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| [Children may have highest exposure to titanium dioxide nanoparticles](#1) [Dust from industrial-scale processing of nanomaterials carries high explosion risk](#ARTICLE_2) [Climate change may increase risk of water shortages in hundreds of U.S. counties by 2050](#3)[New evidence that bacteria in large intestine have a role in obesity](#4)  [New “smart pills” signal your iPhone to notify the doctor — and more from innovative drug company partnerships](#5) |

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| http://images.magnetmail.net/images/clients/ACS/1CookiesSM.jpgChildren may have highest exposure to titanium dioxide nanoparticlesCredit: iStock |

Children may be receiving the highest exposure to nanoparticles of titanium dioxide in candy, which they eat in amounts much larger than adults, according to a new study. Published in ACS’ journal, Environmental Science & Technology, it provides the first broadly based information on amounts of the nanomaterial – a source of concern with regard to its potential health and environmental effects – in a wide range of consumer goods.In the study, Paul Westerhoff, Ph.D., and colleagues point out that titanium dioxide is a common additive to many consumer products, from food to paint to cosmetics. Westerhoff explained that the body releases the nanoparticles in feces and urine, sending them to wastewater treatment plants, which cannot prevent the smallest particles from entering lakes and rivers. Only one previous study, done a decade ago, reported on titanium dioxide content in a few commercial products. To fill the knowledge gap about the sources of humans’ exposures, the researchers bought and tested food, personal care products, paints and adhesives and measured how much titanium dioxide they contain. The group found that children consume more titanium dioxide than adults because sweets like candies, marshmallows and icing are among the products with the highest levels. The paper lists the names of the products tested and their titanium dioxide content. Westerhoff recommends that regulators shift their focus from the type of titanium dioxide used in paints and industrial processes to food-grade particles, because those are much more likely to enter the environment and pose a potential risk to humans and animals.The authors acknowledge funding from the [National Institutes of Health](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531989&m=1773877&u=ACS&j=9060919&s=http://www.nih.gov/) and the [Water Environment Research Foundation](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531990&m=1773877&u=ACS&j=9060919&s=http://www.werf.org/AM/Template.cfm?Section=Home).

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| http://images.magnetmail.net/images/clients/ACS/esthagSM.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531991&m=1773877&u=ACS&j=9060919&s=http://web.1.c2.audiovideoweb.com/1c2web3536/esthag.jpg) for high-resolution image |

ARTICLE #1 **FOR IMMEDIATE RELEASE**“Titanium Dioxide Nanoparticles in Food and Personal Care Products”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531992&m=1773877&u=ACS&j=9060919&s=http://pubs.acs.org/stoken/presspac/presspac/abs/10.1021/es204168d) CONTACT:Paul Westerhoff, Ph.D.Arizona State UniversityTempe, Ariz. 85287Phone: 480-965-2885Fax: 480-965-0557Email: p.westerhoff@asu.edu [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #2 **FOR IMMEDIATE RELEASE****Dust from industrial-scale processing of nanomaterials carries high explosion risk** Industrial & Engineering Chemistry Research

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| http://images.magnetmail.net/images/clients/ACS/2ExplosionSM.jpgDust from industrial-scale processing of nanomaterials carries high explosion riskCredit: iStock |

With expanded industrial-scale production of nanomaterials fast approaching, scientists are reporting indications that dust generated during processing of nanomaterials may explode more easily than dust from wheat flour, cornstarch and most other common dust explosion hazards. Their article in ACS’ journal Industrial & Engineering Chemistry Research indicates that nanomaterial dust could explode due to a spark with only 1/30th the energy needed to ignite sugar dust — the cause of the 2008 Portwentworth, Georgia, explosion that killed 13 people, injured 42 people and destroyed a factory.Paul Amyotte and colleagues explain that dust explosions are among the earliest recorded causes of industrial accidents — dating back to a 1785 flour warehouse disaster — and are still a constant threat at facilities that process fine particles of various materials. Despite significant research, there is still much for scientists to learn about the risks of dust explosions in industry, especially of so-called “nontraditional” dusts (such as those made of nanomaterials), and a constant threat exists. That’s why the researchers decided to probe the explosibility of three types of nontraditional dusts: nanomaterials; flocculent (fibrous or fuzzy) materials used in various products, such as floor coverings; and hybrid mixtures of a dust and a flammable gas or vapor.After reviewing results of studies that exist on the topic, the researchers concluded that the energy needed to ignite nanomaterials made of metals, such as aluminum, is less than 1 mJ, which is less than 1/30th the energy required to ignite sugar dust or less than 1/60th the energy required to set wheat dust aflame. Flocking is often made with a process that generates static electricity, which could set off an explosion of flocculent dust, they point out. And the addition of a flammable gas or vapor to a dust as a hybrid mixture increases the chance that the dust will explode. The researchers warn that precautions should be taken to prevent these materials from exposure to sparks, collisions or friction, which could fuel an explosion.The authors acknowledge funding from the [Natural Sciences and Engineering Research Council of Canada](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531994&m=1773877&u=ACS&j=9060919&s=http://www.nserc-crsng.gc.ca/Index_eng.asp).

