

**Green Chemistry
Mainstreaming Webinar Series**

**U.S. Department of
Commerce (DOC) & its Role in
Supporting Green Chemistry**

December 10, 2014



What is the GC3?

- Cross-sectoral, B2B network of over 70 companies and other organizations
- Formed in 2005
- Collaboratively advances green chemistry across sectors and supply chains
- www.greenchemistryandcommerce.org



Today's Speaker

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Ground Rules

- Due to the number of participants in the webinar, all lines will be muted
- If you have a question or comment, please type in the Q&A box located in the drop-down control panel at the top of the screen
- Questions will be answered at the end of the presentation



INTERNATIONAL
TRADE
ADMINISTRATION

Advanced Manufacturing and Innovation in Chemicals Management; the trade interest

The Case of Green Chemistry

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Event:

Webinar Green Chemistry & Commerce Council

December 10, 2014

*Disclaimer: the author presents her professional expertise.
The views do not constitute a Department of Commerce position.*

Presentation outline:

The U.S. Department of Commerce

The business of chemistry

Scope and drivers of Green Chemistry

Department of Commerce cares about GC Innovation and Competitiveness

Opportunities and challenges

Conclusion

References

Your Market Development Cooperator Program (MDCP)? Deadline February 2015.

The U.S Department of Commerce

In a nutshell, it may be described as follows:

An entity with a varied membership (esp. NOAA, **NIST**, **EDA**, **ITA**, but also BEA, BIS, Census, ESA, **MBDA**, NTIA, NTIS, USPTO)

The International Trade Administration (ITA) [its business units: Global Markets (GM), Industry and Analysis (IandA), as well as Enforcement and Compliance] covers trade-related activities.

You can seek support especially from the following: Headquarters (HQ), Global Markets (GM), United States Export Assistance Centers (USEACs), the Manufacturing Extension Partnerships (MEPs), as well as the Office of Advisory Committees (OAC)

References:

<http://www.commerce.gov>

<http://www.export.gov> (national and international offices)

<http://www.ita.doc.gov/td/mdcp/>

[http://www.mbda.gov/blogger/export-expansion/discover-global-opportunities-sustainable-solutions?](http://www.mbda.gov/blogger/export-expansion/discover-global-opportunities-sustainable-solutions?utm_source=newsletter&utm_medium=email&utm_campaign=CWG1205)

[utm_source=newsletter&utm_medium=email&utm_campaign=CWG1205](http://www.mbda.gov/blogger/export-expansion/discover-global-opportunities-sustainable-solutions?utm_source=newsletter&utm_medium=email&utm_campaign=CWG1205)

<http://www.nist.gov/mep>

<http://www.trade.gov/oac>

The Business of Chemistry

The U.S. chemistry is a \$670 billion enterprise which supports nearly 25% of GDP, and accounts for more than 10% of U.S. exports.

The business of chemistry employs close to a million workers, and help create close to 5 more jobs in industries as diverse as construction, transportation, or agriculture (to name a few).

Examples include:

- Agriculture: Chemistry contributes 30% of the value of material inputs participating to agricultural production
- Food: Chemistry contributes 12% of the value of material inputs used to make packaged food
- Boots and athletic footwear: Chemistry contributes 35% of the value of inputs used to make and package shoes, sneakers and other footwear
- Clothing: Chemistry contributes 28% of the value of material inputs in clothing
- Motor vehicles: Chemistry contributes 16% of the value of material inputs used to make motor vehicles
- Semi conductors: Chemistry contributes 33% of the value of materials inputs used to make semiconductors.
- Plastic bottles: Chemistry contributes 78% of the value of material inputs used to make plastic bottles.

