



JOERG GUTZEIT PROCESS CORROSION CONSULTANT

SUMMARY

Joerg Gutzeit is an internationally recognized corrosion consultant. He is well respected World-wide by the refining industry. He consults to the industry after many years of industrial employment, interspersing his work with publications and presentations.

WORK HISTORY

Since 1993 Process Corrosion Consultants

(An Independent Corrosion Consultancy specializing in process corrosion control for refineries and petrochemical plants)
Naperville, IL and Gulf Breeze, FL

Past clients include various sites within Amoco/BP, Chevron, Clark/Premcor, Conoco, Koch/Flint Hills Resources, Lyondell, Marathon, Northern Tier Energy (St. Paul Park Refining), Tosco/Phillips, Unoven, Shell Canada, Irving Oil (Canada), Husky Oil (Canada), Suncor Energy (Canada), PdVSA (Venezuela), Fluor-Daniels, Tesoro (Shell), YUKONG (Korea), and Repsol-YPF (Argentina)

Principal technical consultant

- Specified metallurgy and identified potential corrosion problems for all major process units in refineries and bitumen upgraders including atmospheric and vacuum distillation units; FCCU light ends units; cokers; naphtha, kerosene, diesel, and gas oil hydrotreaters; hydrocrackers; hydrogen plants; sour water strippers; amine plants; and Claus sulfur plants
- Specified corrosion monitoring methods and locations for process units
- Recommended equipment and process changes to minimize past corrosion problems
- Evaluated current metallurgy, operating conditions, and risk levels. Proposed options for reducing various risks (RBIM). Recommended measures for reducing economic risks to acceptable levels. Specified IOW, AOL, and SOL variables
- Audited desalter operations and injection programs for caustic, corrosion inhibitors, and neutralizers in refineries
- In connection with RBIM, prepared Level 2 and 2.5 corrosion control manuals for major process units in refineries and bitumen upgraders
- Presented and/or participated in on/off site corrosion training seminars (see separate listing below)
- Provided legal depositions and expert testimony

1971-1993 **Standard Oil (Indiana) / Amoco Corporation, Engineering Services
And Research Division**

Whiting, IN and Naperville, IL

Various technical and supervisory positions including Supervisor of Corrosion Group and Sr. Engineering Associate

- Corporate corrosion consultant for Amoco's worldwide refineries and petrochemical plants
- Analyzed corrosion and metallurgical issues in sulfuric acid alkylation units; atmospheric and vacuum distillation units; FCCU light ends units; cokers; naphtha, kerosene, diesel, and gas oil hydrotreaters; hydrocrackers; sour water strippers; amine units; and Claus sulfur plants
- Analyzed corrosion and metallurgical issues in BF alkylation units; ethylene units; maleic anhydride (MAN) units; terephthalic acid (TA) oxidation units; and purified terephthalic acid (PTA) units
- Analyzed amine corrosion and cracking issues in sour gas treating plants
- Carried out applied research in naphthenic acid corrosion, sour water corrosion, hydrogen blistering, sulfidic corrosion, amine corrosion and cracking, and zinc embrittlement of stainless steel
- Evaluated organic corrosion inhibitors and neutralizers; reviewed many process additive proposals at the request of Amoco refineries.
- Specified cleaning procedures for process equipment and piping
- Prepared and presented corrosion and metallurgy courses at Amoco's School of Engineering Technology (SET)
- Authored corporate corrosion manuals and process additives guidelines

1962-1970 **Atlantic Refining Company / ARCO, Engineering Research Division**
Philadelphia, PA

Project Corrosion Engineer and corporate corrosion consultant for ARCO's refineries and petrochemical plants

- Analyzed corrosion and metallurgical issues in refineries, including sulfuric acid alkylation units; atmospheric and vacuum distillation units; FCCU light ends units; sour water strippers; amine units; and Claus sulfur recovery units
- Evaluated and recommended materials of construction for ARC's petrochemical plants
- Carried out applied research in crude unit overhead corrosion; hydrogen blistering in FCCU sour waters; high temperature hydrogen attack; cooling water corrosion problems; and anodic / cathodic protection of stainless steel storage tanks
- Evaluated organic corrosion inhibitors and neutralizers for ARCO's refineries.
- Evaluated organic coatings for marine and onsite crude storage tanks

