

Natural Biotechnology Sprl

Organoleptic Retention in Fresh Fruit and Vegetables

BIENVENUE

WELKOM

WELCOME



Terms of Reference

Research, Design, Formulate and Commercialise Innovative Preservative Systems, based on NATURALLY derived intermediates, extending and Retaining the Organoleptic Properties and Quality of Fresh Fruit and Vegetables.



Objectives

To provide solutions that:

- **Protect and retain the Organoleptic properties of processed fruit and vegetables:**
 - **Against enzymatic browning of fruits and vegetables**
 - **Microbial contamination**
- **To ensure the NATRAPHASE™ Products are environmentally friendly and biodegradable**



Product Range NATRApHASE™

The NATRApHASE™ formulations are Processing Aids.
(EU Directive 89/107/EEC Processing Aid Definition)
(EU Directive 2000/13/EEC Labelling Regulation for
Processing Aids)

The NATRApHASE Technology™ allows for **significant reduction** in the levels of traditional acidulants used in anti-browning products currently on the market.

NATRApHASE Technology™ is PATENTED



NATRApHASE™

ABAF/ABAV/FVS



Additional Compliances

- **Food Chemical Codex 5th Edition specifications**
- **Categorized: Generally Recognized as Safe (GRAS) by the FDA**
- **Produced under ISO9001:2000 /BRI Certified Quality Management Systems**



NATRApHASE™

Benefits:

- Reduced acidulant concentrations
- Enhanced taste
- Extended Shelf Life
- Brings out natural fruit and vegetable taste
- Anti microbial and Anti-mold, anti-fungi
- Non-mutagenic
- Multiple range of Fruits and Vegetables
- Safe and simple to handle.
- No fumes liberated, no bad odour.
- Does not contain synthetic biocides or antibiotics.



Benefits Continued

- **Non lachrymatory**
- **Biodegradable**
- **Adaptable to established processing plants**
- **Environmental friendly within the processing plant.**
- **Consumer and Food Friendly**
- **Automated and semi automated dosing system.**
- **Cost effective.**
- **Use less of ABAF product: 2.50% - 5% vs. 8-10%**

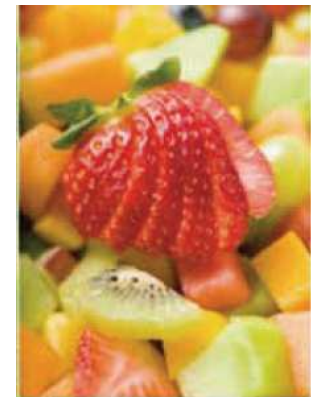




NATRApHASE™ ABAF

Anti Browning Agent

Formulated using natural intermediates specifically to delay browning in a wide variety of prepared sliced/cut fruit or fruit salads, facilitating a longer shelf life without alteration to the organoleptic properties of the fruit(whole and sliced/cut).





NATRApHASE™ ABAV

Anti Browning Agent

Formulated using natural intermediates specifically to delay browning and “after cooking darkening” in prepared, sliced, diced potato’s and other root vegetables facilitating a longer shelf life without alteration to the organoleptic properties of the vegetables (whole and sliced/cut).





NATRAPHASE™ ABAV

It is designed to replace the more hazardous agents - acid pyrophosphates, bisulphites and SO₂.





NATRAPHASE™ ABAV

Acrylamide Reduction

- **ABAV reduces the incidence of Acrylamide build-up in baked potatoes, Fried French fries and Roasted Potatoes**
- **Potato retains original color , taste and texture.**
- **Tolerant up to 200°C**
- **Very soluble in water**





NATRApHASE™ FVS

Natural Fruit and Vegetable Decontaminant

A non – hazardous process wash aid specifically formulated using natural intermediates. Extremely effective when applied to WHOLE Fresh Fruit and Vegetables.

