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ECOSOLDER

## Romania - Republic of Serbia IPA Cross-border Cooperation Programme

Promoting new ecologic filler alloys  
for soldering, based on the non-ferrous ore of  
the Romanian-Serbian cross-border area

# ECOSOLDER



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Common borders. Common solutions.



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## Romania - Republic of Serbia IPA Cross-border Cooperation Programme

# PROPERTIES OF SOME LOW MELTING ECOLOGICAL SOLDER ALLOYS

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# INTRODUCTION

- FIND A SUBSTITUTE FOR COMMON SOLDERS
- LEAD-FREE
- CADMIUM FREE
- WEEE AND ROHS



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# INTRODUCTION AND REQUIREMENTS

- Availability
- No Toxicity
- Melting temperature range
- Wettability
- Other process conditions



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# INITIAL DATA FOR Sn-In-Ag ALLOYS

alloy	Xi			at %		
	Sn	In	Ag	Sn	In	Ag
L1	0.5	0.35	0.15	50	35	15
L2	0.6	0.28	0.12	60	28	12
L3	0.7	0.21	0.09	70	21	9
L4	0.8	0.14	0.06	80	14	6
L5	0.9	0.07	0.03	90	7	3



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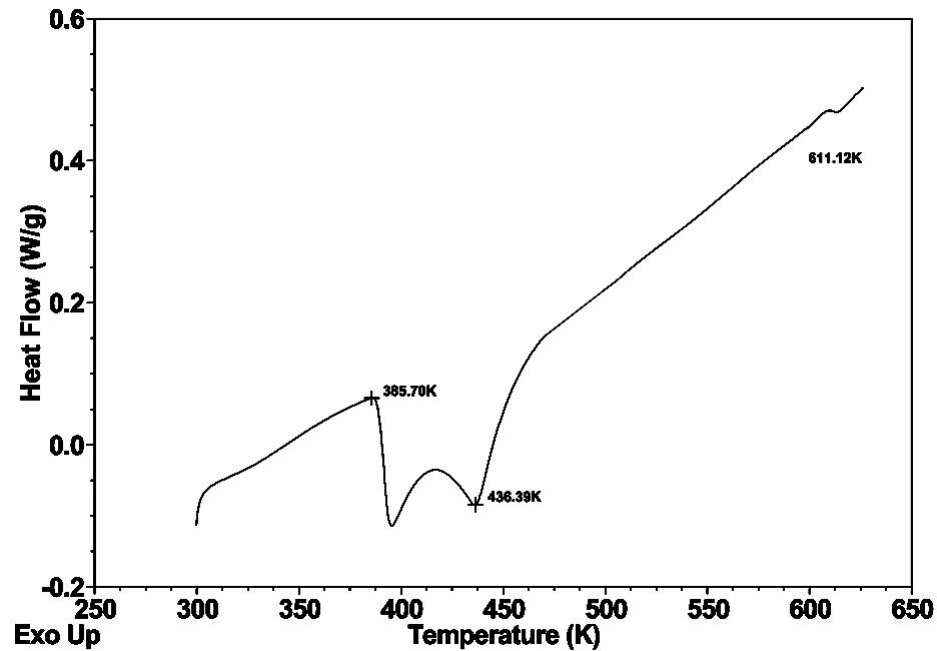


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# RESULTS



## Alloy Sn50In35Ag15



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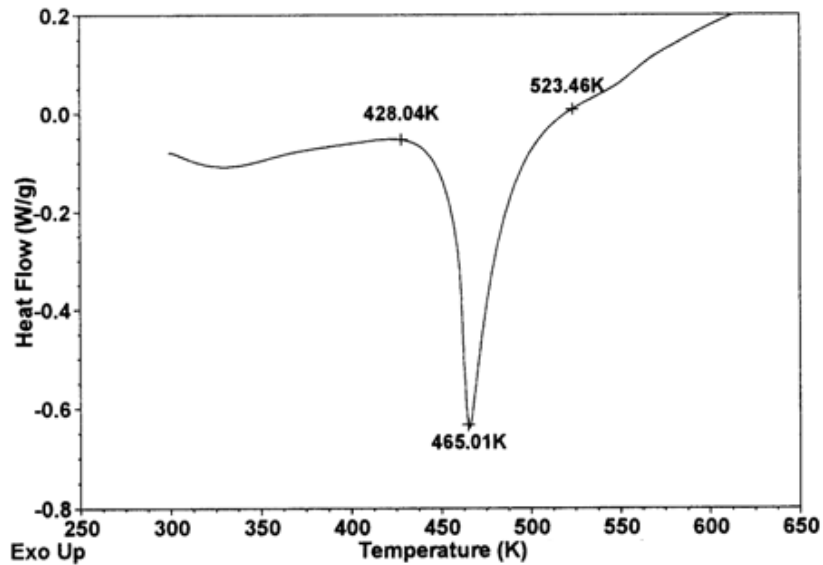


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# RESULTS



## Alloy Sn70In21Ag9



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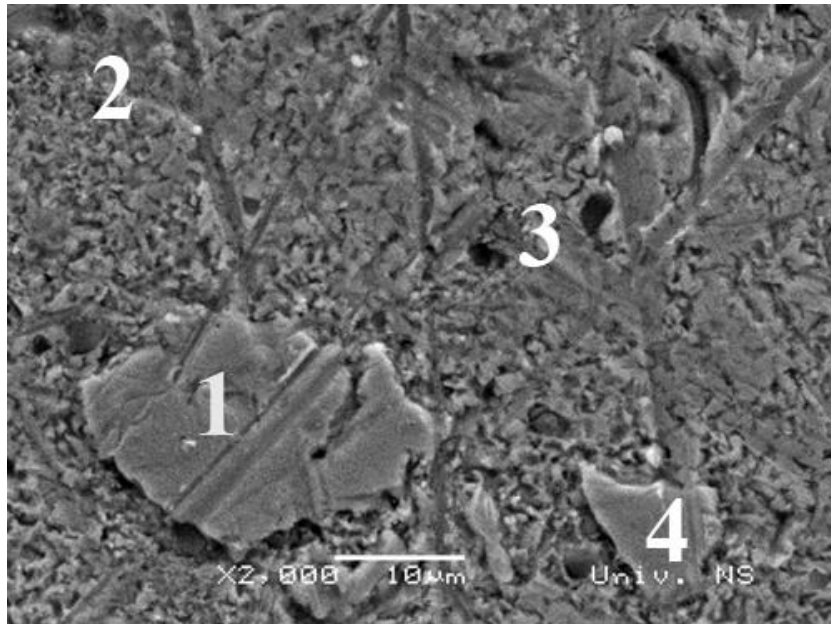


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## RESULTS



Distribution of phases (in wt%) in alloy Sn80In14Ag6 :

1 - 69.58 %Ag;30.42 %In

2 - 14.49 %In;85.51 %Sn

3 - 14.62 %In;85.38 %Sn

4 - 37.37 %Ag;23.04 %In;39.59 %Sn



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## SUMMARY

- Promoting of ecological solders is the purpose of ECOSOLDER project. Bearing in mind that the alloys based on tin, silver and copper are already in use and have a higher melting temperature compared to conventional solders, we considered a possibility of using indium in combination with these elements.



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## SUMMARY

The results of thermal analysis pointed out that the amount of indium has a great influence on thermal characteristics on Sn-In based alloys. This influence is not only reflected at melting point of an alloy or characteristic temperatures, yet the melting area and the occurrence of partial melting of the alloy.



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# Thank you for your attention!



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