



Vapour releasing product containing 3.3% w/w of 1-methylcyclopropane, used for the maintenance of fruit firmness and fruit acid content and control of superficial scald during refrigerated apple storage (normal air and controlled atmosphere).

Approval Holder:  
**Rohm and Haas Europe  
Trading ApS**  
La Tour de Lyon  
185 Rue de Bercy  
75579 Paris Cedex 12  
France  
Tel: 00 33 1 40 02 50 00

Distributing company  
(acting as Service Provider):  
**Landsøer Ltd**  
Lodge Farm - Goat Hall Lane  
Galleywood  
Chelmsford Essex CM2 8PH  
Tel: 01245 357109

**FOR USE ONLY AS A HORTICULTURAL PLANT GROWTH REGULATOR IN FOOD STORAGE PRACTICES, AS DIRECTED BELOW.**

Crops/Situations:	Apples (post harvest)
Maximum individual dose:	0.049 g product / m <sup>3</sup>
Maximum number of treatments:	1 per batch.
Latest time of application:	7 days after harvest (see Directions For Use).

**READ ALL OTHER SAFETY PRECAUTIONS AND DIRECTIONS FOR USE BEFORE USE**

#### RISK AND SAFETY INFORMATION

KEEP OUT OF REACH OF CHILDREN  
KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDING STUFFS.  
THIS MATERIAL AND ITS CONTAINER MUST BE DISPOSED OF IN A SAFE WAY  
USE APPROPRIATE CONTAINMENT TO AVOID ENVIRONMENTAL CONTAMINATION

To avoid risk to man and the environment, comply with the instructions for use

PCS No. 02555

#### Environmental protection

SP1: Do not contaminate water with the product or its container (avoid contamination via drains from farmyards and roads).

#### Operator protection

TO BE USED ONLY BY PERSONS SUITABLY TRAINED and competent to carry out this work.  
USE ONLY WITH AN ANTI-FOAM.  
DO NOT TOUCH WATER SOLUBLE BAG  
PLACE WHOLE BAG DIRECTLY INTO THE SPRAY TANK  
WHEN USING DO NOT EAT DRINK OR SMOKE  
KEEP UNPROTECTED PERSONS OUT OF TREATED AREAS during the 24 hour treatment process.  
VENTILATE TREATED AREAS THOROUGHLY, with all refrigeration fans operating as maximum power, for at least 15 minutes before re-entry.

#### First aid measures

**IF IN EYES:** Flush eyes with water. Consult a physician if irritation persists.  
**IF ON SKIN:** Wash affected skin areas thoroughly with soap and water. Consult a physician if irritation persists.  
**IF INHALED:** Move subject to fresh air.  
**IF SWALLOWED:** drink plenty of water. Consult a physician.

**EMERGENCY TELEPHONE NUMBER:**  
00 33 1 40 02 50 45

#### GENERAL INFORMATION

SmartFresh<sup>SM</sup> works by inhibiting the production and perception of ethylene, both from internal end external sources, and is formulated into a soluble powder which, when mixed with water, releases the active ingredient into the apple store. SmartFresh<sup>SM</sup> is for use in controlling superficial scald and maintaining fruit firmness and fruit acid content during the normal storage period for each variety. The product has been tested on the following varieties: Granny Smith, Gala and Jonagold, with evidence on Bramley (acidity) and Cox (acidity and firmness). Before treating other apple varieties please consult the distributing company for specific advice.

#### DIRECTIONS FOR USE

**IMPORTANT:** This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

#### Storage conditions

SmartFresh<sup>SM</sup> should only be used on apples that will be stored at low temperatures (within the normal refrigerated storage temperature range for each variety), either in controlled atmosphere or normal air. SmartFresh<sup>SM</sup> needs to be used in air tight storage rooms. Refrigerated air stores or refrigerated controlled atmosphere stores should be gas tight enough to allow the treatment.

#### Timing of harvest and application

Fruit to be stored should be harvested at the locally recommended harvest period. SmartFresh<sup>SM</sup> should be applied as soon as possible after harvest and anyway within 7 days from the beginning of the picking. Treatment can occur at any temperature between ambient temperature and the normal minimum varietal storage temperature recommended for each variety, including during the cooling of the fruits.

For best effects, SmartFresh<sup>SM</sup> should be applied to fruit harvested promptly in good condition and of proper quality for long term storage. The effects of SmartFresh<sup>SM</sup> may be reduced in fruit that are in poor condition and of poor quality, that are ripe prior to storage or that are harvested late, outside the recommended harvest period. Consult processors before application of SmartFresh<sup>SM</sup> to fruit destined for processing/cider making.

