

LIST OF PUBLICATION

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Publications in Journals

1. Single-phase diffusion study in β -Zr(Al)
A. Laik, K. Bhanumurthy and G.B. Kale
Journal of Nuclear Materials, **305**, 2002, 124-133.
2. Intermetallics in the Zr-Al diffusion zone
A. Laik, K. Bhanumurthy and G. B. Kale
Intermetallics, **12**, 2004, 69-74.
3. Correlation factors in β -Zr(Al) phase
A. Laik, K. Bhanumurthy and G. B. Kale
Journal of Alloys and Compounds, **372**, 2004, 176-179.
4. Thermodynamic interdiffusion coefficients in ternary systems
G.B. Kale, K. Bhanumurthy, A. Laik, and S.P. Garg
Transactions of the Indian Institute of Metals, **57**, 2004, 35-45.
5. On relating thermodynamic diffusion coefficients with phenomenological coefficients in binary systems
A. Laik and G.B. Kale
Transactions of the Indian Institute of Metals, **58**, 2005, 133-135.
6. Temperature dependence of vacancy wind effect in β -Zr(Al) solid solution
A. Laik, K. Bhanumurthy and G.B. Kale
Journal of Materials Science, **40**, 2005, 2615-2617.
7. Evolution of interfacial microstructure and strength properties in titanium-stainless steel diffusion bonded transition joints
M. Ghosh, A. Laik, K. Bhanumurthy, G. B. Kale, J. Krishnan and S. Chatterjee
Materials Science and Technology, **20**, 2004, 1578-1584.
8. Diffusion processes in β -Zr(Al) phase : a thermodynamic approach
A. Laik, K Bhanumurthy and G. B. Kale
Bulletin of Materials Science, **28**, 2005, 267-273.
9. Microstructure and properties of a Cu-Ti-Co alloy
I. S. Batra, A. Laik, G. B. Kale, G. K. Dey, U. D. Kulkarni
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10. On characterisation of wire-arc-plasma sprayed Ni on alumina substrate
A. Laik, D. P. Chakravarthy and G. B. Kale
Materials Characterization, **55**, 2005, 118-126.

11. Diffusion bonding of commercially pure titanium to 304 stainless steel using copper interlayer
S. Kundu, M. Ghosh, A. Laik, K. Bhanumurthy, G.B. Kale and S. Chatterjee
Materials Science and Engg. A, **407**, 2005, 154-160.
12. Out of pile chemical compatibility of Pb-Bi eutectic alloy with graphite
A. K. Sengupta, R. K. Bhagat, A. Laik, G.B. Kale, T. Jarvis, S. Majumdar and H.S. Kamath
International Journal for Materials Research, **97**, 2006, 834-837.
13. Interdiffusion studies between a Mo-based alloy and Ti
A. Laik, G.B. Kale and K. Bhanumurthy
Metallurgical and Materials Transactions A, **37A**, 2006, 2919-1926.
14. Characteristics of interdiffusion between 17- 4 PH steel and nickel
A. Laik, P. S. Gawde, K. Bhanumurthy, G. B. Kale
Metallurgical and Materials Transactions A, **39A**, 2008, 733-741.
15. Novel method of evaluation of diffusion coefficients in Ti-Zr system
K. Bhanumurthy, A. Laik and G. B. Kale
Defect and Diffusion Forum, 279 (2008) pp. 53-62.
16. Diffusion in Cu(Al) solid solution
A. Laik, K. Bhanumurthy and G. B. Kale
Defect and Diffusion Forum, 279 (2008) pp. 63-69.
17. Diffusion reaction between Zircaloy-2 and Inconel 750X
A. Laik, P.S. Gawde, G. B. Kale and K. Bhanumurthy
Materials Science and Technology (Accepted).
18. Effect of microstructure on mechanical properties of friction-welded joints between Aluminum alloys (6061, 5052) and 304 stainless steel
N. T. Kumbhar, A. Laik, G. K. Dey, K. Bhanumurthy, J. Krishnan, D. J. Derose, R. L. Suthar, I. Samajdar
Ceramic Transactions, 200 (2008) pp. 35-41.

Publications in Proceedings of Conference/Symposium/Seminar

19. Impurity Diffusion of Al in β -Zr
A. Laik, K. Bhanumurthy and G.B. Kale
Editor: P.K. De, *Proceedings of the Symposium Zirconium-2002*, 11-13 September 2002, BARC Mumbai pp. 393-397.
20. Algorithm for predicting diffusion paths in ternary systems
G.B. Kale, K. Bhanumurthy, P.S. Gawde and A. Laik
Editor: P.R. Prasad, *Proceedings of Seminar on Computer Application in Metallurgy*, 21-22 Dec 2002 BIT Sindri pp. 20-25.

21. Solid state bonding of 17-4 PH steel to nickel
G.B. Kale, A. Laik, P.S. Gawde and K. Bhanumurthy
Proceedings of TRANSMAT EXPO 2004, Intl. Conf. On Advancements in Materials & Processes for the Transportation Sector, 8-10 Nov 2004, Mumbai.
22. Development of Ti-Al₂O₃ joints for application in linear accelerator tube assemblies
A. Laik, K. Bhanumurthy, A. L. Papachan, S.N.Athavle, A.K. Grover, G.B. Kale
Editor: V.S. Pandit, *Proceedings of Indian Particle Accelerator Conference (InPAC-2005)*, VECC, Kolkata, 1-5 March 2005. pp. 494-495.
23. Metallurgical investigation of aluminium clad of Dhruva reactor
A. Laik and G. B. Kale
Proc. of Theme Meeting on 'High Burnup Issues in Nuclear Fuel' (HBINF), Mumbai, Oct 2005, p. 111 -113.
24. Diffusion studies in Nb-Al system
A. Laik, K. Bhanumurthy, G.B. Kale
Proceedings of International Conference on Materials Chemistry (ISMC-06), Mumbai, 4-8 December 2006, pp. 129-131.
25. Friction stir welding of 6061 Al alloy and optimization of the process parameters
N. T. Kumbhar, K. Bhanumurthy, A. Laik, B. P. Sharma, R. L. Suthar, J. Krishnan, S. Guha, T. L. G. Kutty, S. B. Jawale
Proceedings of National Welding Seminar-2006, Chennai, 24-26 Nov 2006 , pp. 65-70.
26. Interaction of D-9 cladding with static sodium
K. Ravi, A.K. Sengupta, A. Laik, G.B Kale, J. Banerjee and H.S. Kamath
Proc. of the Sixteenth National Symposium on Thermal Analysis (THERMANS-2008), IGCAR, Kalpakkam, 4-6 February 2008.
27. *Proceedings of International Workshop on Hydrogen Embrittlement in Metals (HEM08)*
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Editors : J. K. Chakravartty, R.N. Singh, A. Laik, K. V. Manikrishna
28. Effect of microstructure on mechanical properties of friction-welded joints between aluminum alloys (6061, 5052) and 304 Stainless Steel
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Proc. of the 15th International Conference on the Textures of Materials (ICOTOM), Pittsburgh, Pennsylvania, USA, 1-6 June, 2008.
29. Interface reactions between alumina and stainless steel with Cu-Ti alloy interlayer
A. Laik, K. Bhanumurthy, G.B. Kale, B.P. Kashyap
Eds. Meenakshi Sunder, A. K. Rajarajan, G.P. Kothiyal
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30. Diffusion reaction of Zr-1Nb with Si-Al-Ni (silumin) alloy
K. Bhanumurthy, G. B. Kale, P. S. Gawde, A. Laik, R.P.Singh and S. Banerjee
BARC Report No. BARC/2003/R/005.
31. 1S Aluminium Tube for Fuel Cladding of Research Reactors - Correlation Between Conductivity and Impurity Element Particles (FeAl₃) Distribution
P.K. De, A. Laik, G.B. Kale, I.S. Batra, R. Kumar and R.P. Singh
BARC Internal Report No. BARC/2003/I/017.
32. Interaction of lead-bismuth liquid alloy with graphite
R. K. Bhagat, A. Laik, A.K. Sengupta, G.B. Kale, V.D. Pandey, S. Majumdar and H.S.Kamath
BARC External Report No. BARC/2005/E/009.
33. Compatibility of different stainless steels in molten Pb-Bi eutectic at high temperatures
K. Chandra, V. Kain, A. Laik, B. P. Sharma, S. Bhattacharya and A. K. Debnath
BARC External Report No. BARC/2005/E/027.

Papers Presented

34. Thermodynamic Interdiffusion Coefficients in Ternary Systems
G. B. Kale, K. Bhanumurthy, A. Laik, P.S. Gawde and S.P.Garg
Presented in the *14th AGM, Materials Research Society of India*, BARC, Mumbai, 11-13 Feb 2003.
35. Metallurgical investigation on wire-arc-plasma sprayed Ni on alumina
A. Laik, D.P. Chakravarthy, G.B. Kale
Presented in the *18th National Symposium on Plasma Science and Technology, PLASMA-2003*, Birla Institute of Technology, Mesra, Ranchi, 08-11 December 2003.
36. Diffusion bonding of titanium and stainless steel using electrodeposited iron as an intermediate layer
P. Sengupta, A. Laik, A. L. Pappachan, A. K. Grover, G. B. Kale, and K. Bhanumurthy
Presented in *Theme Meeting on Zirconium and Titanium Alloys*, BARC, Mumbai, Dec. 2003.
37. Interdiffusion Between Silver and Stainless Steel 304
A. Laik, P. S. Gawde, K. Bhanumurthy and G. B. Kale
Presented in the symposium *Physical Metallurgy- Research, Techniques and Applications*, PMRTA-2004, BARC, Mumbai, 2-3 December 2004.
38. Fabrication of reflector modules for atomic research by electron beam welding
T. K. Saha, A. Laik, K. Bhanumurthy and A. K. Sinha
Presented in the *Indian Institute of Welding International Congress 2005*, Nehru Centre, Mumbai, 16-19 Feb 2005.
39. Solid state diffusion study between TZM (Mo-0.5Ti-0.1Zr) and Titanium
A. Laik, G.B. Kale and K. Bhanumurthy

Presented in *59th Annual Technical Meeting of Indian Institute of Metals*, Chennai, 14-16, November 2005.

40. Microstructural assessment of aluminium clad through resistivity measurement
A. Laik, I.S. Batra and G.B. Kale
Presented in *International Conference on Characterisation and Quality Control of Nuclear Fuels (CQCNF-2005)*, Hyderabad, 9-11 November, 2005.
41. Interfacial structures and diffusion studies in solid state bonded TZM (Mo-0.5Ti-0.1Zr) specimens using multilayers
K. Nitin, A. Laik, R.K. Fotedar and K. Bhanumurthy
Presented in *Seminar on Advances in Metallography and Microstructure (Microstructure2005)* BARC, Mumbai, 1-2 December 2005.
42. Interfacial Microstructure and properties of Al/stainless steel, Cu/stainless steel Friction welded components
J. Krishnan, D. Joyson, R.K. Panigrahi, K. Nitin, A. Laik, and K. Bhanumurthy
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43. Solid state diffusion reaction in the Zr-Al system
A. Laik, K. Bhanumurthy, G.B. Kale
Presented in the *International Conference of Advances in Nuclear Materials*, BARC, Mumbai, 12-16 December 2006.
44. Diffusion in Cu(Al) solid solution
A. Laik, Preethi Natarajan, K. Bhanumurthy, G. B. Kale
Presented in *61st Annual Technical Meeting of Indian Institute of Metals*, Nehru Centre, Mumbai, 13-16, November 2007, pp. 319.
45. Interdiffusion studies in Ti-Ag system
P. S. Gawde, A. Laik and G. B. Kale
Presented in *61st Annual Technical Meeting of Indian Institute of Metals*, Nehru Centre, Mumbai, 13-16, November 2007, pp. 569.
46. Development of perforated plate matrix heat exchanger by solid state joining process
P. G. Adiga, A. Laik, K. Bhanumurthy, A. L. Pappachan, J. Varshney, J. Krishnan, D. Joyson, R. L. Suthar, M. Goyal, Trilok Singh
Presented in *61st Annual Technical Meeting of Indian Institute of Metals*, Nehru Centre, Mumbai, 13-16, November 2007, pp. 204.
47. Interdiffusion in the Cu-Ti system
A. Laik, K. Bhanumurthy, G.B. Kale and B.P. Kashyap
Presented in *National Symposium for Materials Research Scholars (MR-08)*, IIT-Bombay, Mumbai, 17-18, May 2008.