



# NEWSLETTER

Oklahoma Section

American Chemical Society

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September 1, 2009

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## From Garbage to Stuff: How We Recycle Plastics

Wood Science Building  
Oklahoma Baptist University  
Shawnee OK 84701

*Dr. William F. Carroll*

Oxy Chem - Occidental Tower  
5005 LBJ Freeway  
Dallas TX 75244-6169  
972.404.3020

Is that recycling bin the springboard to giving material a new life or is it simply a blue wastebasket? What about surplus materials from industrial processes? Do they find their way out the back door to the landfill? This presentation discusses the four critical steps in recycling -- collection, separation, reprocessing and remanufacture - and how they relate to plastics. The technology, the cost and the efficacy of the processes all matter. And the operative word, plastics, really is plural. Presentation includes a primer in the basic kinds of plastics, how they differ and how they're used in common articles, especially packaging. The presenter brings a few common articles for demonstrations, and promises not to recycle an old quote from "The Graduate."

**[Reservation Information on Page 2]**

Schedule: [Note: the “family night” meeting format.

Also a FRIDAY evening meeting]

6:00 PM Social Hour: Wood Science Building Lawn: Picnic/Games [indoor/outdoor], soft drinks. Social hour: volleyball & croquet.

7:30 PM Speaker: Wood Science Building - Large Lecture Hall.

Menu: Hamburgers, hotdogs, potato chips, pickles, cookies & soft drinks..

Cost: \$8.00-ACS Member; \$5.00-ACS Student Affiliate; \$3.00 Children < 12 years.

Deadline: Wednesday, 16 September, 2009 - 5:00 PM. Shawna York 405.878.2028  
[shawna.york@okbu.edu](mailto:shawna.york@okbu.edu) [Indicate # of adults & # of children.]

### Directions To Wood Science Building:

From I-40:

Exit at Kickapoo Interchange.

Head South on Kickapoo until you reach University [**third traffic light**].

Turn west onto University and then next right onto “The Oval”.

Wood Science Building is the first building on the right.

If spaces are available, attendees can park on “The Oval”.

If not, follow “The Oval” back around to University and parking lots can be found on both sides of the street west of “The Oval” on University.

From South:

Take **Kickapoo Spur Exit** off US 177. North on Kickapoo to University.

Dr. William F. Carroll, Jr. holds a B.A. in Chemistry and Physics from DePauw University, Greencastle, IN, an M.S. from Tulane University in New Orleans, and a Ph.D. from Indiana University, Bloomington, IN, majoring in Organic Chemistry. Bill started his industry career in 1978 and after a year with Rohm and Haas Company, Bristol, PA, moved to what is now known as Occidental Chemical Corporation. He is currently Vice President, Chlorovinyl Issues for OxyChem and works on public policy issues and communications related to chlorine and PVC. He is also Adjunct Professor of Chemistry at Indiana University, Bloomington, Indiana and teaches polymer chemistry there. Bill is a past President (2005) of the American Chemical Society, a member of the ACS Budget and Finance Committee, and past chair of its International Activities Committee. He is a Fellow of the Royal Society of Chemistry, a member of the US National Committee for the International Union of Pure and Applied Chemistry, and chair of the Science Advisory Board for DePauw University. He has been an active member of and chaired various committees for a number of chemistry, plastics, fire protection and recycling organizations. He has served on expert groups commissioned by the United Nations Environmental Program, the State of Florida, and the Oregon Department of Environmental Quality. He received the Vinyl Institute’s Roy T. Gottesman Leadership Award for lifetime achievement in 2000. He holds two patents, and has over forty publications in the fields of organic electrochemistry, polymer chemistry, combustion chemistry and physics, incineration, dioxin, plastics recycling and chlorine issues.

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**Biomass Burning Leads To Asian Cloud**

Science &amp; Technology Concentrates

C&amp;E News January 26, 2009

A radiocarbon study of aerosol particles has pinpointed biomass burning as a major source of the giant brown haze that periodically hovers over large portions of Southeast Asia [*Science*, 2009, 323,495]. This atmospheric brown cloud shows up in the winter and has been attributed to both fossil fuel and biomass burning. But its source had not been well characterized, until now. The cloud causes a host of pollution related health problems in the region and likely impacts climate-related problems such as glacier melting.