#### Application method

Prior to application, ensure that the store can be properly and promptly sealed, and does not have apparent cracks or crevices.

There are two sizes of generators available depending upon the size of the room to be treated. The larger unit (for rooms larger than 300 m<sup>3</sup>) has a water capacity of 8 litres while the smaller unit (for rooms up to 100 m<sup>3</sup>) has a water capacity of 0.8 litres.

Once the filling of the room is finished, place the appropriate size generator on the floor, in a position within the store that would be within a flow of air from the refrigeration system.

Remove the lid of the generator and the protective tape over the button at the base of the unit.

Turn on the system by pressing the button at the base (the button turns red when the system is on, and the system makes a humming sound). - Depending upon the size of the system add either 8 litres or 0.8 litres of tap water at ambient temperature in a single operation.

Add either 2 ml (large unit) or 4 drops (small unit) of an anti-foam emulsion (Dow Corning antifoam B Emulsion, or equivalent) into the bubbling water.

**CAUTION:** without the anti-foam, the generator will foam over and thus invalidate the application.

Open the foil wrappers of the required number of water-soluble pouches and add the water-soluble pouches to the generator. Do not touch the water-soluble bags. Place whole bag directly into the generator.

**DO NOT REPLACE THE SYSTEM LID.** The release of 1-MCP will start approximately 5 minutes after. The operator must immediately leave and seal the room before the release starts.

A good seal will ensure maximum efficacy of 1-MCP. After the room is sealed a sign must be placed on the door of the treatment room with the following words:

Warning – do not enter. SmartFresh<sup>SM</sup> treatment in progress.

The sign must remain on the door until the treatment and venting procedure is completed.

The store must be left sealed for 24 hours with the refrigeration left running to ensure a good air circulation inside the room and with all scrubbers (CO<sub>2</sub> and ethylene scrubbers) and ozone generators switched off. The use of lime to scrub CO<sub>2</sub> will not interfere with the application. After this period is completed, treated areas must be ventilated thoroughly with all refrigeration fans operating at maximum power for at least 15 minutes before re-entry. Stay away from the area during venting.

Upon removal of the generator following treatment, check to ensure that the contents have been fully dissolved and there are no solids visible.

The store should then be set to the required storage conditions.

The store should be ventilated up to 48 hrs after removal of apples in case another crop is going to be stored just after.

#### Storage effects

SmartFresh<sup>SM</sup> controls superficial scald for between 3 and 6 months of storage in normal air and for between 6 and 9 months in controlled atmosphere storage. Use in low oxygen regimes is likely to extend the duration of scald control.

SmartFresh<sup>SM</sup> will maintain fruit firmness for between 3 and 6 months (3-4 months in Cox) of storage in normal air and for between 6 and 9 months (up to 6 months in Cox) in controlled atmosphere storage.

SmartFresh<sup>SM</sup> will maintain fruit acid content for between 3 and 6 months of storage in normal air and for between 6 and 9 months in controlled atmosphere storage.

Evidence is limited on varieties Cox and Bramley.

The effects of SmartFresh<sup>SM</sup> application are not permanent, production of ethylene begins after removal from storage and return to ambient conditions. In certain situations there may be a tendency for physiological disorders to develop during normal storage. This product has the potential to exacerbate these disorders: in particular the following may be increased following treatment;

- core flush, especially in Cox
- certain forms of internal breakdown, especially in Cox
- lenticel blotch, especially in Granny Smith with low calcium status

#### COMPATIBILITY WITH OTHER TREATMENTS MADE FOR POST-HARVEST STORAGE REASONS

Do not apply SmartFresh<sup>SM</sup> in mixture with other products.

The activity of SmartFresh<sup>SM</sup> is not known to be compromised by other treatments applied in sequence for control of post-harvest pests and disorders. This includes:

- Calcium chloride
- Fungicides applied in pre harvest and in post-harvest for the control of post-harvest diseases.

**STORAGE:** Store in a cool and dry place.

#### DISPOSAL

After retrieval of the used generator, **spent release water should be poured out and the inside of the unit rinsed once with tap water and allowed to dry** (Dispose of the spent water in accordance with the Code of Practice for the Safe Use of Pesticides on Farms and Holding' (Green Code)). The empty generator will be collected after use to be recycled by the distributing company.

Dispose of the spent water in accordance with the Code of Practice for the Safe Use of Pesticides on Farms and Holdings (Green Code).