“Blue” Characteristics:

- Size of business (\$billion): \$256 for basic chemicals; \$115 for specialties; \$33 for ag chemicals; \$191 for pharmaceuticals; \$80 for consumer products.
- Typical product price (per lb): around \$0.75 for basic chemicals; \$1.25 for specialty; \$0.30 to 1.25 for ag. chemicals, and \$15.00 for pharma.
- Growth prospects (in terms of GDP): less than 0.5 percent for basic/ specialties and ag chemicals. More than one percent for pharma and consumer products.
- Long term trend in real prices: -1 to 2% for basic, specialty, ag.chemicals and consumer products.
- +1 to 3% for pharma.
- R&D: 5 to 10% for specialty, ag. Chemicals and consumer products. 10 to 20% for pharma
- New areas for development: biology and chemistry (biosciences); environmental health; nanotechnology, biotechnology, electro-chemistry, etc.
- Knowledge intensive solutions (ie. products and servicing).
- Improved articulation and collective action along the supply chain.

“Red” Characteristics:

- The commercial transactions with developed economies (esp. CN, EU, JP, AU) are transitioning toward extensive manufacturing and R&D development in Asia, especially. Hence, as noted by Yu Xie/University of Michigan: “America as a dominant player in science may be challenged by the rise of science in other countries including China.”
- Private financial funds (and/or major shareholders) are becoming more vocal and influential in the strategy setting of companies.
- The U.S is becoming a major importer of chemicals (including consumer goods).
- The lack of regulatory reform at the U.S. federal level doesn’t allow for international leadership in chemicals management.
- The lack of regulatory reform, at the federal level, doesn’t provide U.S. innovators with a level of transparency, certainty, nor advocacy.
- With regards to chemicals management, the full breath of perspectives is difficult to collect, and EHS “standards” suffer as a result.
- In the field of chemicals management, “titration” is difficult to achieve. Parties and positions are often excessive and divisive. As a result, there is inevitable delay toward “understanding” with maximum accuracy, **and** making decision in an imperfect world.

Scope and drivers of Green Chemistry

The Scope covers:

- Product design, manufacture, and processing. GC is also about bringing visibility and transparency throughout the supply chain (e.g. NSF/GCI/ANSI 355 and information exchange on GC proceedings).

The Drivers include:

- Create/provide solution
- Reduce cost (energy, water, waste management and disposal, Environmental Health and Safety (EHS), and improve reporting performances (as in the Toxic Release Inventory (TRI))
- Introduce new products and processes with efficacy, and provide new sources of revenue.
- Reduce time to market (improve the continuum: invention->innovation->commercialization->market access).
- Encourage investors (improve market positioning), and permit to exercise “first mover” advantage
- Meet domestic and international demand (consumer and citizen, both) with “greener” products and processes, and provide technology-based competitive advantages. The “qualified” product approach!
- Facilitate worldwide (public and private) compliance and minimize risk management costs.

The Adequacy of the GC Approach with 21st Century Global Trade (from a DOC/ITA prospective)

GC offers to take step forward in the modified trade patterns which include:

- East to West: developed countries are more and more on the receiving end of a complex supply chain.
- Know and Disclose to Competent Authorities: A need for information on product characteristics, efficacy, etc. to satisfy **consumers'** demand for performances, and safety.
- Assess and Avoid Hazards consistently: A need for information on manufacturing practices, health related impacts and safe disposal to address **citizens'** demand for products, their servicing throughout the life cycle.
- Surge of national chemicals regulations related to: Risk Analysis (RA)=f(HZ +exposure); RA=f(Risk Assessment (RA_t)+Risk Management (RM_t)+Risk communication (RC) with complex proceedings.
- Alternative Risk Assessment requirements, and their inclusivity with LCAs.