Orjan Gystafsson of Stockholm University and colleagues measured carbon isotope ratios of aerosol particles from western India and the Indian Ocean. They found that the particles had higher concentrations of  $^{14}\text{C}$ , which is associated with recent plant life. Fossil fuels, by contrast, have much lower concentrations of the isotope. The concentrations of carbonaceous aerosol particles from biomass burning such as agriculture and home-scale wood and cow dung fires, need to be reduced to shrink the cloud, the authors say. Green technologies that limit soot emissions from fires need to be considered in addition to strategies for reducing emissions from automobiles and power plants, they add.

**Letters**

C&amp;E News June 16, 2009

**Natural Terminology**

As an engineer trained in chemistry, I am not too upset about “natural foods versus “unnatural foods” [C&EN, April 27, page 28]. After all, what is natural food in the U.S. is not natural food in other parts of the world and vice versa. What does upset me is when someone says their food product is “organic”. I always wonder if that is opposed to “inorganic.”

It has been a while since my last organic chemistry class, but my fading mind remembers that if it was grown, it is organic. Aside from certain minerals and salts, I am not sure why you would want an inorganic food. Even granite cereal, mined in the great state of Vermont, which is full of “natural” minerals, is hard on the teeth and not something for me.

Please, you can call a food “natural” all you want, but do not tell me it is organic. I already know that. And I am not going to pay more just because you say it.

Edwin Benteen III

Arvada, Colorado

The Food & Drug Administration, the Department of Agriculture, and the public must learn that “natural” does not mean “healthy.” For example, rattlesnake venom is natural and deadly.

James F. Jackson

Carlisle, Indiana

**World Watch**

Wall Street Journal 07/16/09 Edition

**U.S. Energy Secretary Urges Emissions Cleanup**

U.S Energy Secretary Steven Chu, in meetings with Chinese energy officials and in a speech at Tsinghua University, continued the Obama administration’s efforts to push for greater action on climate change in China, which recently surpassed the U.S. as the largest emitter of greenhouse gases.

While noting that developed Western nations contributed most of the carbon dioxide already trapped in the atmosphere. Mr.Chu said China could add more in the next few decades than all the U.S. emitted since the Industrial Revolution.

## Oklahoma Chemist Award - 2010

Nominations for Oklahoma Chemist of the Year - 2010 are now being accepted.

Five [5] copies of a single nomination should be sent by no later than January 22, 2010 to:

Dr. K. Darrell Berlin-Chair  
Oklahoma Chemist Awards Committee  
Department of Chemistry  
Oklahoma State University  
Stillwater OK 74078  
405.744.5950  
kenneth.d.berlin@okstate.edu

Criteria and Guidelines for the Preparation of the Nomination and For Selection of the Recipient of The Oklahoma Chemist Award.

1. A nomination letter for the candidate by a colleague, friend, etc.
2. A complete, up-to-date resumé of the candidate.
3. A two-page "highlight" of the candidate's major accomplishments.
4. Five [5] letters of support for the nominee.
  - [a] Two [2] letters from colleagues at the candidate's place of employment.
  - [b] Three [3] letters from outside the candidate's place of employment. Letters from individuals with expertise in the candidate's field are especially welcomed.
5. Special information on the candidate is also solicited, especially as to how the candidate has advanced chemistry in the state of Oklahoma.
6. Candidates may be involved in research or in chemical education within the state.

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## So Much For 'Energy Independence'

By Robert Bryce

Selected portions from this story which appeared in a July 2009 issue of The Wall Street Journal

When you read about ethanol, remember these numbers: 98 and 190.

They offer an essential insight into U.S. energy politics and the debate over cap-and-trade legislation that recently passed the House. Here is what the numbers mean: The U.S. gets about 98 times as much energy from natural gas and oil as it does from ethanol and biofuels. And measured on a per-unit-of-energy basis, Congress lavishes ethanol and biofuels with subsidies that are 190 times as large as those given to oil and gas.

These numbers come from an April 2008 report by the Energy Information Administration: "Federal Financial Interventions and Subsidies in Energy Markets 2007." Table ES6 lists domestic energy sources that get subsidies. In 2007, the U.S. consumed nearly 55.8 quadrillion BTUs. Or about 9.5 million barrels of oil equivalent, in natural gas and oil. That's about 98 times as much energy as the U.S. consumed in ethanol and biofuels, which totaled 98 million barrels of oil equivalent.

Meanwhile, ethanol and biofuels are getting subsidies of \$7.72 per million BTU. That's 100 times as much as natural gas and petroleum liquids, which get subsidies of \$0.03 per million BTU.

