

Factors are Affecting Tin Released in Canned Beverages

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Abstract : Factors that affect the dissolution of metals from the cans body can occur and influenced by cans material, duration and conditions of storage, acidity of the contacting foodstuff. The objective of this research is to determine the effect of pH when it released from tin in beverages and to determine the expiration date of it effect. This research method is Causal Comparative, the sample used canned beverages were carbonated beverages, beer and juice. Research conducted on pH canned beverages, label views expired canned beverages, tin assay using atomic absorption spectrophotometer air-acetylene flame at wavelength 286.3 nm. The results showed the differences of average levels on tin released in carbonated canned beverages, beer, and juice, statistically. Tin levels (mgkg^{-1}) canned beverages expired in 2014 A1, A2, A3, B1, B2, B3, C1, C2, C3 brand respectively are: 5.7676 ± 0.1631 , 5.2412 ± 0.3730 , 4.4737 ± 0.3063 , 3.6623 ± 0.3470 , 3.6184 ± 0.3285 , 3.5965 ± 0.4033 , 4.3421 ± 0.1938 , 3.9473 ± 0.2739 , 3.8158 ± 0.3874 , expired in 2015, respectively: 2.8948 ± 0.6425 , 2.8290 ± 0.4491 , 2.8070 ± 0.7206 , 2.6096 ± 0.7678 , 2.5658 ± 0.6815 , 2.5000 ± 0.5648 , 2.7632 ± 0.3874 , 2.7193 ± 0.5259 , 2.7124 ± 0.1704 . The conclusion is when pH is lower tin released level is higher. When the expired date is longer tin released is lower. Tin levels in canned beverages are eligible that have been set by the WHO / FAO and the European Union according to EC 1881/2006 the maximum limit of 200 mgkg^{-1} for tin in canned food than beverages must be 100 mgkg^{-1} including fruit and vegetable juices and 50 mgkg^{-1} for baby food.

Keywords: Canned Beverages, pH, Expired, Tin, Atomic Absorption Spectrophotometer.

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