FORMAL EDUCATION:

- B.S. Degree in Chemical Engineering, 1960, Drexel University, Philadelphia
- M.S. Degree in Chemical Engineering, 1967, Drexel University, Philadelphia

PUBLICATIONS:

BOOKS AND BOOK CHAPTERS

1. "Case Histories" - Pages 191-201 in Corrosion Prevention for Practicing Engineers by J. F. Bosich, Barnes & Noble, Inc., New York, 1970
2. "Refinery Metallurgy for Novices" - Chapter in Trouble Shooting Refinery Processes by N. B. Lieberman, PennWell Publishing Co., Tulsa, 1981
3. "Refinery Corrosion Overview" - Chapter in Process Industries Corrosion - The Theory and Practice by B. J. Moniz and W. I. Pollock, Eds., NACE Houston, 1986.
4. "High Temperature Sulfidic Corrosion of Steels" - Chapter in Process Industries Corrosion - The Theory and Practice by B. J. Moniz and W. I. Pollock, Eds., NACE, Houston, 1986
5. "Corrosion in Petroleum Refining and Petrochemical Operations" (with R. D. Merrick and L. R. Scharfstein) - Chapter in Metals Handbook (Ninth Edition), Volume 13 Corrosion, ASM International, Metals Park, Ohio, 1987
6. "Corrosion Inhibitors for Petroleum Refining and Petrochemical Operations" (with J. M. Johnson) - Chapter in Reviews on Corrosion Inhibitor Science and Technology by A. Raman and P. Labine, Eds., NACE, Houston, 1993
7. "Corrosion in the Petrochemical Industry" (with R. D. Merrick and L. R. Scharfstein) - Chapter in ASM Monograph, ASM International, Metals Park, Ohio, 1994
8. Cleaning of Process Equipment and Piping - A Complete How-To Manual, MTI Publication No. 51, Materials Technology Institute of the Chemical Process Industries, St.Louis, Missouri, 1997
9. Crude Unit Corrosion Guide – A Complete How-To Manual, Process Corrosion Consultants, Gulf Breeze, FL, 2005

PRESENTATIONS AND JOURNAL ARTICLES

1. "Corrosion and Fouling of Admiralty, Aluminum and Steel Tubes in Open Recirculating Cooling Water Systems" - Paper presented at NACE N.E. Region Conference, Philadelphia, 1964. Published in Materials Protection, 4, 28 - 34, 1965 (July)
2. "Theoretical Basis of Potentiostatic Measurement" - Paper presented at 3rd Annual Liberty Bell Corrosion Course, Philadelphia, 1965. Published in Course Proceedings
3. "Effect of Moisture on Decarburization and Fissuring of Steel by Hydrogen at Elevated Temperatures and Pressure" (with J. R. Thygeson, Jr.) - Published in Corrosion , 23, 318 - 325, 1967 (October)
4. "Corrosion of Steel by Sulfides and Cyanides in Refinery Condensate Water" - Published in Materials Protection, 7, 17 - 23, 1968 (December)
5. "Evaluating Refinery Process Side Corrosion Inhibitors" (with C. A. Samans and F. B. Bulls) - Paper presented at NACE N.C. Region Conference, Chicago, 1972. Published in Materials Protection and Performance, 12, 12-16, 1973 (July)
6. "Naphthenic Acid Corrosion in Oil Refineries" - Paper presented at NACE Annual Conference CORROSION/76, Houston. Published in Materials Performance, 16, 24 - 35, 1977 (October)
7. "Studies Shed Light on Naphthenic Acid Corrosion" - Published in Oil and Gas Journal, 74, 156-160, 1976 (April 5)
8. "Caustic Corrosion in Waste-Heat Steam Generators" - Paper presented at NACE Annual Conference CORROSION/78, Houston
9. "Use of Titanium Heat Exchanger Tubing in Refinery Service" - Paper presented at meeting of NACE T8-2 Task Group on Refinery Corrosion, Naperville, IL, 1979
10. "Computer Processing of Refinery Corrosion Inspection Data" - Paper presented at 45th Midyear Meeting of the API Division of Refining, Houston, 1980.
11. "MTI Occluded-Cell Corrosion Probe" - Paper presented at MTI Planning and Technical Meeting, London, 1982. Published in MTI Proceedings, 1982

