KSCST

Karnataka State Council for Science and Technology

Indian Institute of Science Campus, Bengaluru - 560 012

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

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

Dr. S. G. Sreekanteswara Swamy
Executive Secretary

28th March 2018

Ref: 7.1.01/SPP/08

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

Dear Sir,

Sub : Sanction of Student Project - 41st Series: Year 2017-2018
Your Project Proposal Reference No. : 41S_BE_0949

Ref : Your Project Proposal entitled " **INVESTIGATION ON DIFFUSION BETWEEN LIQUID TIN AND PURE BASE METALS FOR ELECTRONIC APPLICATIONS**

I am happy to inform that your project proposal referred above, has been approved by the Secretary, KSCST for "Student Project Programme - 41st Series" and has been sanctioned with a budgetary break-up as detailed below:

Student / s	Mr. Hithesh G Shetty and others	**Budget**	**Amount (Rs)**
		Materials/Consumables	5,000.00
Guide/s	Dr. Satyanarayan	Labor	-
		Travel	-
Department	Mechanical Engineering	Miscellaneous	500.00
		Report	500.00
		TOTAL	6,000.00
	RUPEES RUPEES SIX THOUSAND		

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 sanction 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,
Mijar, MOODBIDRI - 574 225, D.K

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI 590018

A project report on

INVESTIGATION ON DIFFUSION BETWEEN LIQUID TIN AND PURE BASE METALS FOR ELECTRONIC APPLICATIONS

Submitted in partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

in

MECHANICAL ENGINEERING

By

HITHESH G SHETTY	**4AL15ME420**
RANJAN KISHORE K	**4AL15ME434**
NAVANEETH P	**4AL15ME430**
KISHOR	**4AL15ME424**

Under the Guidance of

Mr. Virendra K, Associate Professor

Dr. Satyanarayan, Sr. Associate Professor

Department of Mechanical Engineering

ALVAS INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225, KARNATAKA

2017 – 2018

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mijar, Moodbidri D.K. -574225 – Karnataka

DEPARTMENT OF MECHANICAL ENGINEERING

CERTIFICATE

Certified that the project work entitled "**INVESTIGATION ON DIFFUSION BETWEEN LIQUID TIN AND PURE BASE METALS FOR ELECTRONIC APPLICATIONS** is a bona fide work carried out by

HITHESH G SHETTY	**4AL15ME420**
RANJAN KISHORE K	**4AL15ME434**
NAVANEETH P	**4AL15ME430**
KISHOR	**4AL15ME424**

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 2017–2018. 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.

Mr. Virendra K
Dr. Satyanarayan
Project Guide

Dr. Harishchand K.S
Head of the Department
Dept. of Mechanical Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Dr. Peter Fernandes
Principal
PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K.

ABSTRACT

In the present study, kinetics of dissolution of solid copper, aluminium, brass, stainless steel and mild steel substrates in molten tin under isothermal condition was evaluated. All the substrate specimens were immersed (dipped) in molten tin at temperature of 350°C for duration of 1mins, 2mins and 3mins and drawn out from the liquid tin with the speed of 2.5mm/s. Effect of dissolution behavior 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