**NATRApHASE™ FVS can also be used in post harvest and pre-harvest applications to protect from micro -organism contamination during transport and/or storage.
Log reduction of 6-7 achieved.**





NATRAPHASE™ ABAF/ABAV/FVS

Target Markets

Potential clients:

- Fruit Graders and Processors
- Vegetable Graders and Processors

End user outlets:

- Super markets, fast food chains, caterers, airline catering services, institutional (schools, prisons, etc.)



Apples Anti Browning Dip Test Sweet Gala

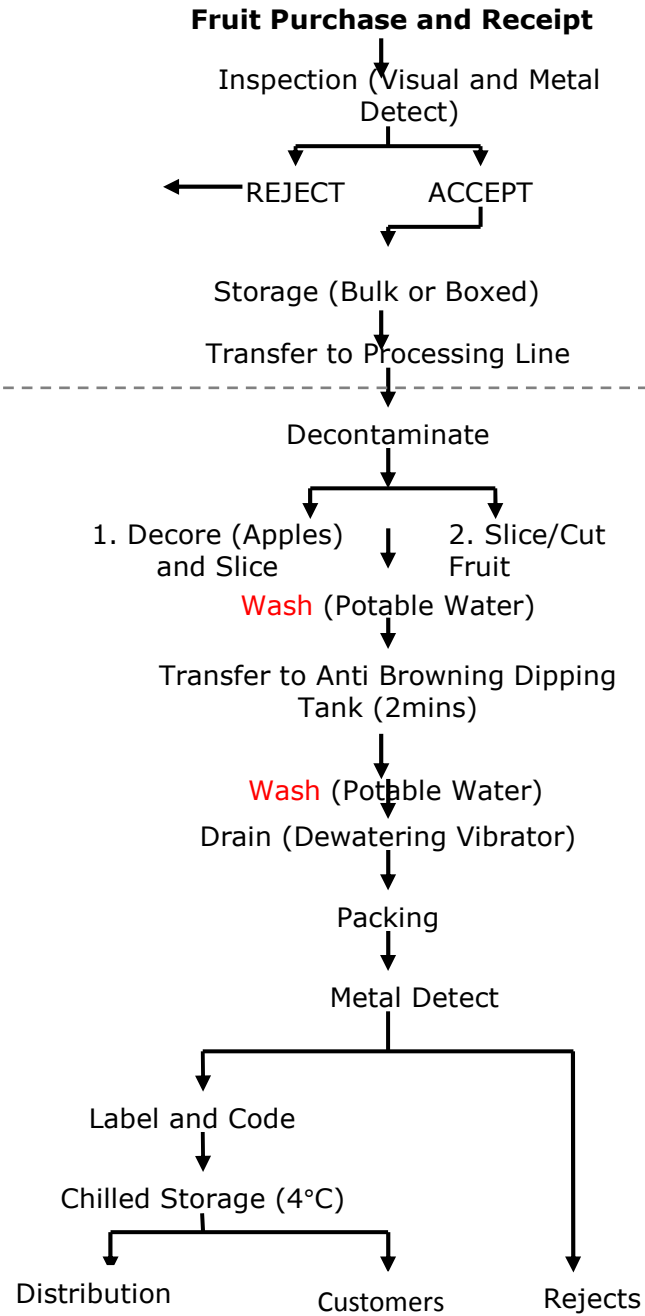
**Test Results from Date of Dip
06.07.2011 - 25.07.2011
NATRApHASE™ ABAF**





**FRUIT PROCESSING FLOW
CHART
USING ANTI BROWNING AGENT
NATRApHASE™ ABAF**





Sweet Gala



Sweet Gala in Dip Solution ABAF
Dip Time = 2 mins @ 12°C



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala Controls
P+ = 06.07.2011 – 00:00 mins



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala Controls
P+ = 06.07.2011 – 1:45Hrs



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala in Plastic Container
refrigerating at 4°C
(P+ = 06.07.2011)



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala in Plastic Container
refrigerating at 4°C
(P+ 3= 09.07.2011)



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala in Plastic Container
refrigerating at 4°C
(P+ 6 = 12.07.2011)



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala in Plastic Container
refrigerating at 4°C
(P+ 9= 15.07.2011)



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala in Plastic Container
refrigerating at 4°C
(P+ 12= 18.07.2011)



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala in Plastic Container
refrigerating at 4°C
(P+ 14= 20.7.2011)



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala in Plastic Container
refrigerating at 4°C
(P+ 16 = 22.07.2011)



Sweet Gala



NATRApHASE™ ABAF
Sweet Gala in Plastic Container
ready for refrigerating at 4°C
(P+19 = 25.07.2011)

Turned Brown





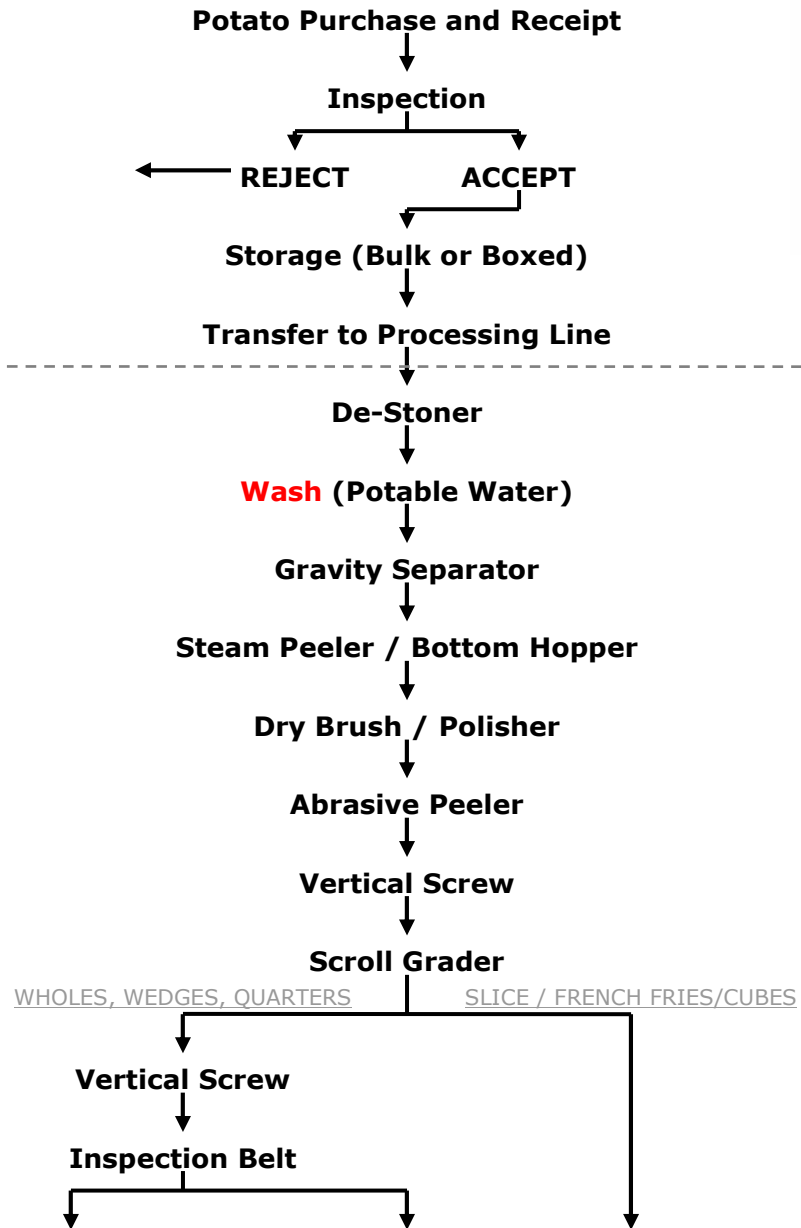
NATRApHASE™ ABAV
Anti Browning Dip Test
French Fries

