(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :27/11/2024
(21) Application No.202441092967 A
(43) Publication Date : 06/12/2024

(54) Title of the invention : DEVELOPING OF TIN BASED CERIUM SOLDER ALLOY

(51) International classification	:B23K0035260000, C22C0013000000, B23K0001200000, G06F0119080000, H04W0004020000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
1)Dr.D.Arthur Jebastine Sunderraj
Address of Applicant :Assistant Professor, Department of Mechanical Engineering, St. Joseph's Institute of Technology, OMR, Chennai,Tamilnadu, India - 600119 ---------- ----------
2)Mr.S.A.Muhammed Abbrar
3)Mr.P.Srinivasan
4)Mr.J.S.Javith Saleem
5)Mr.B.Logesh
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Dr.D.Arthur Jebastine Sunderraj
Address of Applicant :Assistant Professor, Department of Mechanical Engineering, St. Joseph's Institute of Technology, OMR, Chennai,Tamilnadu, India - 600119 ---------- ----------
2)Mr.S.A.Muhammed Abbrar
Address of Applicant :Assistant Professor, Department of Mechanical Engineering, St. Joseph's Institute of Technology, OMR, Chennai,Tamilnadu, India - 600119 ---------- ----------
3)Mr.P.Srinivasan
Address of Applicant :Assistant Professor (SS)Mechanical Engineering, Periyar Maniammai Institute of Science and Technology, Vallam, Thanjavur,Tamilnadu,India - 613403 ---------- ----------
4)Mr.J.S.Javith Saleem
Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Al Ameen Engineering College, Erode,Tamilnadu,India - 638 104 ---------- ----------
5)Mr.B.Logesh
Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Sree Sakthi Engineering College, Karamadai, Coimbatore,Tamilnadu,India - 641104 ---------- ----------

(57) Abstract :
This research focuses on the development of a novel tin-based solder alloy incorporating cerium (Ce) as a key additive. The primary objective is to enhance the mechanical properties, wettability, and thermal reliability of the solder joints formed using this alloy. Two unique compositions were investigated: 87Sn–7Zn–3Al–3Ce and 87.5Sn–6Zn–2Al–2.5Ce. The study involved a comprehensive analysis of the microstructure, phase composition, mechanical properties, and thermal behavior of the developed alloys. The findings demonstrate that the addition of cerium significantly improves the overall performance of the tin-based solder, making it a promising candidate for various electronic applications.

No. of Pages : 5 No. of Claims : 5