

Michael A. Gonzalez, Senior Supervisory Chemist in EPA's National Risk Management Research Laboratory

Land and Materials Management Division

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Areas of Expertise:

Trained as a synthetic inorganic chemist for catalyst development, Michael is a pioneer and recognized global leader in the design of green and sustainable chemical synthesis routes. As his interests evolved with EPA priorities, he moved into the intersection of chemistry and chemical engineering. This includes the development of process intensified chemical pathways and using novel chemical reactor systems to influence chemical route and process design with emphasis on Sustainable Materials Management Strategies and Pollution Prevention. Michael is also a co-inventor of EPA's GREENSCOPE tool which can evaluate a chemical synthesis or process for its sustainability value in the areas of environment, efficiency, energy and economics. These efforts were further extended into sustainability performance evaluation of chemical processes and supply chains, life cycle inventory and assessment, and multi-criteria decision-making. More recently, Michael has utilized his experience and knowledge for support ORDs efforts for advancing TSCA priorities for evaluating the life cycle impacts of chemicals and identified alternatives. Michael is named inventor on 10 US patents and patent applications and 6 world patents.

Select Publications:

Meyer, D.E, Ruiz-Mercado, G.J., Ingwersen, W.W., Barrett, W, Mittal, V., Abraham, J.P., **Gonzalez, M.A.**, Smith, R.L, "Purpose-Driven Reconciliation of Approaches to Estimate Chemical Releases." Submitted to *ACS Green and Sustainable Chemistry*, 2018.

Gonzalez, M.A., Takkellapati, S., Tadele, K., Li, T., Varma, R.S., "Framework towards more sustainable chemical synthesis design - A case study of organophosphates", Submitted to *ACS Green and Sustainable Chemistry*, 2018.

Li, S.; Feliachi, Y.; Agbleze, S.; Ruiz-Mercado, G. J.; Smith, R.; Meyer D.; **Gonzalez, M.A.**; Lima, F.V., "[A Process Systems Framework for Rapid Generation of Life Cycle Inventories for Pollution Control and Sustainability Evaluation.](#)" *Clean Technol Environ Policy*, 2018. 7, 1543-1561.

Tadele, K., S. Verma, **M. Gonzalez**, and R. Varma. "[A sustainable approach to empower the bio-based future: upgrading of biomass via process intensification](#)". *Green Chemistry*. Royal Society of Chemistry, 19(7):1624-1627, 2017.

Mittal, V.K., Bailin, S.C., **Gonzalez, M.A**, Meyer, D.E., Barrett, W.M., Smith. R.L, "[Toward Automated Inventory Modeling in Life Cycle Assessment: The Utility of Semantic Data Modeling](#)

[to Predict Real-World Chemical Production](#)", *ACS Sustainable Chem. Eng.*, 2017, 6 (2), pp 1961–1976.

Gonzalez, M.A., "Introduction to Green and Sustainable Chemistry" in *Encyclopedia of Sustainable Technologies*, Ed. Martin Abraham, Elsevier, New York, 2017, 487-495.

View more research publications by [Michael A. Gonzalez](#).

Education:

- Ph.D., University of Florida, Gainesville, FL; Inorganic Chemistry, 1998
- B.S., University of Texas – El Paso, TX; Chemistry, 1992

Professional Experience:

- Chief, Emerging Chemistry and Engineering Branch

Committees and Memberships

- American Institute of Chemical Engineers (AIChE) member
- American Chemical Society (ACS) member
- Program and session chair at the ACS annual meetings: Industrial Chemistry and Engineering Research
- International Advisor of the Green Chemistry Institute, 2016
- Study committee member for PhD, MSc, and BS students at U of Florida, U of Texas – El Paso, and U of Cincinnati

Awards and Honors

- Qualified article reviewer with experience completing reviews for 15 leading peer-reviewed journals, covering ACS Sustainable Chemistry & Engineering, AIChE Journal, Environmental Science & Technology, Journal of Cleaner Production plus others
- Accomplished keynote speaker, participating in an expansive list of professional meetings and presentations as a subject matter expert, such as the National Academies of Sciences, Engineering and US State Department
- Guest editor of Special Issue: Sustainability Research at the US EPA: *Clean Technologies and Environmental Policy Journal*, 2014
- U.S. EPA Scientific and Technological Achievement Award 2006, 2010 and 2014
- US EPA Bronze Star Recipient (3x)

[Interview with Dr. Michael Gonzalez](#)

[Science Matters: Safer, More Sustainable Chemicals](#)

[Science Matters: Spin Doctors Reducing Environmental Burdens Via Better Chemistry](#)

[Science in Action Fact Sheet: GREENSCOPE: Sustainable Process Modeling](#)

[EPA Green Chemistry Program](#)