(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :23/08/2022

(21) Application No.202241047825 A
(43) Publication Date : 02/09/2022

(54) Title of the invention : A High strength hot-rolled and heat treated Aluminium AA2195 alloy-based Metal matrix composite and manufacturing process

(51) International classification :B22F0003105000, C22C0032000000, C21D0008020000, B22D0019140000, B82Y0030000000
(86) International Application No :PCT// Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA Filing Date :NA
(62) Divisional to Application Number :NA Filing Date :NA

(71)**Name of Applicant :**
1)Srinivasa Rao. M
Address of Applicant :Research Scholar, Department of Mechanical Engineering, AUCE(A), Andhra University, Visakhapatnam, Andhra Pradesh, India ---------- ----------
2)Dr. K. T. Balaram Padal
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Srinivasa Rao. M
Address of Applicant :Research Scholar, Department of Mechanical Engineering, AUCE(A), Andhra University, Visakhapatnam, Andhra Pradesh, India ---------- ----------
2)Dr. K. T. Balaram Padal
Address of Applicant :Professor, Department of Mechanical Engineering, AUCE(A), Andhra University, Visakhapatnam, Andhra Pradesh, India Visakhapatnam ---------- ----------

(57) Abstract :
Exemplary aspects of the present disclosure are directed toward A High strength hot-rolled and heat treated Aluminium AA2195 alloy-based Metal matrix composite and manufacturing process, wherein the metal matrix of 86% AA2195 is reinforced with 8% B4C, 6% graphite. The composite materials disclosed hereof, is made up of matrix as well as reinforcement. The matrix phase as the principal base material (AA2195) that functions should be enhanced, while the reinforcement materials (8% B4C, 6% Gr) are predominant with superior properties compared to the matrix phase. AA2195-B4C-Gr composite was manufactured in a Medium Frequency Induction Melting (MFIM) casting for a specific time under predefined temperature and processed with hot-rolling at 480 °C temperature followed by aging . With the insertion of graphite and B4C nano-particles to the matrix phase, the AA2195-B4C-Gr composites mechanical properties are enhanced with better hardness , tensile strength, ,reduction in % elongation and density compared to other casted composites.

No. of Pages : 16 No. of Claims : 6