

Phytopsanitary treatments
Traitements phytosanitaires

Sulfuryl fluoride fumigation of dried fruits and nuts to control various stored product insects

Specific scope

This standard describes the sulfuryl fluoride fumigation of dried fruits and nuts to control various stored product insects. It is an alternative to the standard PM 10/5 *Methyl Bromide fumigation of dried fruits and nuts* (previously PM 3/9), which may still be used for critical uses. The use of phosphine fumigation of dried fruits and nuts to control various stored product insects is described in the standard PM 10 (in preparation).

Specific approval and amendment

First approved 2008-09.

Introduction

Dried fruits and nuts may be often infested by insect pests which affect the quality of the product by feeding and excrements. Most of the insects listed below are cosmopolitan and their spread should be avoided.

Commodities/regulated articles

Post-harvest commodities such as dried fruits, e.g. raisins, prunes, apricots, walnuts and pistachios.

Pests

Stored product insects, beetles e.g. *Oryzaephilus surinamensis* (ORYZSU), *Trogoderma variabile* (TROGPA) and others and Lepidoptera pests such as *Ephestia kuehniella* (EPHEKU) and *Plodia interpunctella* (PLODIN).

Treatment schedule

Treatment name: sulfuryl fluoride (F₂O₂S) fumigation of dried fruits and nuts to control various stored product insects
Treatment type: chemical
Formulation: fumigant gas, packed as a liquid under pressure
Concentration: 99.8%

Schedule

Mode of action: fumigation
Growth stage: Post harvest pest control
Number of applications: 1–4 (depends on length of commodity storage)
Interval between applications: Not applicable, re-application depends on re-infestation of the commodity.

Application rate per treatment under atmospheric pressure

Temperature, initial dosage and exposure time without vacuum (under atmospheric pressure)

Temperature (°C)	Initial dose (g/m ³)	Exposure time (h)
10–20	50–75	24–48
>20	35–60	24–48

Correct dose and time should be calculated with the Fumiguide Calculator provided by the company selling the product.

Waiting period

Consumption is allowed after product (sulfuryl fluoride) has completely dissipated.

Efficacy of treatment

Product recently registered in Austria and Germany.

Notes

The dose depends on the temperature. CTP for stored product insects should not exceed 1500 g h/m³. Representative fumigation is conducted with a 24-h fumigation at about 25°C.

References

- Derrick MR, Burgess HD, Baker MT & Binni NE (1990) Sulfuryl fluoride (Vikane®): a review of its use as a fumigant. *Journal of the American Institute for Conservation* **29**, 77–90 <http://aic.stanford.edu/jaic/articles/jaic29-01-005.html>
- Kenaga EE (1957) Some biological, chemical and physical properties of sulfuryl fluoride as an insecticidal fumigant. *Journal of Economic Entomology* **50**, 1–6.
- Xu G (1998) Development of Sulfuryl fluoride (SO₂F₂), techniques, and equipment of fumigation, a comprehensive study. *Plant quarantine*, **12** (1), 38–46.
- Xu G, Zhongmei C, Zhao S & Nengzhi Q (1999) The development of sulphuryl fluoride (SO₂F₂), in China – a brief introduction. *Proceedings of the 7th International Working Conference on Stored product Protection*, 562–566.