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| http://images.magnetmail.net/images/template/acs/gold.gifIn This Edition

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| [That caffeine in your drink – is it really “natural?"](#1) [Strong scientific evidence that eating berries benefits the brain](#ARTICLE_2)[Shift to green energy sources could mean crunch in supply of scarce metals](#3)[Older, cheaper vacuum cleaners release more bacteria and dust](#4)  [From “Refrigerator Mothers” to untangling the genetic roots of autism](#5) |

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| [**Journalists’ Resources:**](#Resources)[News media registration for ACS’ 243rd National Meeting & Exposition in San Diego](#Registration)[Press releases, briefings and more from ACS’ 242nd National Meeting Inside Science News Service](#Resources)[C&EN Video Spotlight: Exclusive Chinese Drug Firm Tour](#VideoSpotlight)[Must-reads from C&EN: Benjamin Franklin-era technology gets a new life](#mustread)[ACS Pressroom Blog](#pressroomblog) [*Bytesize Science* Blog](#bytesizeblog)[ACS Satellite Pressroom: Daily news blasts on *Twitter*](#twitter) [C&EN on Twitter](#CENTwitter)[ACS Press Releases](#releases) |

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| [**ACS Videos:**](#Videos)[Spellbound: A video series on how kids became scientists](#Spellbound)[Prized Science video series](#Dance) [First Living, Dancing Periodic Table of the Elements](#Mars)[A Day Without Chemistry](#daywithoutchemistry) [The Chemistry of Sourdough Bread](#sourdough)[The Chemistry of Fireworks](#fireworks)[The Chemistry of Grilling and Barbecuing](#barbecue) |

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| [**ACS Podcasts:**](#podcasts)   [Bytesize Science: A podcast for young listeners](#globalchallenges)[Global Challenges/Chemistry Solutions](#Bytesizescience)  [Science Elements: From the PressPac](#Scienceelements) [*SciFinder®* Podcasts](#scifinder)[**And Don't Miss:**](#dontmiss)[Chemistry Glossary](#glossary)[Chemical Abstracts Service (CAS) Web site on everyday chemicals](#CAS)[Colors of Chemistry Photo Contest Seeks Entries](#colors)[Science Connections from CAS](#CAS2)  |

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| http://images.magnetmail.net/images/clients/ACS/030712CoffeeIstock_thumb.jpgThat caffeine in your drink – is it really “natural?”Credit: iStock |

That caffeine in your tea, energy drink or other beverage — is it really natural? Scientists are reporting successful use for the first time of a simpler and faster method for answering that question. Their report appears in the American Chemical Society (ACS) journal Analytical Chemistry.Maik A. Jochmann, Ph.D., and colleagues point to the growing consumer preference for foods and beverages that contain only natural ingredients. Coffee, tea, colas, energy drinks and other caffeine-containing drinks are the most popular beverages in the world. Food regulatory agencies require that caffeine be listed on package labels, but do not require an indication of whether the caffeine is from natural or synthetic sources. The scientists set out to develop a faster, simpler method for categorizing caffeine’s origins.In the study, they describe use of a technique called stable-isotope analysis to differentiate between natural and synthetic caffeine. The test makes use of differences in the kinds of carbon isotopes – slight variations of the same element – found in caffeine made by plants and caffeine made in labs with petroleum-derived molecular building blocks. Their analysis, which takes as little as 15 minutes, found four products that contained synthetic caffeine, despite a “natural” label.The authors acknowledge funding from the [German Federal Ministry of Economics and Technology](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838904&m=1816811&u=ACS&j=9340928&s=http://www.bmwi.de/English/Navigation/root.html) and the [German Research Foundation](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838905&m=1816811&u=ACS&j=9340928&s=http://www.dfg.de/en/index.jsp).

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| http://images.magnetmail.net/images/clients/ACS/030712AnaChem_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838906&m=1816811&u=ACS&j=9340928&s=http://web.1.c2.audiovideoweb.com/1c2web3536/030712anachem.jpg) for high-resolution image |

ARTICLE #1 **FOR IMMEDIATE RELEASE**“Caffeine in Your Drink: Natural or Synthetic?”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838907&m=1816811&u=ACS&j=9340928&s=http://pubs.acs.org/stoken/presspac/presspac/abs/10.1021/ac203197d) CONTACT:Maik A. Jochmann, Ph.D.University of Duisburg-EssenEssen, GermanyPhone: +49-0-201-6775Fax: +49-0-201-6773E-mail: maik.jochmann@uni-due.de [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #2 **FOR IMMEDIATE RELEASE****Strong scientific evidence that eating berries benefits the brain**Journal of Agricultural and Food Chemistry

