

GENERAL DESCRIPTION OF AUDIO CAPS

Here we will explain how an audio capacitor for high sound quality is manufactured.

Graph-4 shows the condition where sin wave signal of frequency of 10KHz was applied to an aluminum electrolytic capacitor to reveal the how accurate the signal was output; the peak of the integer rate at the frequency of 10KHz shows the distortion.

The distortion has its origin in Lead, foil, oxide film and electrolyte, the distortion occurs during the signal flow through an aluminum electrolytic capacitor. As can be seen in Graph-4, if the third wave is extremely high, the lead is usually the main factor having effect on this situation.

Normally, CP wiring (Copper prated steel) is used to lead wire; as the inductance rate increases at high frequency, magnetic field generated around the lead. In the case of a lead with strong generated magnetic field, the effect that it has on signaling becomes major; thus in an audio capacitor lead, a copper wire is often used. Such characteristics can be seen in Graph-5.

Different kinds of this copper wiring are being researched at the time; we have discovered that the quality of sound changes greatly due to purity and characteristics of crystallization.

The lead and aluminum foil does not directly contact each other; the lead wiring is welded to the aluminum-processed tab, and this aluminum tab connected to aluminum foil by stitching. The reason why the lead wire and aluminum wiring do not directly touch is because the oxide film building process (oxidation) is strong; therefore, the steel, copper or plate like a solder plating is subject to violation.

Because the lead wiring and aluminum tab are weld together, the quality of sound is not only effected by the copper material but also the purity and the nature of crystallization; the welding conditions of copper and aluminum are greatly involved, so it is extremely important to control the material quality and welding condition. Nichicon made various sample and investigate them by hearing inspection; from these materials, the ones that are most qualified in welding condition and sound quality are selected for usage.

Middle hardness-steel copper wiring is made supple by firing and annealing the material in the process of making it finer (dicing); by making adjustment in this firing process, the wiring is made to the approximate consistency of the CP wiring. We do not mix any other impurities in order to adjust the material to its consistency.

Graph-4

Graph-5

