Sulfide blackening is an important type of metal can staining in the packaging of sulfur containing food products, resulting in strong visual quality loss of the product due to the formation of FeS compounds, although there is no impact on food safety. Development of blackening is related to several factors, including the food thermal process conditions. This research evaluated the influence of different brine temperatures and filling levels used in the production of 6 lb cubed beef cans on the occurrence and intensity of sulfide blackening. Three different can ends, one being internally coated with epoxy phenolic lacquer and the other two with epoxy phenolic containing aluminum paste from 2 manufacturers were studied. Resulting vacuum, drained weight and free space oxygen composition were determined to characterize the final filling conditions. SEM/EDX was applied to determine the Fe:S relation on any black spots. The development of sulfide blackening was classified using a 5-level scale by visual evaluation of the inner end surface. Higher level of brine filling and the brine temperature produces lower O₂ package content, resulting in reduced sulfide blackening, that varied from levels 1.7 to 2.0 for total filling and 1.5 to 2.7 for partial filling at brine temperature of 90 °C and from levels 2.0 to 3.0 for both filling conditions at brine temperature of 72 °C. The epoxy phenolic containing aluminum paste was better preventing blackening. It was concluded that it is possible to control the sulfide blackening through the stages of processing and packaging specification.

Apresentação: Oral