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| http://images.magnetmail.net/images/clients/ACS/030712BerriesIstock_thumb.jpgStrong scientific evidence that eating berries benefits the brainCredit: iStock |

Strong scientific evidence exists that eating blueberries, blackberries, strawberries and other berry fruits has beneficial effects on the brain and may help prevent age-related memory loss and other changes, scientists report. Their new article on the value of eating berry fruits appears in ACS’ Journal of Agricultural and Food Chemistry.In the article, Barbara Shukitt-Hale, Ph.D., and Marshall G. Miller point out that longer lifespans are raising concerns about the human toll and health care costs of treating Alzheimer’s disease and other forms of mental decline. They explain that recent research increasingly shows that eating berry fruits can benefit the aging brain. To analyze the strength of the evidence about berry fruits, they extensively reviewed cellular, animal and human studies on the topic.Their review concluded that berry fruits help the brain stay healthy in several ways. Berry fruits contain high levels of antioxidants, compounds that protect cells from damage by harmful free radicals. The two also report that berry fruits change the way neurons in the brain communicate. These changes in signaling can prevent inflammation in the brain that contribute to neuronal damage and improve both motor control and cognition. They suggest that further research will show whether these benefits are a result of individual compounds shared between berry fruits or whether the unique combinations of chemicals in each berry fruit simply have similar effects.

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| http://images.magnetmail.net/images/clients/ACS/030712JAgFoodChem_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838908&m=1816811&u=ACS&j=9340928&s=http://web.1.c2.audiovideoweb.com/1c2web3536/030712jagfoodchem.jpg) for high-resolution image |

ARTICLE #2 **FOR IMMEDIATE RELEASE**“Berry Fruit Enhances Beneficial Signaling in the Brain”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838909&m=1816811&u=ACS&j=9340928&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/jf2036033)CONTACT:Barbara Shukitt-Hale, Ph.D.Human Nutrition Research Center on AgingTufts UniversityBoston, Mass. 02111Phone: 617-556-3118 Fax: 617-556-3222 E-mail: barbara.shukitthale@ars.usda.gov[To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gifARTICLE #3 **FOR IMMEDIATE RELEASEShift to green energy sources could mean crunch in supply of scarce metals**Environmental Science & Technology

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| http://images.magnetmail.net/images/clients/ACS/030712TurbinesIstock_thumb.jpgShift to green energy sources could mean crunch in supply of scarce metalsCredit: iStock |

A large-scale shift from coal-fired electric power plants and gasoline-fueled cars to wind turbines and electric vehicles could increase demand for two already-scarce metals — available almost exclusively in China — by 600-2,600 percent over the next 25 years, a new study has concluded. Published in the ACS journal Environmental Science & Technology, it points out that production of the two metals has been increasing by only a few percentage points per year.Randolph E. Kirchain, Ph.D., and colleagues explain that there has been long-standing concern about a secure supply of the so-called rare earth elements, 17 elements adjacent on the periodic table of elements. These metals are used to make airplane components and lasers for medical imaging. Two of the rare earths, dysprosium and neodymium, are critical for current technologies for manufacturing wind turbines that generate electricity and electric vehicles. Those green technologies, Kirchain notes, would be essential in carrying out a proposed stabilization in atmospheric levels of carbon dioxide, the main greenhouse gas, at 450 parts per million. Kirchain’s team analyzed the supply of lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium and yttrium under various scenarios.They projected the demand for these 10 rare earth elements through 2035. In one scenario, demand for dysprosium and neodymium could be higher than 2,600 and 700 percent respectively. To meet that need, production of dysprosium would have to grow each year at nearly twice the historic growth rate for rare earth supplies. “Although the RE [rare earth] supply base has demonstrated an impressive ability to expand over recent history, even the RE industry may struggle to keep up with that pace of demand growth,” the authors said. But they also point out that shortfalls in future supply could be mitigated “through materials substitution, improved efficiency, and the increased reuse, recycling, and use of scrap.”

