

### Abstract:

Commercial usage of a range of available sanitisers presents a considerable challenge, since accurately maintaining correct levels is very difficult. Further, there is increased consumer concern about undesirable byproducts from sanitizers, specifically the carcinogenic trihalomethanes (THM), especially produced by chlorine treatments. New delivery, control and recycling technologies have been developed and incorporated into a new iodine delivery system called Isan™. Control of pH, so essential with chlorine, is not required for iodine dips with pHs below 8.5. Continual removal of sanitiser breakdown products during operation, dramatically further reduces any accumulation of undesirable breakdown products and improves dip effectiveness and accuracy of control. Iodine as a sanitizer together with other features of the system means that it is much more tolerant of dirt and organic matter contamination than chlorine. When used as a general produce sanitiser at levels up to 30ppm, iodine applied in the Isan™ unit is very effective, with levels even below 15 ppm giving a log reduction in surface microflora of 1.5 (i.e. apples, nectarines, peaches, tomatoes). This log reduction is better than, or at least comparable with other reported sanitisers, such as chlorine or peroxide, used at much higher levels. The combination of heat and iodine together proved to be considerably more effective than either iodine or heat alone. This means that this combination could be a potentially safe “organic” treatment alternative to treatment of fruits and vegetables with postharvest fungicides. Increasing iodine concentrations above 30 ppm is also possible for select crop/ disease combinations.