

Vincent P. Nero Ph.D. Organic Chemistry

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Consultant in the disciplines of Petroleum Chemistry, Environmental Analysis, and Water Filtration (Retired as a **Senior Consultant** from Chevron Texaco in 1980-2001, Houston TX, **Director of Chemistry** at Unipure Corporation 2001-2004, Houston, TX, **Director of Research** at KX Technologies 2004-2008. West Haven, CT (recently retired)

- Nationally recognized expert in the analyses of petroleum products, petroleum additives and base oils. Invited speaker to PittCon'98 Analytical Chemistry Conference. New Orleans, 1998 Invited speaker to the 1994 and 1996 American Chemical Society Environmental and Petroleum Chemistry Joint Symposia. Mass Spectrometric Analysis of Petroleum Matrices, Encyclopedia of Analytical Chemistry, 2000
- Nationally recognized expert for non-routine environmental analyses Selected author for the *Encyclopedia of Environmental Analysis and Remediation*, John Wiley & Sons, March 1998.
- NY certified environmental laboratory director (1995-1997) Consistently received the highest ratings on all NY State audits.
- Operated an ISO-9000 certified spectrometry laboratory (1997-8)
- Experienced in federal environmental refinery audits and commercial laboratory audits in the United States and the Middle East. Successfully defended Texaco's position during a major US EPA Audit at the Texaco Refinery in Bakersfield, CA. (1995) Quickly resolved commercial laboratory problems in Kuwait and the United Arab Emirates, which had stopped \$1,000,000 per day of oil production. (1996) Quickly resolved discrepancies between 2 commercial NJ environmental labs contracted to Texaco, permitting closure and sale of a previously contaminated site. (1997)
- Represented Texaco and ten other petroleum companies as a major expert witness during a \$70,000,000 superfund litigation. (Sept 1998) (Acushnet vs. Amoco Massachusetts Superior Court, ~ The jury found for the oil companies).
- Extensive knowledge of the sulfur, hydrogen sulfide and naphthenic acid chemistries of crude oils and base oils. Developed oxidative desulfurization methods for moving sulfur from petroleum products. U. S. Patent 6,402,940 and 6,406,616 (2002). Several other patents pending. Established the fundamental cause for hydrogen sulfide emissions from crude oil and determined preventative measures. (1997) Determined the specific naphthenic acid and aromatic sulfur content of Mariners crude oil. (1996) Determined and published a quick and precise method to measure elemental sulfur in crude oil. (1998)

Other Related Work Experience

Taught Chemistry, Physics and Statistics on the college and secondary levels
Chemist, General Foods Corp.
Lieutenant, US Navy. Supply Officer 6th Fleet

Education Ph.D., Organic Chemistry, Univ. of Connecticut

75 Patents, Publications, and Presentations related to oxidative desulphurization of petroleum products, environmental analysis and environmental evaluation, fuel additive synthesis and analysis, lubricant additive synthesis and evaluation, crude oil analysis and catalytic processing, fuel analysis and governmental regulations, motor oil analysis, water filtration, oil filtration and mass spectrometry.

