



FRESHNESS

EXTENSION TECHNOLOGY

Maintaining quality and shelf life in fresh cut fruits and vegetables

The Challenge.

Cutting, peeling and slicing fresh produce throws up a number of challenges to shelf life including wounding reactions which lead to discoloration and browning, loss of structural integrity, accelerated water loss, softening, mechanical shocks leading to cracks and bruises.

Enzymes, called Polyphenol oxidases (PPO), initiate these browning reactions.

Various methods can be deployed to reduce the impact of browning. The most important of these include temperature management, the exclusion of oxygen and the use of dips to control browning and maintain texture of cut surfaces.

NatureSeal® products are widely used to maintain quality and extend shelf life.

Features and benefits.

- Proprietary powder blends of vitamins and minerals
- Used as processing aids to maintain colour (prevent enzymatic browning).
- Maintains texture – reduces moisture loss and softening.
- Does not impart flavour, colour, odour or taste.
- Developed with USDA and conform to UK and EU Food Law.
- Free from allergens and sulphites.
- Certain formulations permitted in organic production.
- Kosher and Halal
- Custom blends for different fruits and vegetables.

NatureSeal is applied by a simple dipping or fluming process. Produce needs to be dipped as soon as possible after cutting. NatureSeal will effectively control browning in fruits such as apples and pears and in vegetables such potatoes and parsnip.



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NatureSeal for apples & pears



NatureSeal will provide up to 21 days shelf life in fresh cut apple and pears; preventing browning and maintaining crispness without impacting on flavour and odour. Conventional and organic formulations are available.



NatureSeal for stonefruit

NatureSeal formulations are available to maintain shelf life in prepared nectarines, plums and peaches.

NatureSeal for avocados and guacamole



NatureSeal will maintain colour and shelf life in prepared avocados (dices, slices, chunks) typically offering up to 5 -6 days shelf life. Ideal for avocado inclusions in salads, sandwich fillings, sushi etc. Alternative formulations are available for guacamole.



NatureSeal for banana

NatureSeal maintains colour in fresh cut banana for up to 4 -5 days.

Carrots, coins, sticks and shreds



NatureSeal will maintain colour, reduce whitening and silvering, and helps to control bending and cracking in carrot sticks. NatureSeal prevents carrots drying out.



Potatoes and other root crops

NatureSeal can eliminate the use of sulphites and will maintain fresh appearance and colour in potatoes and other root crops such as parsnip, . Colour is maintained in other root crops such as sweet potatoes, swede

NatureSeal for mango, kiwi fruits, pineapples, melons and persimmon



NatureSeal helps to reduce purge, translucency and breakdown; maintaining the brightness of the cut fruits.

NatureSeal FS (product wash), developed to replace chlorine, available for fruit, vegetables and salads.

Fruit	NatureSeal Formulae	Shelf life/days
Apple - Dessert	NatureSeal AS1 & AS5	7-12 days
Apple - Culinary	NatureSeal AS7 & AS5	7-12 days
Banana	NatureSeal BA1	6-7 days
Pear	NatureSeal AS1	7-12 days
Pineapple	NatureSeal AS1	7-12 days
Carambola (Star Fruit)	NatureSeal AS2	7-12 days
Mango	NatureSeal MG2	7-12 days
Rhubarb	NatureSeal AS5	7-12 days
Lime	NatureSeal AS1	7-12 days
Nectarine, Peach	NatureSeal NEC1	7-12 days
Plum	NatureSeal AS1	7-12 days
Persimmon (Sharon Fruit)	NatureSeal AS1	7-12 days
Avocado	Natureseal BAS &GU7	6-7 days
Kiwi	NatureSeal AS1	7-12 days

Vegetables	NatureSeal Formulae	Shelf life/days
Carrot	NatureSeal AS5	7-12 days
Leeks	NatureSeal AS5	7-12 days
Runner Beans	NatureSeal AS5	6-7 days
Cauliflower/Sprouts	Natureseal AS5	6-7 days
Endive (Chicory)	NatureSeal BE1	6-7 days
Butternut Squash	NatureSeal PS10	7-12 days
Parsnip	NatureSeal PS10	7-12 days
Potato	NatureSeal PS10	7-12 days
Pumpkin	NatureSeal PS10	7-12 days
Celery	NatureSeal AS5	7-12 days
Sweet Potato	NatureSeal PS10	7-12 days
Beetroot	NatureSeal ONC3	7-12 days
Aubergine	NatureSeal AS5	6-7 days
Broccoli	NatureSeal AS5	6-7 days