(a) Heat to 1650° - 1750° F for one hour or 1/2 hour per inch of thickness, whichever is greater.

(b) Cool to below 600° F in such manner that the resulting hardness is 327 BHN maximum after tempering at 1250° F to 1325° F for not less than one hour or one hour per inch of thickness, whichever is greater.

Note: Material with a hardness of 229-327 BHN is desired for ease of machinability.

3.5.2 Sheet shall be supplied in the annealed condition with a maximum hardness of 230 Brinnell or equivalent, unless otherwise specified on the purchase order.

3.5.3 Reforging and extrusion stock shall be supplied in the condition and hardness specified by the forger or extruder.

(C) 3.5.4 If straightening is performed after completion of the thermal cycles specified in Paragraphs 3.5.1 or 3.5.2, such straightening should be performed at 1150°-1325° F. If straightening is performed at temperatures below 1150° F, a subsequent stress relief at 1150°-1325° F for one hour or one hour per inch of thickness, whichever is greater, shall be required. Straightening shall not be performed at temperatures over 1325° F, unless permitted by Fort Worth Division Quality Control Department. Material straightened at temperatures below 1150° F shall, after straightening, be ultrasonically inspected per paragraph 3.11 and visually inspected for cracks or other defects possibly associated with the straightening process, in addition to the requirements applicable to material which does not require straightening.

(C) 3.5.5 Flame cutting is permitted provided that the material is in the normalized condition and is stress relieved after flame cutting. The hardness of the flame cut edge shall not exceed 327 Brinell or equivalent, after stress relief.

3.6 Microstructure

(C) 3.6.1 Grain Size: The grain size of material as supplied shall be No. 7 or finer as determined by the method specified in Paragraph 4.2.3. This requirement is not applicable to extrusion stock but is applicable to the extrusions supplied.

3.6.2 Inclusion Content:

3.6.2.1 Micro Inclusion Test: The producer of the material shall prepare radial specimens approximately 0.28 sq. in. in surface area, cut from and representing the cross section of forging stock from the top and bottom of at least the first, middle and last usable consumable vacuum melted ingots from each air melt heat or master heat. A master heat shall be defined as the electrodes produced from the same lots of controlled raw materials. These specimens shall be polished, on a face parallel to the longitudinal axis, for micro inclusion rating in accordance with the Jernkontoret chart in ASTM E45-61. No specimen shall exceed the following limits: