

Annexure 2 : Publications

Books

1. Three Phase Catalytic Reactors.
P.A. Ramachandran and **R. V. Chaudhari**
Gordon Breach Science Publishers, New York, 1983
2. High Pressure Technology Engineering.
R. V. Chaudhari and H. Hofmann
Proceedings of Indo- German Workshop held at NCL, Pune (India), 1992,
KFA JULICH, Germany, 1993

Reviews/Chapters in Books

3. Three Phase Slurry Reactors.
R. V. Chaudhari and P.A. Ramachandran
AIChE J. (1980), **26** 177
4. Predicting Performance of Three Phase Catalytic Reactors.
P.A. Ramachandran and **R. V. Chaudhari**
Chemical Engineering (McGraw Hill), (Dec. 1980), **74**
5. Analysis And Design of Three Phase Catalytic Reactors
P. A. Ramachandran and **R. V. Chaudhari**
“**Recent Advances In The Engineering Analysis of Chemically Reacting Systems**”,
Wiley Eastern, New Delhi, (1984) **396**
6. Recent Advances in Slurry Reactors.
R. V. Chaudhari and Y.T. Shah
“**Concepts and Design of Chemical Reactors**”
Ed. By S. Whitaker and A. Cassano. Gordon Breach Science Publishers, New York,
(1986), **243**
7. Novel Gas-Liquid-Solid Catalytic Reactors.
R. V. Chaudhari, Y.T. Shah and N.R. Foster
Cat. Rev. Sci. & Eng., (1986), **28** 431
8. Multiphase Reaction Engineering for Fine Chemicals And Pharmaceuticals.
P.L.Mills, P.A. Ramchandran and **R. V. Chaudhari**
Rev. Chem. Eng., (1992), **8** 1-176
9. Mass transfer in trickle bed reactors
R. V. Chaudhari and P.A. Ramachandran
Heat & Mass Transfer in porous Media (Eng).
Edited by Q. Michel; A. Marija S. Elsevier (Amsterdam), Netherlands, (1993) p.633
10. Reactors, three phase slurry.
R. V. Chaudhari and P.A. Ramachandran
In “**Encyclopedia of Chemical Processing and design**”,
Ed. J. J. McKetta, Wiley Inc. N. Y., (1994), **49** 408
11. Coalescence of gas bubbles in liquids.
R. V. Chaudhari and H. Hofmann.
Rev. Chem. Eng., (1994), **10**, 131
12. Multiphase Reactor Engineering and Design for pharmaceuticals and fine chemicals
P. L. Mills and **R. V. Chaudhari**
Catalysis Today, (1997), **37** 367.
13. Kinetics of Hydroformylation Of Olefins Using Water Soluble Catalysis.
R. V. Chaudhari and B.M. Bhanage
Chapter in a book entitled “**Aqueous Phase Organometallic Catalysis Concepts and Applications**”
Edited by B. Cornils and W.A. Herrmann, VCH Publications, I edition 1998, 283.
14. Reaction engineering of emerging oxidation processes.
P. L. Mills and **R. V. Chaudhari**
Catalysis Today, (1999), **48**, 17

15. Multiphase Reactors for Fine Chemicals and Pharmaceuticals.
R. V. Chaudhari and P. L. Mills
La Chimica e l'Industria, (2000), **82**, 539-548
(**RICHMAG** Magazine – Giugno 2000)
16. Carbonylation and Amidation Technologies: Global State of the Art
R. V. Chaudhari
Chapter in a book entitled –“Catalysis for Cleaner Industrial Technologies”
Edited by S. Miertus and S. Trifiro, UNIDO Publications, Trieste, Italy (2001), 195-220
17. Kinetics of Catalytic Reactions
R. V. Chaudhari
Chapter in a book entitled “Catalysis—Principles and Applications” Edited by B. Vishwanathan et al., Narsova Publishing House, New Delhi, (2002), 184-205
18. Kinetics of Hydroformylation
R. V. Chaudhari and B.M. Bhanage
Chapter in a book entitled “**Aqueous Phase Organo Metallic Catalysis Concepts and Applications**”
Edited by B. Cornils and W.A. Herrmann, VCH Publications, II edition 2003.
19. Multiphase Catalysis and Reaction Engineering of Emerging Pharmaceutical Processes.
R. V. Chaudhari and P. L. Mills
Chem. Eng. Sci., (2004), **59(22-23)**, 5337-5344
20. Current Status and Emerging Trends in Indian Pharmaceutical Industries
R. V. Chaudhari and Y. L. Borole
PharmaChem, (2004) 4-8.
21. Kinetics of Hydroformylation
R. V. Chaudhari
A Chapter in a book “**Multiphase Homogeneous Catalysis**” Ed B. Cornils, Wiley-VCH Verlag, Germany, (2005), 1 152-163
22. CO Insertion Reactions using Homogeneous & Heterogeneous Catalysts
B. R. Sarkar and **R. V. Chaudhari**
Catalysis Surveys (2005),9 (3) 193-205