The report also shows that the ethanol and biofuels industry are more heavily subsidized – in total dollar terms – than the oil and gas industry. In 2007, the ethanol and biofuels industries got \$3.25 billion in subsidies. The oil and gas industry got \$1.92 billion.

Despite these subsidies, the ethanol lobby is queuing up for more favors. And they are doing so at the very same time that the Obama administration and Congress are pushing to eliminate the relatively modest subsidies for domestic oil and gas producers. Democrats want to cut drilling subsidies while simultaneously trumpeting their desire for "energy independence."

The cap-and-trade bill passed by the House aims to "create energy jobs" and "achieve energy independence." Meanwhile Democrats are calling to eliminate drilling subsidies that have encouraged advances in technology that have opened up vast new U.S. energy sources. These advances have made it profitable to extract natural gas from the Barnett Shale deposit in Texas and the Marcellus in Pennsylvania – deposits once thought too expensive to tap.

An April Department of Energy report estimated that the newly available shale resources total 649 trillion cubic feet of gas. That's the energy equivalent of 118.3 billion barrels of oil, or slightly more than the proven oil reserves of Iraq.

Amid all this, Growth Energy, an ethanol industry front group, is pushing the Environmental Protection Agency to adopt a proposal that would increase the amount of ethanol blended into gasoline from the current maximum of 10% to as much as 15%.

The U.S. consumes about 23 trillion cubic feet of gas per year. Simple arithmetic shows that eliminating the drilling subsidies that cost taxpayers less than \$2 billion per year could result in an increased cost to consumers of \$11.5 billion per year in the form of higher natural gas prices.

That increase would be a gift to corn ethanol producers who have never been able to make a go of it despite decades of federal subsidies and mandates. Growth Energy is also pushing the change even though only about seven million of the 250 million motor vehicles on U.S. roads are designed to run on fuel containing more than 10% ethanol.

There is also corn ethanol's effect on food prices. Over that past two years at least a dozen studies have linked subsidies that have increased the production of corn ethanol with higher food prices.

*Mr. Bryce is the managing editor of Energy Tribune. His latest book is "Gusher of Lies: The Dangerous Delusions of Energy Independence" [PublicAffairs, 2008]*

#### Editor's Notes:

[1] Verasun, the country's largest ethanol producer declared bankruptcy in the spring of 2009. Valero Energy, one of the country's largest oil refiners, had bid to buy a number of the mid-west Verasun shuttered facilities.

[2] For the complete text of the article, go to the EnergyTribune website

#### Power Shift: America's On-Again, Off-Again Light Bulb Affair

WSJ Currents May 29, 2009 -- 2 of the many letters in response to the article

I'm not buying them either. Nearly all of the incandescent fixtures in my home are controlled by energy saving electronic dimmers, none of which will work with compact fluorescents. Also, since more electric light is required during winter heating season with its shorter daylight hours, the heat "wasted" by incandescent lamps offsets the heat that I'd otherwise need to burn oil or gas.

Your article mentions mercury vapor just once, and it was buried in the middle. The incandescent bulb may be inefficient, but my home won't become a toxic waste dump requiring a hazmat team if I drop one and it breaks. I simply sweep up the pieces and dispose of them.

The reprinted letters and articles as well as the editor's unsigned article[s] in this Newsletter do not necessarily reflect the views of the Oklahoma Section of the ACS.

#### Oklahoma Section ACS 2009 Calendar of Events:

Visit the Oklahoma ACS WWW site for the latest information.

<http://membership.acs.org/O/Oklahoma/>

October 18 - 24, 2009

National Chemistry Week

Saturday, Afternoon - October 24, 2009

Local Section Meeting

Java Dave's – Oklahoma City

Dr. Joe A Vinson – Professor of Chemistry,

The University of Scranton, Scranton PA

Chemistry and Biochemistry of Coffee: A Healthy Beverage?

Friday, November 20, 2009

Local Section Meeting

University of Central Oklahoma - tentative

Mr. J Keith Butler – American Ordnance LLC, Trenton TN

Military Explosives

**September 2009 Section Meeting**

**Friday, 18 September, 2009**

**Oklahoma Baptist University**

*From Garbage To Stuff: How We Recycle Plastics...*

**Oklahoma ACS 2009 Calendar Of Events – Other Side This Page .**



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