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| http://images.magnetmail.net/images/clients/ACS/iecredSM.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531995&m=1773877&u=ACS&j=9060919&s=http://web.1.c2.audiovideoweb.com/1c2web3536/iecred.jpg) for high-resolution image |

ARTICLE #2 **FOR IMMEDIATE RELEASE**“Review of the Explosibility of Nontraditional Dusts”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531996&m=1773877&u=ACS&j=9060919&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/ie201614b)CONTACT:Paul R. Amyotte, Ph.D.Department of Process Engineering and Applied Science Dalhousie UniversityHalifax, Nova Scotia, CanadaPhone: 902-494-3976Email: paul.amyotte@dal.ca[To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #3 **FOR IMMEDIATE RELEASEClimate change may increase risk of water shortages in hundreds of U.S. counties by 2050**Environmental Science & Technology

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| http://images.magnetmail.net/images/clients/ACS/3ClimateSM.jpgClimate change may increase risk of water shortages in hundreds of U.S. counties by 2050Credit: iStock |

More than 1 in 3 counties in the United States could face a “high” or “extreme” risk of water shortages due to climate change by the middle of the 21st century, according to a new study in ACS’s Journal of Environmental Science & Technology. The new report concluded that 7 in 10 of the more than 3,100 U.S. counties could face “some” risk of shortages of fresh water for drinking, farming and other uses. It includes maps that identify the counties at risk of shortages.In the analysis, Sujoy B. Roy, Ph.D., and colleagues explain that population growth is expected to increase the demand for water for municipal use and for electricity generation beyond existing levels. Global climate change threatens to reduce water supplies due to decreased rainfall and other factors compared to levels in the 20th century. Roy’s group developed a “water supply sustainability risk index” that takes into account water withdrawal, projected growth, susceptibility to drought, projected climate change and other factors in individual U.S. counties for the year 2050. It takes into account renewable water supply through precipitation using the most recent downscaled climate change projections and estimates future withdrawals for various human uses. Roy’s team used the index to conclude that climate change could foster an “extreme” risk of water shortages that may develop in 412 counties in southern and southwestern states and in southern Great Plains states. “This is not intended as a prediction that water shortages will occur, but rather where they are more likely to occur, and where there might be greater pressure on public officials and water users to better characterize, and creatively manage demand and supply,” Roy said.The authors acknowledge funding from the [Natural Resources Defense Council](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531997&m=1773877&u=ACS&j=9060919&s=http://www.nrdc.org/).

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| http://images.magnetmail.net/images/clients/ACS/020812EST_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531998&m=1773877&u=ACS&j=9060919&s=http://web.1.c2.audiovideoweb.com/1c2web3536/esthag.jpg) for high-resolution image |

ARTICLE #3 **FOR IMMEDIATE RELEASE**"Projecting Water Withdrawal and Supply for Future Decades in the U.S. under Climate Change Scenarios"[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17531999&m=1773877&u=ACS&j=9060919&s=http://pubs.acs.org/stoken/presspac/presspac/abs/10.1021/es2030774)CONTACT:Sujoy B. Roy, Ph.D.Tetra Tech Research & DevelopmentLafayette, Calif. 94549Phone: 925-283-3771Fax: 925-283-0780Email: sujoy.roy@tetratech.com [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif ARTICLE #4 **FOR IMMEDIATE RELEASE: A PressPac Instant Replay\*New evidence that bacteria in large intestine have a role in obesity**Journal of Proteome Research