12. "Zinc Embrittlement of Stainless Steel Welds" (with J. M. Johnson and M. R. Berry) - Paper presented at 1982 ASM Metals Congress/TMS-AIME Fall Meeting, St. Louis 1982. Published in Embrittlement by Liquid and Solid Metal, M. H. Kamdar, Ed., Metallurgical Society of AIME, Warrendale, Pa. 1984.
13. "Embrittlement of Stainless Steel Welds by Contamination with Zinc-Rich Paint" (with J. M. Johnson) Paper presented at 49th Midyear Meeting of the API Division of Refining, New Orleans, 1984. Published in Proc. API 63W, 65-72, 1984
14. "Corrosion and Cracking in Amine Plants" - Paper presented at State-of-the-Art Session on Corrosion and Cracking in Amine Plants, NACE Fall Committee Week, Denver, 1984
15. "Monitoring Crevice Corrosion in the Field" - Paper presented at the Dechema / MTI Workshop on Present and Future Trends in the Chemical Process Industries - Implications for Materials Engineers, Frankfurt/Germany, June 10, 1985. Published in MTI Proceedings, 1985
16. "Stress - Corrosion Cracking of Carbon Steel Welds in Amine Service" (with J. M. Johnson) – Paper presented at NACE Annual Conference CORROSION/86, Houston. Published in Materials Performance, 25, 18-26, 1986 (July)
17. "Hydrogen Blistering and Cracking Mechanisms" - Paper presented at State-of-the-Art Session on Wet H₂S Cracking, NACE Fall Committee Week, Atlanta, 1986
18. "Refinery Corrosion" - Paper presented at the NACE International Process Industries Corrosion Seminar, New Orleans, 1986
19. "Selection of Steels and Alloys for High Temperature Service" - Paper presented at the NACE International Process Industries Corrosion Seminar, New Orleans, 1986
20. "Refinery Corrosion Control" - Paper presented at NACE Houston Section Meeting, April 1988
21. "Corrosion Inhibitors for Petroleum Refining and Petrochemical Operations" (with J. M. Johnson) - Paper presented at NACE Annual Conference CORROSION/89, Houston,
22. "Control of Sour Water Corrosion" - Paper presented at NACE N.E. Regional Conference, Baltimore, 1989

23. "Refinery Process Additives - A User's Viewpoint" - Paper presented at NACE Annual Conference CORROSION/89, Houston, 1989. Published in Materials Performance, 29, 71-74, 1990 (February)
24. "Cracking of Carbon Steel Components in Amine Service" - Paper presented at NACE Western Canada Region Meeting, Calgary, Alberta, 1986 - Published in Materials Performance 29, 54-57, 1990 (September)
25. "Effect of H₂S on Crude Tower Overhead Corrosion" - Paper presented at State-of-the-Art Session on Effect of Crude Slate on Crude Unit Corrosion, NACE Fall Committee Week, Charlotte, N.C., 1991
26. "Simplified Method for Crude Corrosivity Prediction" - Paper presented at State-of-the-Art Session on Effect of Crude Slate on Crude Unit Corrosion, NACE Fall Committee Week, Charlotte, N.C., 1991
27. "Process Changes for Reducing Pressure Vessel Cracking Caused by Aqueous Sulfide Corrosion" - Plenary Lecture at NACE Annual Conference CORROSION/92, Nashville. Published in Materials Performance, 31, 60-63, 1992 (May)
28. "Corrosion Problems in Amine Units (Overview)" - Paper presented at State-of-the-Art Session on Amine Unit Corrosion, NACE Fall Committee Week, Calgary, Alberta, 1992
29. "Naphthenic Acid Corrosion - An Old Enemy of the Refining Industry" - Paper presented at IV (2) Autumn Meeting of the API Division of Refining, Houston, 1992
30. "Corrosion Inhibitor Can Cause Corrosion" Published in Materials Performance, 32, 64-65, 1993 (July)
31. "External Heat Loss Causes Internal Vessel Corrosion" - Published in Materials Performance, 33, 70-71, 1994 (March)
32. "Problems with Injection Facilities for Process Additives and Wash Water" - Paper presented at NACE Annual Conference CORROSION/96, Denver, 1996
33. "Catalytic Cracking Light-Ends Recovery Units - Corrosion and Corrosion Control" (with A. C. Gysbers) - Paper presented by Gysbers at NACE Conference on Corrosion in the Oil Refining Industry, Houston, 1996
34. "Sulfuric Acid Alkylation" (with J. E. Feather) - Paper presented by Feather at NACE Conference on Corrosion in the Oil Refining Industry, Houston, 1996