The Adequacy of the GC Approach with Strengthening Competitiveness

Greener products and processes

- Spur invention/innovation
- Recreate balance to the U.S. loss of leadership in Advanced Technology Products
- Permit to compete in intelligence/technology instead/in addition to price and volume
- Bring visibility and transparency to the equation $RA=f(RA_t+RM_t+RC)$
- Attract finances, reduce business risks since $RA=f(HZ+exposure)$
- Ascertain regulatory compliance and address consumers' **and** citizen's demand for EHS performances throughout the Life Cycle.
- Participate to public trust, domestically and internationally.
- Address elements of the economic mandates of numerous government agencies: DOE (renewable energy), USDA (rural development, loan programs, bio-based actions), U.S. Export/Import bank (environment export program); provide solutions to Federal procurement programs, especially vis a vis carbon footprint

Current DOC-International Trade Administration (ITA) National Export Initiative (NEI) and NEXT Global Opportunity Initiative

The priorities include:

- **Connecting more U.S. business to their NEXT global customer**
- Making the NEXT International shipment easier and less expensive
- Expanding access to finance for U.S. business' NEXT export transaction
- **Promoting exports and investment attraction as the NEXT economic development priority**
- **Creating fostering and ensuring U.S. business' NEXT global opportunity**
- Supporting the creation of improved data to help companies and gather feedback

as well as

- **To enhance the Advanced Manufacturing Initiative (AMP)**
- **To support DOC-EPA Environmental Technology Initiative**

ITA (esp. landA-OMI) Collaborative Efforts to Support GC

- DOC-National Institute for Standard and Technology (NIST) (especially its specialized laboratories, the Advanced Manufacturing Program (AMP) and the Manufacturing Extension Partnership (MEP))
- DOC-Economic Development Agency (EDA) (esp. its presence and support in regions suffering from economic stresses; its provisions of grants toward sustainable development, manufacturing clusters, etc.)
- Strengthen the collaboration between USG agencies (especially EPA, NIEHS, NIH, DOS, SBA, DOE, DOD, FDA, USTR), and proposal to create an inter-agency working group on GC, main interlocutor for stakeholders/ their needs as well as the needs of trade partners overseas engaged in the pursuit of GC.
- Domestic Partnerships with interested parties (e.g. NIST-E3, Department of State (Launch), Department of Energy, ACS-GCI/roundtables, GC3, Green Building Council, etc.) to facilitate the continuum invention->innovation->commercialization->market access and support the acceleration of the adoption of GC products and processes
- Commercial dialogues, Market Development Cooperation Program?, Trade Advisory Committee?, and other negotiating opportunities?

Opportunities and Challenges

- GC is a serious technological transition in its formative phases with many knowledgeable, resilient, and enthusiastic parties (in science, business, government, etc.).
- GC is well-rounded; seek education and research, bring innovation, balance use of resources, provide economic and EHS benefits for an ubiquitous product.
- GC needs to match the current gap in the middle stage of the manufacturing and innovation proceedings.

- GC lacks a vision for advanced manufacturing and innovation in chemicals management, it lacks EHS standards and harmonized LCAs.
- GC may see extensive offshoring in some sectors and vis a vis specific countries (e.g. China, India) with unknown economic consequences.
- GC changes the paradigm in chemicals management (i.e. early GC design, access to data by Competent Authorities, attention to IP and transparency, data gap resolution, courage and resilience to improve products and processes continuously and throughout the life cycle).

A Timely Opportunity: The Market Development Cooperator Program (MDCP)

Enabling legislation:

Omnibus Trade and Competitiveness Act of 1988:

MDCP is to be a unique way to "develop, maintain and expand foreign markets for nonagricultural U.S. goods and services." 15 U.S.C. Sec. 4723

Funding:

Jobs Through Exports Act of 1992 and

Freedom Support Act of 1992:

First MDCP awards, totaling over \$2 million, were made in fiscal 1993

Under the MDCP, each year, the International Trade Administration (ITA) selects 7 to 9 trade associations or other non-profits industry groups for awards of up to \$300,000 each.

Projects activities vary depending on the industry a cooperator is helping and the markets targeted. Examples include: participating in foreign trade shows; opening a product demo center; coordinating industry standards.

MDCP Application Process

How does it work?