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| http://images.magnetmail.net/images/clients/ACS/Obesityimage02.jpgNew evidence that bacteria in large intestine have a role in obesityCredit: iStock |

Bacteria living in people’s large intestine may slow down the activity of the “good” kind of fat tissue, a special fat that quickly burns calories and may help prevent obesity, scientists are reporting in a new study. The discovery, published in ACS’ Journal of Proteome Research, could shed light on ways to prevent obesity and promote weight loss, including possible microbial and pharmaceutical approaches, the authors said.Sandrine P. Claus, Jeremy K. Nicholson and colleagues explain that trillions of bacteria live in the large intestine of healthy people, where they help digest food and make certain vitamins. In recent years, however, scientists have realized that these bacteria do more — they interact with the rest of the body in ways that affect the use of energy and its storage as fat and finely tune the immune system. Claus and Nicholson decided to see how intestinal bacteria might affect the activity of brown fat. The “good” fat that burns calories quickly before they can be stored as fat, brown fat exists in small deposits in the neck area and elsewhere — not like “white fat” in flab around the waist and buttocks. No one had checked to see if those bacteria could have an effect on brown fat, the researchers noted.In experiments that compared “germ-free” (GF) mice, which don’t have large-intestine bacteria, and regular mice, the scientists uncovered evidence suggesting that the bacteria do influence the activity of brown fat. Brown fat in the GF mice seemed to be more active, burning calories faster than in regular mice. Large-intestine bacteria also seemed to be linked with gender differences in weight. Normal male mice were heavier and fattier than females, but those differences vanished in the GF mice. The research also uncovered major differences in the interactions between males and females and their intestinal bacteria that might help explain why the obesity epidemic is more serious and rapidly developing in women. Those and other findings may point the way toward approaches that kick-up the activity of brown fat in humans to prevent or treat obesity. The authors acknowledge funding from [Nestlé](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532000&m=1773877&u=ACS&j=9060919&s=http://www.nestle.com/Pages/Nestle.aspx) as part of the [Imperial College London-Nestlé strategic alliance](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532001&m=1773877&u=ACS&j=9060919&s=http://www1.imperial.ac.uk/surgeryandcancer/divisionofsurgery/biomol_med/key_projects/nestle/).

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| http://images.magnetmail.net/images/clients/ACS/021512JPR_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532002&m=1773877&u=ACS&j=9060919&s=http://web.1.c2.audiovideoweb.com/1c2web3536/jprobs.jpg) for high-resolution image |

ARTICLE #4 **FOR IMMEDIATE RELEASE**“Gut Microbiota Modulate the Metabolism of Brown Adipose Tissue in Mice”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532003&m=1773877&u=ACS&j=9060919&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/pr200938v)CONTACT:Jeremy K. Nicholson, Ph.D.Department of Surgery and CancerImperial College LondonSW7 2AZLondon, U.K.Phone: 44-20-7594-3195Email: j.nicholson@imperial.ac.ukorSandrine P. Claus, Ph.D.Department of Surgery and CancerImperial College LondonSW7 2AZLondon, U.K.Phone: 44-20-7594-3806Email: s.claus05@imperial.ac.uk**\* A previous PressPac item that you may have missed**   [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #5 **FOR IMMEDIATE RELEASE****New “smart pills” signal your iPhone to notify the doctor — and more from innovative drug company partnerships**Chemical & Engineering News

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| http://images.magnetmail.net/images/clients/ACS/021512CEN_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532004&m=1773877&u=ACS&j=9060919&s=http://web.1.c2.audiovideoweb.com/1c2web3536/021512CEN.jpg) for high-resolution image. |