Recent Papers and Patents

1. **Glycerol Application to Enhance the Hydrophilicity and Flow Characteristics of Carbon Water Filters**, Patent Pending 2008
2. **Fluid Filtration apparatus and Method of using the Same**, (An advanced oil filtration device) Patent Pending 2007
3. **Process for Removing Low Amounts of Organic Sulfur From Hydrocarbon Fuels** U. S. Patent 6,402,940 Jun 11, 2002, U. S. Patent 6406,616 Jun 18, 2002
4. **Analysis of Sulfur and Sulfur compounds in Petroleum Products and Crude Oils**, Vincent P. Nero, selected author for Analytical Advances for Hydrocarbon Research, Plenum Publishing Corp, 2003
5. **Oxidative Processes for Sulfur removal from Gasoline and distillate Streams for Ultra-Low Sulfur Diesel Fuels and Gasolines**, Vincent P. Nero et. Al., Symposium on Sulfur Removal from Gasoline and Distillate Streams, Div of Petr. Chem., Am. Chem. Soc. Miami, Apr 2002
6. **Low Resolution Electron Impact Mass Spectrometry for the Rapid Analyses of Petroleum Matrices**, Vincent P. Nero, selected author for the *Encyclopedia of Analytical Chemistry: Instrumentation and Applications*, John Wiley & Sons. 2000.
7. **Analysis of Reformulated Gasolines Using Fast Gas Chromatography Mass Spectrometry**, Vincent P. Nero, et.al., contributing author to the book Designing Transportation Fuels for the Environment, Taylor and Francis, 2000
8. **Petroleum Hydrocarbons in Urban Backgrounds**, Vincent P. Nero, et.al., selected author for the Encyclopedia of Environmental Analysis and Remediation, John Wiley & Sons. March 1998.
9. **Rapid Survey for Lubricating Additives in Motor Oils Using Multiple Spectrographic Techniques**, Vincent P. Nero, et.al., Invited speaker for the Symposium on analytical Chemistry in Petroleum Industry for PITTCON '98, New Orleans, March 1998
10. **Distinguishing Petrogenic Hydrocarbons From Biogenic, Pyrogenic, & Anthropogenic Hydrocarbons**, Vincent P. Nero, et. al., Proceedings of Am. Soc. for Mass Spectrometry, **45**, May 1997.
11. **Identification of Organo-metallic Compounds in Lubricating Oil by Electrospray Mass Spectrometry**, Vincent P. Nero, et. al., Proceedings of Am. Soc. for Mass Spectrometry, **44**, May 1996.
12. **Implementing the New EPA GC/MS Method for Total Aromatics in Reformulated Gasoline**, Vincent P. Nero, et. al., Proceedings of Am. Soc. for Mass Spectrometry, **43**, May 1995.
13. **Differentiating Petroleum Hydrocarbons from Hydrocarbons Found in Urban Backgrounds**, Vincent P. Nero, et. al., Symposium on Environmental Petroleum Analyses, Div. of Envir. Chem., Am. Chem. Soc., Volume 39, July 1994.
14. **Characterization of the Acidic Properties of Niobia-Containing Aerogels with [¹⁸O] Ethanol Dehydration**, Vincent P. Nero, et. al., J. Catalysis **1994**,146, 317.
15. **²⁷Al NMR, FT-IR and Ethanol-¹⁸O TPD Characterization of Fluorided Alumina**, Vincent P. Nero, et. al., J. Catalysis **1993**,140, 84
16. **Identification of Alcohol Adsorption Sites on γ -Alumina**, Vincent P. Nero, et. al., J. Catalysis **1992**,135, 444
17. **Structure/Property Relationships of Base Oils**, Vincent P. Nero, et. al., Symposium on Modern Analytical Techniques for the Analysis of Petroleum, Div. of Pet. Chem., Am. Chem. Soc., Volume 36, August 1991.
18. **A Comprehensive Analysis of Diesel Fractions**, Vincent P. Nero, et. al., Symposium on Modern Analytical Techniques for the Analysis of Petroleum, Div. of Pet. Chem., Am. Chem. Soc., Volume 36, August 1991.
19. **Determination of the Molecular Weights of the Ratawi Vacuum Residue Fractions - a Comparison of Mass Spectrometric and Vapor Phase Osmometry Techniques**, Vincent P. Nero, et. al., FUEL, **1990**, 69,1233
20. **Evidence for microbial polysaccharide preparations containing polyester substituents**, Vincent P. Nero, et. al., Int. J. Biol. Macromol., **1990**, 12, 311
21. **Liquid Chromatographic Cleanup Prior to Determination of Polychlorinated Biphenyls in Oil by Gas Chromatography/Mass Spectrometry**, Vincent P. Nero, et. al., Anal. Chem. **1984**, 56,1041.