

The chemical composition and heat treatment

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Casting aluminum alloys, which are used for the manufacture of cars engine blocks, usually include alloys 46200 and 45000 of European standards EN1706 (Bulky prefix, "EN AC" omitted). Chemical "formula", respectively, of these alloys has the form AlSi8Cu3 and AlSi6Cu4. I purchased an old engine block from our local scrap dealer which already manufactured aluminum alloys engine block. I heated it to molten for casting, during the process there were a lot of carbon on the surface which I used metal flange to collect all the carbon. The casting defects occur during solidification, the sand removed by applying vibrating on the casting. The three main problems were rectified are (i) A lot of carbon gathered at one point of the engine block constructed, (ii) There's a lines drawing on the engine block constructed due to slow pouring of the molten alloyed, (iii) The surface were rigid, later investigations carried out showed that the sand used wasn't smooth enough. The estimated time used for molten was 34 minutes 40 seconds.



Figure 1. Shown how the sand deforming the casting process



Figure 2. Shown how the casting defects occur on the surface and surrounding



Figure 3. shown how carbon deposits on the surface of the molten alloyed

Biography

Daniel Afram Akakpo has his expertise in automobile industries in early 1998-2003 as an apprentice trainee. March 2003-2007 I started my second circle education at Emit Electronics Institute, Mataheko 2008-2009; I did my auto technician part. 2010 - 2022 I am doing my private job as Mechanical Engineer.

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