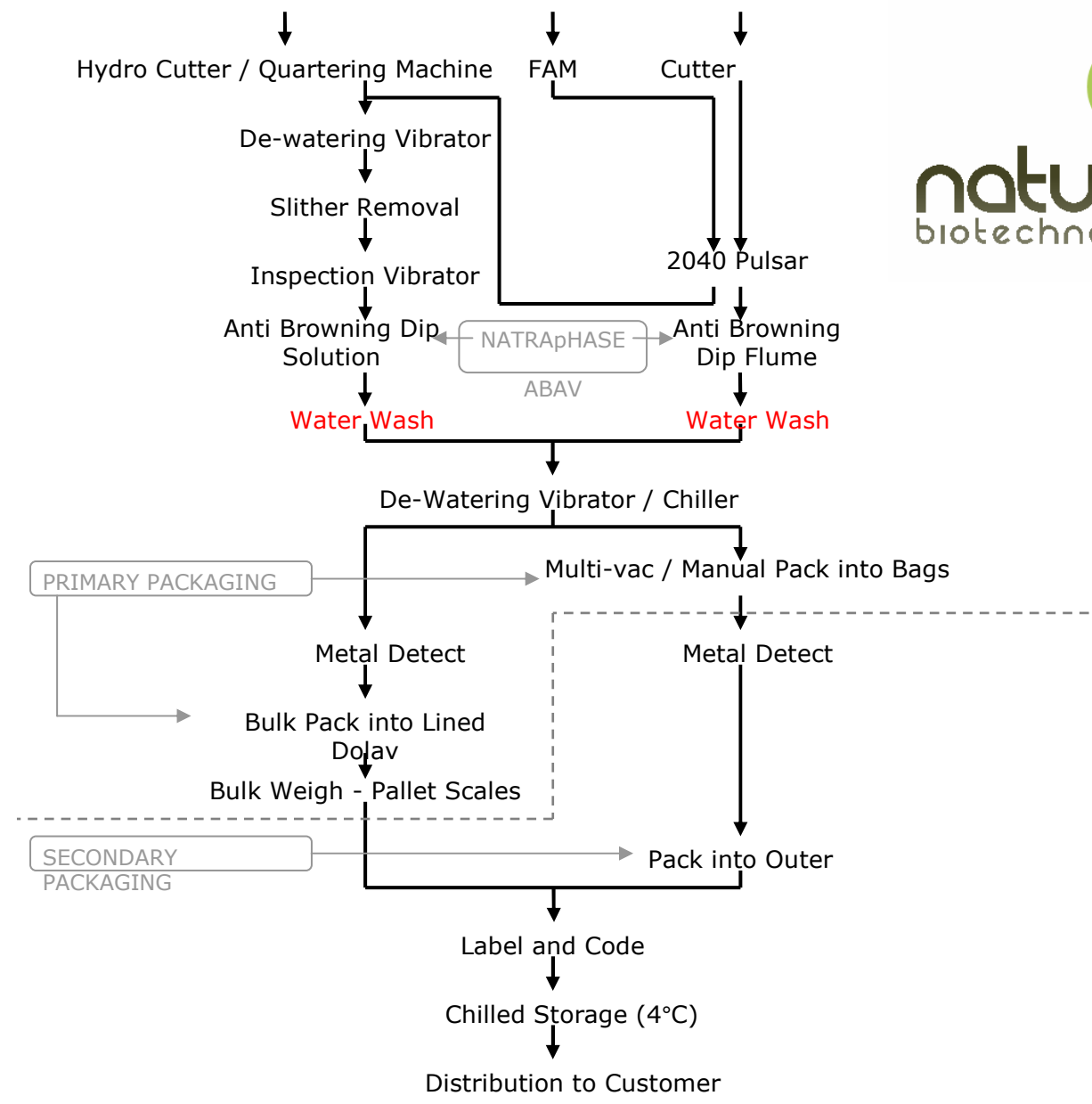
Test Results from Date of Dip
06.07.2011 -19.07.2011