Imagine a “smart pill” containing a biodegradable electronic chip that monitors how your body responds to the medicine, broadcasts the information to your iPhone, which then emails the information to your physician. It may sound like science fiction, but drug companies have been studying just such an approach, according to an article in the current edition of ACS’s Chemical & Engineering News, the weekly newsmagazine of the American Chemical Society, the world’s largest scientific society.In the cover story, C&EN Senior Editor Rick Mullin cites the smart pill venture between Proteus Biomedical, a start-up company in California, and established Swiss drugmaker Novartis as an illustration of the new and nontraditional research partnerships that are being forged. One major goal is to forge a closer, life-long relationship between pharmaceutical companies and patients, gleaning more information about a medication’s effects than now is available from clinical trials.The story cites numerous examples. Sanofi, a pharma company, and AgaMatrix, a developer of glucose meters, recently announced a product that connects a glucose meter to an iPhone, which can retrieve, archive and transmit data. In another nontraditional coupling, Sanofi is teaming with venture capitalists. They also are collaborating with academic scientists in new ways, partnering on projects early on. PTC Therapeutics and Roche are joining forces with SMA Foundation to include the patient perspective in developing drugs for spinal muscular atrophy. Even insurance companies are getting involved — Humana recently teamed with Pfizer, the world’s biggest drug company, and Medco Health Solutions, a pharmacy benefits management firm, to reduce inefficiencies in getting drugs to patients. Experts point out that these joint ventures could provide detailed information on how individual patients respond to therapy and could help usher in an era of personalized medicine.ARTICLE #5 **FOR IMMEDIATE RELEASE**“Odd Couplings”This story is available at: [http://cenm.ag/couplings](http://www.mmsend88.com/link.cfm?r=800557068&sid=17551378&m=1773877&u=ACS&j=9060919&s=http://cenm.ag/couplings)  [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif **Journalists’ Resources** **News media registration for ACS’ 243rd National Meeting & Exposition in San Diego**News media [registration](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532006&m=1773877&u=ACS&j=9060919&s=https://www.xpressreg.net/register/acsa032/media/start.asp) is now open for the American Chemical Society’s (ACS) 243rd National Meeting & Exposition in San Diego, March 25-29, 2012. The event will include more than 11,500 reports on new discoveries in medicine and health, food and nutrition, energy, the environment and other fields where chemistry plays a central role. One of the largest scientific conferences of 2012, the meeting will take place at the San Diego Convention Center and area hotels. To view full news release about meeting registration, click [here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532007&m=1773877&u=ACS&j=9060919&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=222&content_id=CNBP_028895&use_sec=true&sec_url_var=region1&__uuid=077ccb29-4a64-4924-98b7-ed219e050a6d). **Press releases, briefings, and more from ACS’ 242nd National Meeting**[www.eurekalert.org/acsmeet.php](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532008&m=1773877&u=ACS&j=9060919&s=http://www.eurekalert.org/acsmeet.php) [http://www.ustream.tv/channel/acslive](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532009&m=1773877&u=ACS&j=9060919&s=http://www.ustream.tv/channel/acslive%20) **Inside Science News Service**For thoroughly enjoyable multimedia coverage of the science behind the news — a valuable resource for journalists and news media organizations everywhere. [Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532010&m=1773877&u=ACS&j=9060919&s=http://www.insidescience.org/) to visit the Inside Science News website.**Must-reads from C&EN: Yunnan Sudden Unexpected Death**Discovery of three toxic amino acids in a previously unknown mushroom consumed in Yunnan province in China may help explain the mysterious deaths that have been occurring there for the last 30 years. For the full story, contact Michael Bernstein at m\_bernstein@acs.org.**ACS Pressroom Blog** The ACS Office of Public Affairs' [pressroom blog](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532011&m=1773877&u=ACS&j=9060919&s=http://www.acspressblog.com) highlights research from ACS’ 41 peer-reviewed journals and National Meetings. **Bytesize Science Blog** Educators and kids, put on your thinking caps: The American Chemical Society has [a blog for Bytesize Science](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532012&m=1773877&u=ACS&j=9060919&s=http://www.bytesizescience.com), a science podcast for kids of all ages.  **ACS Satellite Pressroom: Daily news blasts on Twitter** The satellite press room has become one of the most popular science news sites on Twitter. To get our news blasts and updates, create a free account at [https://twitter.com/signup](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532013&m=1773877&u=ACS&j=9060919&s=https://twitter.com/signup). Then visit [http://twitter.com/ACSpressroom](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532014&m=1773877&u=ACS&j=9060919&s=http://twitter.com/ACSpressroom) and click the ‘join’ button beneath the press room logo. **C&EN on Twitter**Follow @cenmag <[http://twitter.com/cenmag](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532015&m=1773877&u=ACS&j=9060919&s=http://twitter.com/cenmag)> for the latest news in chemistry and dispatches from our blog, C&ENtral Science <[http://centralscience.org](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532016&m=1773877&u=ACS&j=9060919&s=http://centralscience.org)>.**ACS Press Releases** [Press releases](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532017&m=1773877&u=ACS&j=9060919&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_NEWSRELEASES&node_id=222&use_sec=false&sec_url_var=region1&__uuid=50b5ab93-801d-4d0d-868f-b9507ff9d709) on a variety of chemistry-related topics.[To Top](#top)http://images.magnetmail.net/images/clients/acs/goldline.gif**ACS Videos**The American Chemical Society encourages news organizations, museums, educational organizations, and other web sites to embed links to these videos.**Spellbound: How Kids Became Scientists**