Papers in Refereed Journals

Multiphase Reactions and Reactors

(1) Kinetic Modeling

1. Biphasic Hydroformylation of 1,4-diacetoxy-2-butene: A kinetic study
R. Chansarkar, A. A. Kelkar and R. V. Chaudhari
Ind. Eng. Chem. Research (2007) in press
2. Kinetics of Reductive Alkylation of *p*-Phenylenediamine with Methyl Ethyl Ketone Using 3% Pt/Al₂O₃ Catalyst in a Slurry Reactor
N G Patil, D Roy, A S Chaudhari and **R V. Chaudhari**
Ind. Eng. Chem. Research (2007) 46 (10) 3243-3254 *Special issue in honor of 70th birthday of Prof M M Sharma*
3. Kinetics of Vinylation of 4'-Bromo acetophenone with n-Butyl acrylate using Palladacycle Catalyst
A Sud, R M Deshpande and **R V Chaudhari**
J. Mol. Catalysis, (2007) 270, 144-152
4. Analysis of a gas-liquid-liquid-solid reaction: kinetics and semi-batch slurry reactor modeling.
D. Roy and **R. V. Chaudhari**
Ind. Eng. Chem. Res., (2005) **44** (25) 9586-9596
5. Kinetic Modeling of Reductive Alkylation of Aniline with Acetone Using Pd/Al₂O₃ Catalyst in a Batch Slurry Reactor
D. Roy, R. Jaganathan and **R. V. Chaudhari**
Ind. Eng. Chem. Res., (2005), **44**, 5388-5396

(Special issue in honor of Professor Mike Dudukovic)