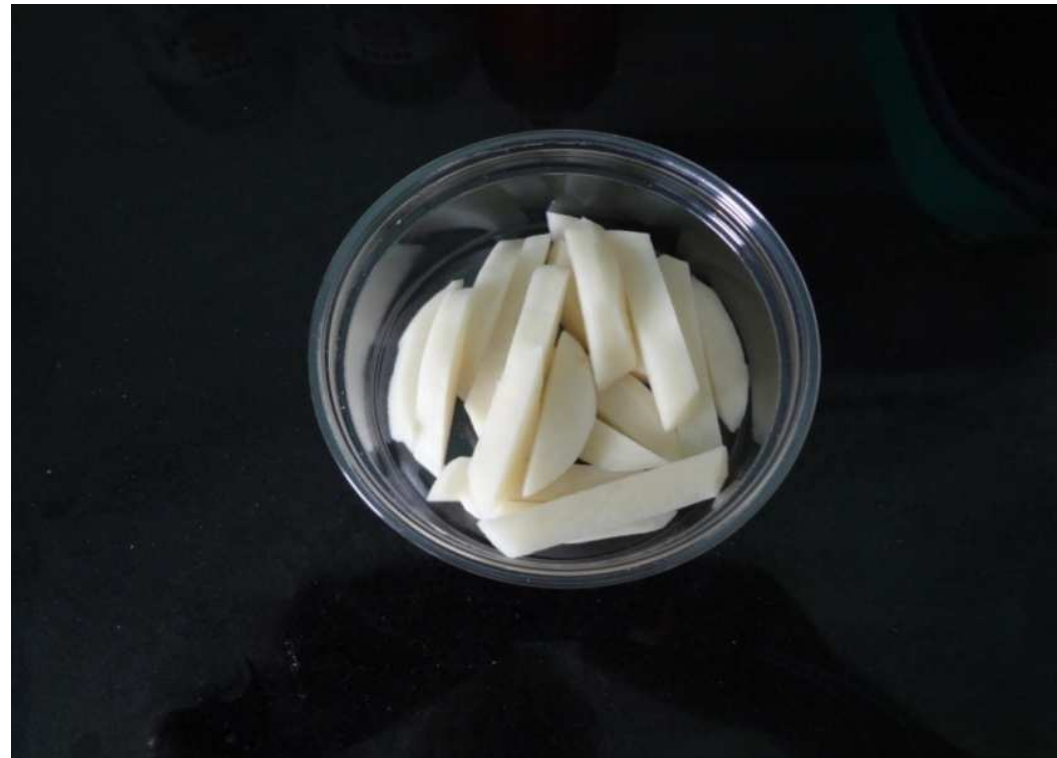
**POTATO PROCESSING FLOW CHART
USING ANTI BROWNING AGENTS
NATRApHASE™ ABAV**







French Fries



NATRApHASE™ ABAV
French Fries **Control** (No ABAV)
P+ = 06.07.2011 – 00:00 mins



French Fries



NATRApHASE™ ABAV
French Fries **Control (No ABAV)**
P+ = 06.07.2011 – 30:00 mins
Tips of French Fries turning Grey to Black



French Fries



NATRApHASE™ ABAV
French Fries in Plastic Container
refrigerating at 4°C
(P+ = 06.07.2011)



French Fries



NATRApHASE™ ABAV
French Fries in Plastic Container
refrigerating at 4°C
(P+1 = 07.07.2011)



French Fries



NATRApHASE™ ABAV
French Fries in Plastic Container
refrigerating at 4°C
(P+3 = 09.07.2011)



