

## Summary

The experiment carried out did show that:

- ✓ It is possible with the Perfotec system, comprising of a Perfotec Fast Respiration Meter, AMAP website and Perfotec laser with automatic OTR control, to obtain a constant target O<sub>2</sub> level inside packagings containing a vegetable mixture
- ✓ The potential of the Perfotec system to improve the quality during and at the end of shelf life has been illustrated for this ready-to-eat mixture
- ✓ Compared to the current number of days of shelf life, a combination of lower initial CO<sub>2</sub> during packing and the Perfotec system did extend the shelf life period from 3 to 6 days at 7 °C

### Want to know more?

If you are interested into more details like the list of references please feel free to contact us at [amap@top-bv.nl](mailto:amap@top-bv.nl)  
 More information on the technology can be found at:  
[www.topwiki.nl](http://www.topwiki.nl)

## Ready to eat salad mix

### Empirical study Perfotec system

Results empirical study of the Perfotec system (Fast Respiration Meter, AMAP website and Perfotec laser with automatic OTR control)



## Experimental set-up

Ready-to-eat vegetable mix

Ingredients: shredded white cabbage, bell pepper 10\*10 mm cubes, shredded carrot, parsley 5 mm, diced onion 10\*10 mm.

Chain temperature 7 °C

## Method

- ✓ Respiration rate of the mix at three different days with the Perfotec Fast Respiration Meter measured
- ✓ Current quality determining ingredient determined
- ✓ Optimal target O<sub>2</sub> range for that ingredient selected from literature / historical data
- ✓ Required transmission per bag for target oxygen (O<sub>2</sub>) values of 3, 4 and 5 % O<sub>2</sub> with AMAP website calculated
- ✓ Unperforated flexible film laserperforated with the provided transmission values per bag.
- ✓ Produce packed at selected packaging conditions. 20 bags per type of packaging, including current packaging recipe.

## Analysis procedure

- ✓ Duplo analysis on various day, at 10 point scale on residual O<sub>2</sub>, residual CO<sub>2</sub>, color, odor, off-flavor, texture, visual microbiological spoilage, taste and overall judgment.
- ✓ Score of one attribute less than 5 determines the number of days of shelf life.

## Results

In this mixture in the original packaging the bell pepper cubes were the quality determining ingredients at the end of shelf life. According to literature optimal O<sub>2</sub> values of bell pepper are 3 to 5% [1].

### Overall judgement 5 days after packing

Initial CO2	Transmission	Transmission	Transmission	Current film
	A	B	C	
2 %	6	7	7	-
5%	6	7	6	-
10%	-	-	-	2

### Number of days of shelf life

Initial CO2	Transmission	Transmission	Transmission	Current film
	A	B	C	
2 %	5	5	5	-
5%	6	6	5	-
10%	-	-	-	3

day 1



Current packaging

day 5



Perfotec microperforated packaging