6. Hydroformylation of 1-hexene using Rh-TPPTS complex exchanged on anion exchange resin: Kinetic Studies
M. M. Diwakar, R. M. Deshpande and **R. V. Chaudhari**
J. Mol. Catal., (2005), **232(1-2)**, 179-186
7. Reaction Kinetics of selective liquid phase hydrogenation of styrene oxide to phenethyl alcohol
C. V. Rode, M. M. Telkar, R. Jaganathan and **R. V. Chaudhari**
J. Mol Catal., A: Chemical, (2003), **200**, 279-290
8. Reaction kinetics studies on dehydration of 1,4-butanediol using cation exchange resin.
S. H. Vaidya, V. M. Bhandari, **R. V. Chaudhari**
App. Catal., A: General, (2003), **242**, 321-328
9. Kinetic Modeling of Carbonylation of 1-(4-Isobutylphenyl) Ethanol using a homogeneous PdCl₂(PPh₃)₂/TsOH/LiCl Catalyst System
M. Seayad, J. Seayad, P. L. Mills and **R. V. Chaudhari**
Ind. Eng. Chem. Res., (2003), **42**, 2496-2506
(A Special issue in honour of **Professor Octave Levenspiel**)
10. Kinetics of Hydrogenation of Maleic Acid in a Batch Slurry Reactor using a bimetallic Ru-Re Supported Catalyst
R. V. Chaudhari, C. V. Rode, R. M. Deshpande, R. Jaganathan, P. L. Mills and T. M. Lieb
Chem. Eng. Sci., (2003) **58(3-6)**, 627-632
11. Selective hydrogenation of 2-butyne-1,4-diol to 2-butene-1,4-diol: Role of ammonia, catalyst pretreatment and kinetic studies.
M. M. Telkar, C. V. Rode, R. Jaganathan, V. H. Rane and **R. V. Chaudhari**
App. Catal. A: General, (2001), **216**, 13
12. Kinetic modeling of Co-polymerization of ethylene with carbon monoxide using Pd complex catalyst.
L. Toniolo, S. M. Kulkarni, D. Fatutto and **R. V. Chaudhari**
Ind. Eng. Chem. Res., (2001), **40** (9), 2037-2045
13. Hydrocarboxylation of Methyl Acetate using a Homogeneous Rh (Co)Cl(PPh₃)₂ Complex as a Catalyst Precursor: Kinetic Modeling.
A. Kelkar, R. Jaganathan and **R. V. Chaudhari**
Ind. Eng. Chem. Res., (2001), **40**, 1608-1614
14. Hydrogenation of nitrobenzene to p-Aminophenol in a four phase reactor: Reaction kinetics and mass transfer effects.
C. V. Rode, M. J. Vaidya, R. Jaganathan and **R. V. Chaudhari**
Chem. Eng. Sci., (2001), **56** (4), 1299-1304
15. Hydrogenation of *p*-isobutyl acetophenone using a Ru/Al₂O₃ catalyst: reaction kinetics and modeling of a semi-batch slurry reactor.
S. P. Mathew, M. V. Rajasekharam, **R. V. Chaudhari**
Catalysis Today, (1999), **49**, 49-56
16. Kinetics of hydroformylation of styrene using homogeneous rhodium complex catalyst.
V. S. Nair, S. P. Mathew and **R. V. Chaudhari**
J. Mol. Catal. A: Chemical, (1999), **143**, 99
17. Hydrogenation of 2,4-Dinitrotoluene using a supported Ni catalyst: Reaction kinetics and semi-batch reactor modeling.
M. V. Rajashekharan and **R. V. Chaudhari**
Ind. Eng. Chem. Res., (1999), **38**, 906
18. Mass transfer effects in hydroformylation catalyzed by a water-soluble complex.
Lekhal, A. M. Wilhelm, H. Delmas and **R. V. Chaudhari**
Catalysis Today, (1999), **48**, 265
19. Hydrogenation of acetophenone using a 10% Ni supported on Zeolite-Y catalyst: Kinetics and Reaction Mechanism.
M. V. Rajashekharan, **R. V. Chaudhari**, P. Fouilloux, D. Schweich, I. Bergault and H. Delmas
Catalysis Today, (1999), **48**, 83
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- catalyst precursor: rate equation.
D. Fatutto, L. Toniolo and **R. V. Chaudhari**
Catalysis Today, (1999), **48**, 49
21. Kinetics in biphasic catalysis using ethylene glycol as co-solvent in hydroformylation of 1-Hexene.
V. S. Nair, B. M. Bhanage, R. M. Deshpande and **R. V. Chaudhari**
Studies in Surface Science and Catalysis, (1998), **113**, 529
22. Hydrogenation of crotonaldehyde to n-butyraldehyde: Reaction Kinetics in a slurry reactor.
C. V. Rode, R. Jagannathan, S. T. Chaudhari and **R. V. Chaudhari**
Studies in Surface Science and Catalysis, (1998), **113**, 851
23. Kinetics of carboxylation of styrene using a homogeneous Pd complex catalyst.
A.M. Seayad, A. A. Kelkar, L. Toniolo and **R. V. Chaudhari**
Ind. Eng. Chem. Res., (1998), **37**, 2180
24. Kinetics of hydroformylation of ethylene: Comparison in homogeneous and biphasic systems.
R. M. Deshpande, B. M. Bhanage, S. S. Divekar, S. Kanagasabapathy and **R. V. Chaudhari**
Ind. & Eng. Chem. Res., (1998), **37**, 2391
25. Hydrogenation of 2,4 Dinitrotoluene using a Pd/Al₂O₃ catalyst in a slurry reactor: A molecular level approach to kinetic modeling and non-isothermal effects.
M. V. Rajashekharam, D. D. Nikaljee, R. Jaganathan and **R. V. Chaudhari**
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26. Kinetics of hydroformylation of 1-dodecene using homogeneous HRh(CO)(PPh₃)₃ catalyst.
B. M. Bhanage, S. S. Divekar, R. M. Deshpande and **R. V. Chaudhari**
J. Mol. Catal., (1997), **115**, 247
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Benaissa, G. C. Le Roux, X. Joulia, **R. V. Chaudhari** and H. Delmas
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28. Kinetics of hydroformylation of 1-octene in biphasic system using [Rh(COD)Cl₂] –TPPTS catalyst in the presence of cosolvent.
R. M. Deshpande, Purwanto, H. Delmas and **R. V. Chaudhari**
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M. V. Rajashekharam and **R. V. Chaudhari**
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30. Kinetics and mechanism of carbonylation of allyl chloride using Pd catalyst: A case of gas-liquid-liquid-solid catalytic reaction.
S. P. Gupte, V. P. Krishnamurthy and **R. V. Chaudhari**
Chem. Eng. Sci., (1996), **51**, 2069
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A. A. Kelkar, R. S. Ubale, R. M. Deshpande and **R. V. Chaudhari**
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32. Hydrogenation of m-nitro chlorobenzene to m-chloro aniline: Reaction Kinetics and modeling of a non-isothermal slurry reactor.
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R. M. Deshpande, S. S. Divekar, B. M. Bhanage and **R. V. Chaudhari**
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35. Kinetic modeling of oxidative carbonylation of aniline over Pd/C-NaI catalyst.
S. P. Gupte and **R. V. Chaudhari**

