Karnataka State Council for Science and Technology

Indian Institute of Science Campus, Bengaluru - 560 012

KSCST

Telephone: 080-23341652, 23348848, 23348849 ♦ **Telefax:** 080-23348840

Email: office.kscst@iisc.ac.in, office@kscst.org.in ♦ **Website:** www.kscst.iisc.ernet.in, www.kscst.org.in

Mr. H. Hemanth Kumar
Executive Secretary

16th March 2020

Ref: 7.1.01/SPP/953

The Principal,
Alva's Institute of Engineering and Technology,
Moodbidri - 574 225.

Dear Sir/Madam,

Sub : Sanction of Student Project - 43rd Series: Year 2019-2020

Your Project Proposal Reference No. : ***43S_BE_0160***

Ref : Your Project Proposal entitled " ***INVESTIGATION ON DISSOLUTION BETWEEN EUTECTIC LEAD BASE /LEAD-FREE SOLDER AND BASE METALS USING HOT DIP SOLDERING METHOD FOR ELECTRONIC APPLICATION***

We are pleased to inform that your student project proposal referred above, has been approved by the Council under "Student Project Programme - 43rd Series" with a budgetary break-up as detailed below:

		Budget	
Student / s	Mr. Prashanth Naik K	**Particulars**	**Amount (Rs.)**
	Mr. Pujeeth Kulal	Materials/Consumables	4,000.00
	Mr. Rakesh	Labour	-
	Mr. Rakshith R	Travel	-
Guide/s	Dr. Satyanarayan	Miscellaneous	500.00
	-	Report	500.00
Department	Mechanical Engineering	**Total**	**5,000.00**
	Five Thousand Rupees Only		

The following are the guidelines to carryout the project work :

a) The project should be performed based on the objectives of the proposal sent by you.

b) The project should be completed in all respects and one copy of the hardbound report along with softcopy of the full report in a CD (.pdf format) should be submitted to KSCST.

c) Any change in the project title and objectives, etc., or students is liable to rejection of the project and the amount sanctioned needs to be returned to KSCST.

d) Please quote your **project reference number printed above** in all your future correspondences.

e) **Important:** After completing the project, 2 to 3 page write-up (synopsis) needs to be sent by e-mail [spp@kscst.iisc.ernet.in] and should include following :

1) Title of the project
2) Name of the College & Department
3) Name of the students & Guide(s)
4) Keywords

PRINCIPAL
Alva's Institute of Engg. & Technology
[illegible] - 574 225.

HOD / ME

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI 590018

A project report on

INVESTIGATION ON DISSOLUTION BETWEEN EUTECTIC LEAD BASE/LEAD FREE SOLDER AND COPPER SUBSTRATE USING HOT DIP SOLDERING METHOD FOR ELECTRONIC APPLICATIONS

Submitted in partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

in

MECHANICAL ENGINEERING

By

PRASHANTH NAIK K	4AL16ME048
PUJEETH KULAL	4AL16ME049
RAKESH	4AL16ME052
RAKSHITH R	4AL16ME060

Under the Guidance of

Dr. Satyanarayan,

Sr. Associate Professor and Head

Department of Mechanical Engineering

ALVAS INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225,

KARNATAKA 2019 – 2020

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY (FONT18)

Mijar, Moodbidri D.K. -574225 – Karnataka(FONT14)

DEPARTMENT OF MECHANICAL ENGINEERING

CERTIFICATE

PRASHANTH NAIK K	4AL16ME048
PUJEETH KULAL	4AL16ME049
RAKESH	4AL16ME052
RAKSHITH R	4AL16ME060

are bonafide student of Mechanical Engineering Alva's Institute of Engineering and Technology in partial fulfillment for the award of BACHELOR OF ENGINEERING in MECHANICAL ENGINEERING of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2019–2020. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Dr. Satyanarayan.	**Dr. Satyanarayan**	**Dr.Peter Fernandes .**
Project Guide	**Head of the Department**	**Principal**

External Viva

Name of the Examiners	**Signature with Date**
1. Suresh PS	
2.	Ganesh. M R

ABSTRACT

In the present study, kinetics of dissolution of solid copper, aluminium, brass and stainless-steel substrates in molten tin under isothermal condition was evaluated. All the substrate specimens were immersed (dipped) in molten tin at temperature of 250°C for duration of 1mins, 3mins and 5mins and drawn out from the liquid tin with the speed of 5 mm/s. Effect of dissolution behaviour of pure metals in liquid tin with increasing immersion time in the molten tin was investigated. The evolution of microstructure to characterize formation of intermetallic compounds at the interface between molten tin and substrates was assessed using metallurgical microscope.

Keywords: Tin, molten, base metal, substrate, alloy, intermetallic