

# Use of Modified Atmosphere Packaging in Minimally Processed and Sous Vide Products

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## Abstract

Minimally processed and sous vide vegetables are highly susceptible to deterioration and to be re-contaminated by microbial organisms after the completion of the industrial processing. Modified atmosphere packaging (MAP) is widely used as a technique to extend the shelf-life period of these products. The main physiological effect of commercial MAP with low O<sub>2</sub> combined with moderate and high CO<sub>2</sub> levels is related to a decreasing of aerobic respiration, ethylene production, enzymatic browning, cell wall degradation, microbial growth, etc., prolonging specially the shelf-life of minimally processed compared to sous vide vegetables, which are heat treated and show a lower perishability. In order to reach the recommended equilibrium atmosphere inside the package for minimally processed, plastic film must be carefully chosen according to its permeability to O<sub>2</sub>, CO<sub>2</sub>, ethylene and water vapor, respiratory rate and weigh of the cut product, packaging, and storage temperature. In case of sous vide, the plastic film must be resistant to heat treatment and must maintain the vacuum after processing. The use of adequate temperatures is the main tool to keep the quality and the shelf life of these products. Therefore temperature control is essential to assure the desired MAP effect on minimally processed. It is essential the temperature control to avoid anaerobic conditions because the oxygen consumption increases quicker in the chopped vegetable than the gas film permeability of the plastic film when the temperatures rise.

## Keywords

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