYL FLUORIDE

The premium broad-spectrum fumigant with superior penetration, for the control of insect pests of stored products, timber, shipping containers and furnishings.

With its unique mode of action it is also the perfect rotation fumigant to break the resistance cycle reported with other fumigants.

**ENSYSTEX™**  
THE INNOVATORS

# WHY ZYTHOR GAS FUMIGANT?

The principal advantage of a fumigant is that it can kill a target pest wherever it may be located. No matter how deep within a piece of wood or food commodity, or what finished surface the pest may be located behind, fumigants can penetrate deep within to reach and kill the pest.

This is the overwhelming advantage of fumigation compared to other forms of control.

Fumigants are able to do this because they are true gases. With its superior properties of penetration, ZYTHOR can penetrate into almost any area, including into the pores in a piece of wood and deep into its interior, or into each grain in a food commodity.



## HIGHLY ACTIVE

ZYTHOR enters insects through the spiracles, in postembryonic life stages, or by diffusion through the eggshell; where it is broken down to the insecticidally active fluoride anion. This fluoride anion disrupts the insect's glycolysis and fatty acid energy production cycles, depriving them of cellular energy. This action arises due to fluoride inhibition of those glycolysis enzyme systems that employ magnesium. Following inhibition of their energy generating cycles, insects attempt to use proteins and amino acids to maintain energy. Since these processes are insufficient to maintain survival, the insects quickly die. ZYTHOR is able to kill all life-stages including eggs.

Numerous peer-reviewed efficacy studies have been published in Australia and around the world to define effective dosages and fumigation practices to optimise the control of key insect pests with sulfuryl fluoride. These studies form the basis for the ZYTHOR Fumicalc™ computer-based program to determine the target dose rate for ZYTHOR fumigations. In Australia, ZYTHOR Fumicalc uniquely includes a resistance management grain fumigation treatment option, based on the latest Australian Grains Industry developed data. Together with the ZYTHOR Applicator's Manual, Fumicalc forms an integral part of the ZYTHOR label.

# IT'S TIME TO SWITCH TO ZYTHOR

Sulfuryl fluoride products have been on the market in Australia for over 20 years and have had a successful 50 year history globally. ZYTHOR GAS FUMIGANT from Ensystem is new to Australia, but it comes with a long and trusted heritage. Ensystem have been selling ZYTHOR in the USA since 2007.



**ZYTHOR IS NOT AN OZONE DEPLETER. ZYTHOR, unlike methyl bromide, does not affect the ozone layer.**

# ZYTHOR GAS FUMIGANT

The active ingredient in ZYTHOR is 998 g/kg sulfuryl fluoride.

One of the biggest advantages of ZYTHOR as a fumigant, is that it is an inorganic compound. This simply means it does not contain carbon which makes it a relatively unreactive molecule as a gas. It does not combine with or change due to exposure to, or interact with, other compounds. Unlike other fumigants, such as methyl bromide, ZYTHOR does not adversely react with certain substances commonly found within structures.

**ZYTHOR is a non-flammable, odourless, colourless gas that rapidly penetrates and distributes quickly. It's also non-corrosive, making it the smarter fumigant solution for sensitive areas with modern equipment and electronic devices present.**

ZYTHOR provides broad-spectrum control of stored product pests and quarantine pests, with superior penetration of airspaces and food commodities, coupled with low sorption into these commodities, so it leaves no unpleasant odours or off-flavours.

**ZYTHOR is not an ozone depleter.** Fluorine compounds (without chlorine or bromine in their molecules) have no potential to deplete the ozone layer. Therefore, ZYTHOR, unlike methyl bromide, does not affect the ozone layer.

**As a fumigant, ZYTHOR has a bright future.**

**It is also the perfect fumigant to use as a resistance-breaker in grain storages where phosphine is routinely used.**

ZYTHOR provides for flexible exposure times depending on your facility goals, with rates controlled using our Fumicalc Program.

## AN IDEAL FUMIGANT



ZYTHOR rapidly penetrates porous materials.



ZYTHOR shows lower sorption on fumigated materials.



ZYTHOR more rapidly aerates from materials and commodities.



ZYTHOR does not react with materials to form unpleasant odours or off-flavours.



ZYTHOR is suitably toxic to all target insects.



ZYTHOR is not explosive at any concentration in the air.

## FUMICALC FOR TARGETED RESULTS

Fumicalc is our computer-based program that has been developed to ensure the accurate use of ZYTHOR. Designed specifically for use in Australia, but incorporating the heritage developed over 15-years of use in the USA, Fumicalc offers options for:

- > **Resistance management grain fumigation** based on the latest Australian developed data.
- > **Commodity food and commodity storage fumigation.**
- > **Structural fumigation.**
- > **User Defined CT.**

The Fumicalc program is used to calculate the CT Index that must be achieved within a fumigated space to kill the target pest and the dose and exposure period necessary to achieve that CT Index. The Fumicalc program is part of the ZYTHOR labelling and must be used to calculate all doses and exposure periods for ZYTHOR. Fumicalc is available exclusively from Ensystem.



# ZYTHOR CYLINDERS

ZYTHOR is supplied as a compressed liquid gas in a high-pressure steel cylinder and must be handled, stored and transported with caution. These cylinders are designed to allow for the safe handling of ZYTHOR in almost any conceivable condition or situation. The cylinders are designed to withstand a high level of abuse (accidental or otherwise). However, the widest margin of safety is enjoyed when the cylinders are handled correctly.

Empty cylinders must be handled with the same level of care and according to the same procedures used for full cylinders. Used ZYTHOR cylinders must be returned to your ZYTHOR distributor.



Testing of sulfuryl fluoride on various seed varieties at maximum label rates, including corn, cotton, grass, wheat, soybeans and rice, has shown little or no impact on germination, provided the seed is properly dried. ZYTHOR is flexible for use in long, or short, exposure fumigations

## ***A HIGHLY DESIRABLE PROPERTY OF ZYTHOR IS ITS HIGH VAPOUR PRESSURE.***

*This means it penetrates throughout a fumigated space and porous objects at a rapid rate. ZYTHOR is weakly adsorbed by these same materials, meaning that when the exposure period is completed and the seal is broken, it quickly aerates out of the fumigated space and is relatively quickly desorbed from the objects it has penetrated.*



# ZYTHOR<sup>®</sup>

## GAS FUMIGANT

Food tolerances have been established for sulfuryl fluoride which enable its use on a wide variety of commodities for global trade and in mills, food processing facilities, warehouses, storage containers, chambers and transportation vehicles.

For use only by licensed fumigators trained under Ensystem's Fumigation Program.

**ZYTHOR CONTROLS:** Existing infestations of insects such as borers, bed bugs, cockroaches, clothes moths, carpet beetles and drywood termites. All life stages of stored product pests including: Indian meal moth (*Plodia interpunctella*), Mediterranean flour moth (*Ephestia kuehniella*), confused flour beetle (*Tribolium confusum*), rust red flour beetle (*Tribolium castaneum*), warehouse beetle (*Trogoderma variabile*), saw-toothed grain beetle (*Oryzaephilus surinamensis*), dried fruit moth (*Ephestia cautella*), drugstore beetle (*Stegobium paniceum*), tobacco beetle (*Lasioderma serricorne*), hide beetle (*Dermestes maculatus*), grain weevil (*Sitophilus granarius*), rice weevil (*Sitophilus oryzae*), rusty grain beetle (*Cryptolestes ferrugineus*) and lesser grain borer (*Rhyzopertha dominica*).

**ENSYSTEX<sup>™</sup>**  
LEADING INNOVATION IN PEST MANAGEMENT

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