**Non-profit industry groups (trade associations, chamber of commerce, state trade departments, other non-profits) compete for MDCP awards (up to \$300,000), in partnerships with federal agencies. Applications are due in February

** DOC-ITA reviews based upon evaluation criteria which include the potential for exports, the sustaining/creation of U.S. jobs; export performance measurements; ITA partnerships and priorities; creativity and institutional capacity, budget match and sustainability

** “cooperators” commit to: projects to engage small and medium size enterprises in exporting; a 2 to 3-year term; and the support to two-third of the total cost

The final decision will include reviews of the projects by ITA staff from landA, GM, USEACs, and other federal agencies (when/if appropriate).

MDCP as a Public-Private Partnership

- The MDCP encourages industry groups to partner with ITA
- Cooperator projects strengthen the global competitiveness of a U.S. Industry (instead of a particular company)
- MDCP projects act as export multipliers since industry groups applying may not export but the companies or business constituents do export

ITA priorities include:

1. create or sustain jobs
2. Exports toward emerging markets
3. Increased exports for U.S. manufacturing
4. Help business to secure export financing
5. Engage more U.S. firms in major international trade shows or foreign outreach activities
6. Help current exporters to expand to more markets
7. Address non-tariff barriers to U.S. exports
8. Secure intellectual property right protection while supporting invention
9. Counter discriminatory trade policies
10. Encourage the adoption of internationally recognized standards

Required priorities 1+
any 2 of 2-6

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“Perfection is the place where clarity and letting go meet”
Dona Holleman

Can we contribute toward taking
residence in such a place?

Thank you!

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References

NEI Presidential Declaration (2010): <http://trade.gov/nei/>

NEXT (2014): <http://www.commerce.gov/blog/2014/05/13/what%E2%80%99s-next-us-exports>

ITA-EPA Environmental Export Initiative (October 2012):

<http://www.commerce.gov/blog/2012/10/01/ita-and-epa-launch-environmental-export-initiative-weftec>

ITA Market Development Cooperator Program: <http://www.ita.doc.gov/td/mdcp/>

Manufacturing Extension Partnership (MEP): <http://www.nist.gov/mep>

MEP-Economy/Energy/Environment (E3) program: <http://www.nist.gov/mep/e3.cfm>

Green Suppliers Network at: <http://gsn.nist.gov/materials/general.html>

Manufacturing regions (2014):

<http://www.newsandsentinel.com/page/content.detail/id/511829/Administration-announces-US-manufacturing-regions.html?isap=1&nav=5072>

Trade negotiations: <http://www.ustr.gov>

EPA information on Chem View:

<http://www.epa.gov/oppt/existingchemicals/chemview/index.html>

EPA Green Chemistry Program at <http://www2.epa.gov/green-chemistry>

EPA Design for the Environment at: <http://www.epa.gov/dfc>

American Chemical Society-Green Chemistry Institute (roundtables):

<http://www.acs.org/content/acs/en/greenchemistry/industry-business.html>

ANSI 355 (a B2B supplier to customer communication) standard (2010):

<http://presentations.acs.org/common/media-player.aspx/GCE2013/GCE/GCE024/GCE42>

Upcoming Events

GC3 Green Chemistry Education Webinar

Building Market Share for Green Products

Steve Davies, Director of Public Affairs & Communications, Natureworks
Saskia Van Gendt, Captain Planet, Method

Tuesday, December 16, 2014 | 2:00 p.m. EST

GC3 Mainstreaming Green Chemistry Webinar

CEO Perspectives on Sustainability: What this Means for Green Chemistry
Don Reed, Managing Director, PwC Sustainable Business Solutions

Tuesday, January 6, 2015 | 2:00 p.m. EST

10th Annual GC3 Innovators Roundtable

April 28-30, 2015 | NIKE World HQ, Beaverton, OR



Thanks for joining us!

For more information about the GC3 visit
www.greenchemistryandcommerce.org