French Fries



NATRApHASE™ ABAV
French Fries in Plastic Container
refrigerating at 4°C
(P+7 = 13.07.2011)



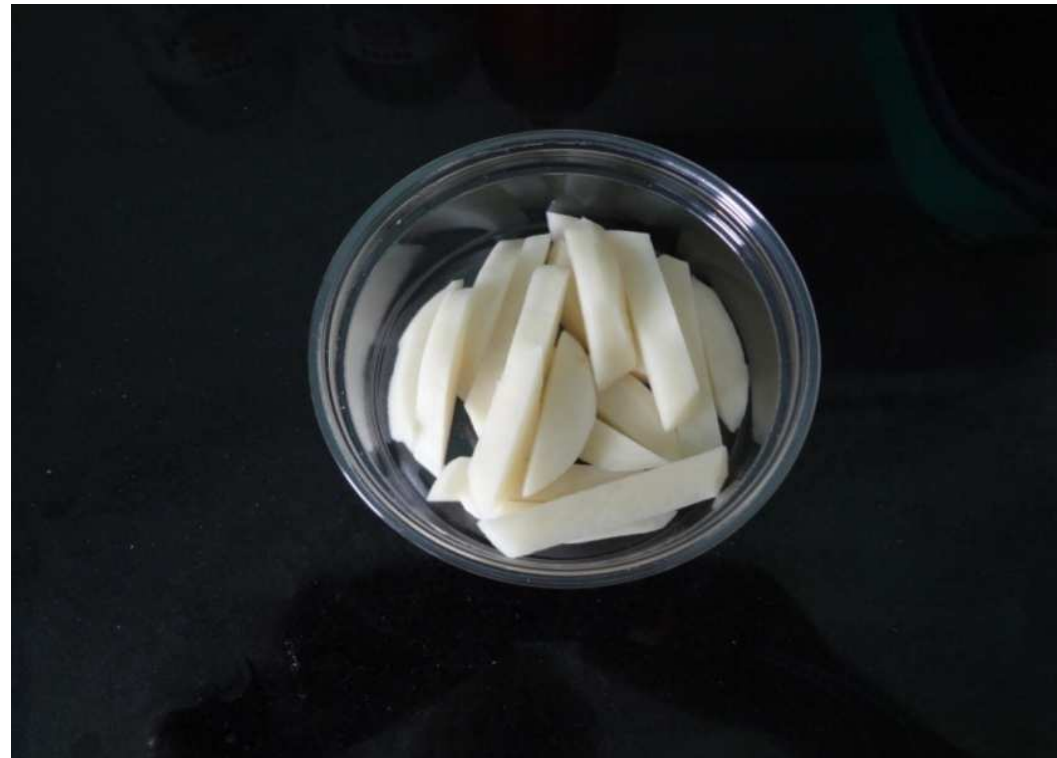
French Fries



NATRApHASE™ ABAV
French Fries in Plastic Container
refrigerating at 4°C
(P+10 = 16.07.2011)



French Fries



NATRApHASE™ ABAV
French Fries in Plastic Container
refrigerating at 4°C
(P+12 = 18.07.2011)

Turning Grey at Tips of French Fries



BINTJE POTATOES



BINTJE POTATOES



**P+ (14.09.2011) Packed into a poly bag,
heat sealed and refrigerated at 6°C**



Bintje Potatoes



P+4 (18.09.2011)



Bintje Potatoes



P+7 (21.09.2011)



Bintje Potatoes



P+9(23.09.2011)



Bintje Potatoes



P+11+ 8hrs(25.09.2011)



...all things natural



**MERCI POUR VOTRE PATIENCE ET INTÉRÊTS DANS LA PRÉSENTATION
DANK U VOOR UW GEDULD EN BELANG IN DE PRESENTATIE
THANK YOU FOR YOUR PATIENCE AND INTEREST IN THE PRESENTATION**

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