- Ind. Eng. Chem. Res.**, (1992), 31, 2069
36. Carbonylation of ethanol using homogeneous Iridium-complex catalyst: A kinetic study.
R. P. Patil, A. A. Kelkar and **R. V. Chaudhari**
J. Mol. Catal., (1992), **72**, 153
37. Critical Oxygen Concentration in Liquid phase catalytic oxidation reactions: Application to Wacker Process.
R. V. Chaudhari and A. Bhattacharya
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38. New trends in rate behaviour of carbonylation of methanol.
S.B. Dake, R. Jaganathan and **R. V. Chaudhari**
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39. Hydroformylation of vinyl acetate using $\text{HRh}(\text{CO})(\text{PPh}_3)_3$ Catalyst: A kinetic study.
R.M. Deshpande and **R. V. Chaudhari**
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R.M. Deshpande and **R. V. Chaudhari**
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41. Liquid phase catalytic oxidation of n-butenes to methyl ethyl ketone: A kinetic study.
G. S. Grover and **R. V. Chaudhari**
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S. B. Dake, R. V. Gholap and **R. V. Chaudhari**
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R. V. Chaudhari, R. Jaganathan, D. S. Kolhe, G. Emig and H. Hofmann.
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R. V. Chaudhari, R. Jaganathan, D. S. Kolhe, G. Emig and H. Hofmann
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46. Kinetics of alkali-cellulose reaction under conditions of ethyl cellulose manufacture
Chakraborti, P. B. Navle and **R. V. Chaudhari**
Ind. J. Tech., (1986), **24**, 256
47. Kinetics of oxidation of ethylene to vinyl acetate using homogeneous Pd complex catalyst.
G. S. Grover and **R. V. Chaudhari**
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S. B. Halligudi, **R. V. Chaudhari** and L. K. Doraiswamy
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53. Kinetics of methanol carbonylation using homogeneous Rh complex catalyst: Role of solvent.
S. B. Dake and **R. V. Chaudhari**
J. Mol. Catal., (1984), **26**, 135
54. Carbonylation of ethanol using homogeneous Rh complex catalyst: A kinetic study.
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S. S. Kale, **R. V. Chaudhari** And P.A. Ramachandran
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(2) *Modeling of Reactions and Reactors*

60. Hydrodynamics of trickle bed reactors: experiments and CFD modeling
P. R. Gunjal, M. N. Kashid, V. V. Ranade and **R. V. Chaudhari**
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61. Computational study of single-phase flow in packed bed of spheres
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AIChE. J., (2005), **51(2)**, 368-378.
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P. R. Gunjal, V. V. Ranade and **R. V. Chaudhari**
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66. Catalytic Hydrogenation of 1,5,9-Cyclododecatriene in Three-Phase Fixed Bed Reactors under Non-Isothermal Conditions: Comparison of Reactor Performance for Down-flow and Up-flow Modes.
R. V. Chaudhari, R. Jaganathan, S. P. Mathew, C. Julcour and H. Delmas,
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67. Dynamic modeling of three-phase upflow fixed-bed reactor including pore diffusion
C. Julcour, **R. V. Chaudhari**, J. M. Le Lann, A. M. Wilhelm, H. Delmas
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R.V. Chaudhari, R. Jaganathan, S. H. Vaidya, S. T. Naik and C. V. Rode
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M. V. Rajashekharam, R. Jaganathan and **R. V. Chaudhari**
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Purwanto, R.M. Deshpande, H. Delmas and **R. V. Chaudhari**
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