

Abstract:

This study examined the effect of modified atmosphere packaging (MAP) liners on apple post harvest life, for the commercial transport of 'Jonagold' apples from Tasmania to Asia. The treatments were: no liner, an unsealed polyethylene liner (industry standard practice), two mineral-based MAP liners and a micro perforated MAP liner (LifeSpan®). Ethylene absorbing pouches were also included in half the boxes. After removal from controlled atmosphere storage the treatments were applied and the fruit stored for 7 days at 0.5°C followed by 14 days at 5°C to simulate consolidation and transport. After removal from the shipping container the liners were removed, fruit quality measured on half the fruit and the other half were stored for 5 days at 20°C and 60% humidity to simulate retail conditions. Variables measured were: CO₂, O₂, ethylene, greasiness, firmness, internal browning, sugars and acidity.

The industry standard practice, caused an increase in CO₂ and a slight decrease in O₂, resulting in reduced greasiness, but a minimal effect on other fruit quality and flavour parameters. The mineral-based modified atmosphere liners reduced O₂ to about half the atmospheric levels; however, they had only a marginally greater affect on fruit quality and flavour than polyethylene liners. The LifeSpan® liner established the highest CO₂ (4.2%) and lowest O₂ (7.1%) levels, resulting in a significant reduction in greasiness, improved firmness and a reduction in the rate of loss of fruit acidity over the industry standard. These liners produced fruit that had a superior out turn and are therefore recommended to industry.