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| http://images.magnetmail.net/images/clients/ACS/Spellbound3.jpg |

The road to a Nobel Prize began for one scientist in elementary school when his father placed a sign on his bedroom door proclaiming him to be a “doctor.” This is just one of the many experiences that helped launch the careers of scientists from diverse backgrounds who are featured in a new ACS video series called [Spellbound: How Kids Became Scientists](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532018&m=1773877&u=ACS&j=9060919&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=1355&content_id=CNBP_028033&use_sec=true&sec_url_var=region1&__uuid=e8e6ee76-0abe-4e78-84c4-3717c995c65e). **Prized Science video series**

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Prized Science: How the Science Behind ACS Awards Impacts Your Life video series is new for 2011! In the first episode, see how Ahmed Zewail, Ph.D., developed a technology that's paving the way for new medicines, new fuels and new materials that will give people longer, healthier, happier lives. Zewail is the winner of the 2011 Priestley Medal. The second episode features the work of David Craik, Ph.D., who made advances toward new drugs for treating health problems that affect millions of people around the world, including antibiotic-resistant bacteria and AIDS. Craik is the winner of the ACS 2011 Ralph F. Hirschmann Award in Peptide Chemistry, sponsored by Merck Research Laboratories. More episodes will appear later in the year. The series is available at the [Prized Science](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532019&m=1773877&u=ACS&j=9060919&s=http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=446&content_id=CTD1_018821&use_sec=true&sec_url_var=region1&__uuid=594bce97-0b05-4df7-b759-1a0f9156c5d8) website and on DVD. **First Living, Dancing Periodic Table of the Elements**

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That famous chart displaying the chemical elements that make up everything on Earth — a fixture on the walls of classrooms and labs — literally comes alive in this new video from the American Chemical Society (ACS). [Chemists Can Dance!](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532020&m=1773877&u=ACS&j=9060919&s=http://bytesizescience.com/index.cfm/2011/3/29/The-Chemistry-Dance) features scores of chemists wearing symbols representing the elements, kicking up their heels to the tune of an original rap song. It's all part of ACS's celebration of the International Year of Chemistry. Check out the fun and share the link.**A Day Without Chemistry** Imagine a day without cars, electric lights, TV, telephones, safe food, and water, medicine, clothing, your house, and thousands of other familiar objects that make up modern society. Do it, and you are imagining a day in a world without chemistry. ACS explores that thought-provoking premise in a new high-definition video released as part of the celebration of the International Year of Chemistry. [A Day Without Chemistry](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532021&m=1773877&u=ACS&j=9060919&s=http://www.youtube.com/watch?v=AbfW_CMMe48) follows a person who sees more and more everyday necessities and conveniences disappear before his widening eyes.[The Chemistry of Sourdough Bread](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532022&m=1773877&u=ACS&j=9060919&s=http://www.bytesizescience.com/index.cfm/2010/9/27/Chemistry-of-Sourdough)[The Chemistry of Fireworks](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532023&m=1773877&u=ACS&j=9060919&s=http://www.bytesizescience.com/index.cfm/2010/6/25/Bytesize-Science-Presents-The-Chemistry-of-Fireworks)[The Chemistry of Grilling and Barbecuing](http://www.mmsend88.com/link.cfm?r=800557068&sid=17532024&m=1773877&u=ACS&j=9060919&s=http://www.bytesizescience.com/index.cfm/2010/6/15/Chemistry-of-Barbeque) [To Top](#top)  http://images.magnetmail.net/images/clients/ACS/goldline.gif**ACS Podcasts**

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