35. "Corrosion and Other Failures" (with L. C. Kaley and R. M. Stellina) - Paper presented by Kaley at NACE Conference on Corrosion in the Oil Refining Industry, Houston, 1996
36. "Effect of Organic Chloride Contamination of Crude Oil on Refinery Corrosion" – Paper presented at NACE Annual Conference CORROSION/2000, Orlando, 2000
37. "Caustic Injection Revisited – An Old Method for Controlling Crude Tower Overhead Corrosion" Published in Materials Performance, 39, 70-72, 2000 (August)
38. "Controlling Crude Unit Overhead Corrosion –Rules of Thumb for Better Crude Desalting - Paper No. 07567 presented at NACE Annual Conference CORROSION/2007, Nashville, 2007

CORROSION SEMINARS/WORKSHOPS

Prepared and presented various on/offsite corrosion seminars /workshops including:

- Seminar / workshop on naphthenic acid and sulfidic corrosion and materials selection for crude units, LyondellBasell, Houston, TX, October 2010
- Seminar / workshop on naphthenic acid and sulfidic corrosion and materials selection for crude units running heavy Venezuelan crudes, Repsol-YPF, Mendoza, Argentina, June 2010
- Seminar / workshop on corrosion control and materials selection for crude units and hydrotreaters, Suncor Energy, Fort McMurray, Canada, February 2008
- Seminar on crude unit corrosion control and materials selection, Process Corrosion Consultants, Pensacola, FL, May 2006
- Seminar on naphthenic acid and sulfidic corrosion and materials selection for crude units, PdVSA, Curaçao, December 1994
- Seminar on crude unit corrosion control and materials selection, Benelux Refinery Corrosion Seminar, Grace Dearborn, Lanaken, Belgium, December 1993

INTERNATIONAL AWARDS/RECOGNITIONS:

- API (American Petroleum Institute) - **Resolution of Appreciation** for distinguished service to the petroleum industry (1991)
- NACE International - **Plenary Speaker** at CORROSION/92
- NACE International - **Technical Achievement Award** (1996)

TECHNICAL SOCIETY AFFILIATIONS:

API (American Petroleum Institute)

- Amoco representative, **API Subcommittee on Corrosion and Materials** (1973-1993)
- Chairman, **API Task Group on Materials and Corrosion Research** (1989-1993)
- Member, **API Task Group on Environmental Cracking in Amine Units** (Co-author of API RP 945 document)

MTI (Materials Technology Institute)

- Amoco representative, **MTI Technical Advisory Council** (1978-1993)
- Member, **MTI Board of Directors** (1988-1993)

NACE International

- Member (since 1962)
- NACE certified **Corrosion Specialist** No. 1596 (1973)
- Chairman, **NACE T-8 (now STG 34) Group Committee on Refining Industry Corrosion** (1992-1994)

U.S. National Academy of Sciences/ National Research Council

- Technical consultant on crude unit corrosion for USAID projects in Egypt between 1981 and 1983