CYLINDERIZED PHOSPHINE FUMIGANTS: SUSTAINABLE ALTERNATIVES FOR STORED-PRODUCT PROTECTION

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Cytec Industries have been manufacturing and marketing cylinderized phosphine fumigants for post-harvest applications since 1999. Two product formulations-, ECO$_2$FUME® fumigant gas and VAPORPH3OS® phosphine fumigant are currently available in the US, Canada, Australia and China. ECO$_2$FUME® fumigant gas is a ready-to-use blend of 2% phosphine and 98% carbon dioxide. VAPORPH3OS® phosphine fumigant is 100% phosphine gas approved for on-site blending directly with ambient air. Both products are packaged in high pressure steel cylinders.

ECO$_2$FUME® and VAPORPH$_3$OS® fumigant gas products have been proven as commercial and technically viable alternatives to methyl bromide and metallic phosphides for post-harvest fumigation applications.

This success is attributed to the many advantages of cylinderized phosphine. Traditional fumigants such as methyl bromide and metallic phosphides have safety risks and environmental shortcomings in their application and disposal. ECO$_2$FUME® and VAPORPH$_3$OS® are applied from outside the fumigation area avoiding applicator contact or exposure risk. They are non-ozone depleting fumigants that produce no waste by-products or residue issues. It is easy to apply and control targeted concentrations during fumigations without the use of heat or fans to achieve gas distribution. Cylinderized phosphine fumigants penetrate commodities quickly and aerate with similar ease. They can be applied on a wide variety of commodities and on storages of all sizes.

This presentation will provide an updated on a number of topics related to cylinderized phosphine fumigants including global regulatory status as well as case studies of methyl bromide replacement and new applications for cylinderized phosphine in stored product fumigation. In addition, new efficacy data aimed at shortening exposures times at higher temperatures will be presented.