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| http://images.magnetmail.net/images/clients/ACS/030712EST_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838910&m=1816811&u=ACS&j=9340928&s=http://web.1.c2.audiovideoweb.com/1c2web3536/030712est.jpg) for high-resolution image |

ARTICLE #3 **FOR IMMEDIATE RELEASE**“Evaluating Rare Earth Element Availability: A Case with Revolutionary Demand from Clean Technologies”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838911&m=1816811&u=ACS&j=9340928&s=http://pubs.acs.org/stoken/presspac/presspac/abs/10.1021/es203518d)CONTACT:Randolph E. Kirchain, Ph.D.Massachusetts Institute of TechnologyCambridge, Mass., 02139Phone: 617-253-4258Fax: 617-258-7471E-mail: kirchain@mit.edu [To Top](#top)http://images.magnetmail.net/images/clients/ACS/goldline.gif ARTICLE #4 **FOR IMMEDIATE RELEASE: A PressPac Instant Replay\*****Older, cheaper vacuum cleaners release more bacteria and dust**Environmental Science & Technology

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| http://images.magnetmail.net/images/clients/ACS/010412VacuumIstock_thumb.jpgOlder, cheaper vacuum cleaners release more bacteria and dustCredit: iStock |

Some vacuum cleaners — those basic tools for maintaining a clean indoor environment in homes and offices — actually contribute to indoor air pollution by releasing into the air bacteria and dust that can spread infections and trigger allergies, researchers report in a new study. It appears in ACS’ journal Environmental Science & Technology.Lidia Morawska and colleagues explain that previous studies showed that vacuum cleaners can increase levels of very small dust particles and bacteria in indoor spaces, where people spend about 90 percent of their time. In an effort to provide more information about emission rates of bacteria and small dust particles, the scientists tested 21 vacuum cleaners sold in Australia. The vacuums came from 11 manufacturers, included those marketed for household and commercial use, ranged in age from six months to 22 years and cost from less than $100 to almost $800. They looked at the effects that age, brand and other factors had on the amount of small particles and bacteria released into air.All of the vacuums released some fine dust and bacteria into the air. Surprisingly, vacuums with so-called High-Efficiency Particulate Air (HEPA) filters in some cases released only slightly lower levels of dust and bacteria. Newer and more expensive vacuum cleaners were generally less polluting than older or less expensive models.

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| http://images.magnetmail.net/images/clients/ACS/030712EST_thumb(1).jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838912&m=1816811&u=ACS&j=9340928&s=http://web.1.c2.audiovideoweb.com/1c2web3536/030712est.jpg) for high-resolution image |

ARTICLE #4 **FOR IMMEDIATE RELEASE**“Vacuum Cleaner Emissions as a Source of Indoor Exposure to Airborne Particles and Bacteria”[DOWNLOAD FULL TEXT ARTICLE](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838913&m=1816811&u=ACS&j=9340928&s=http://pubs.acs.org/stoken/presspac/presspac/full/10.1021/es202946w)CONTACT:Lidia Morawska, Ph.D.Queensland University of TechnologyBrisbane, AustraliaPhone: +617-3138-2616Email: l.morawska@qut.edu.au**\* 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****From “Refrigerator Mothers” to untangling the genetic roots of autism**Chemical & Engineering News

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| http://images.magnetmail.net/images/clients/ACS/030712CEN_thumb.jpg[Click here](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838914&m=1816811&u=ACS&j=9340928&s=http://web.1.c2.audiovideoweb.com/1c2web3536/030712CEN.jpg) for high-resolution image. |

With the “Refrigerator Mother” notion about the cause of autism a distant and discredited memory, scientists are making remarkable progress in untangling the genetic roots of the condition, which affects millions of children and adults, according to an article in the current edition of Chemical & Engineering News. C&EN is the weekly newsmagazine of the American Chemical Society, the world’s largest scientific society.In the story, C&EN Associate Editor Lauren K. Wolf points out that most people in the 1960s believed autism resulted from a lack of maternal warmth and emotional attachment. It was a hypothesis popularized by Austrian-born American child psychologist and writer Bruno Bettelheim. Now scientists around the globe are focusing on genes that have been implicated in autism and related conditions, collectively termed “autism spectrum disorders.” That research may solve mysteries about autism, which affects 1 in 110 children in the U.S. Among them: what causes autism, why does it affect more boys than girls and what can be done to prevent and treat it?C&EN explains that scientists now have solidly implicated certain genes as being involved in autism. Most of those genes play a role in the transmission of signals through the junctions or “synapses” between nerve cells. Synapses are the territory where one nerve releases a chemical signal that hands off messages to an adjoining nerve. The human brain has an estimated 1,000 trillion synapses, and they are hot spots for miscommunications that underpin neurological disorders like autism. Scientists now are gleaning information on what those genes do, what brain circuits they affect and how the proteins they produce function. In doing so, they are paving the way for future medications for autism spectrum disorders. ARTICLE #5 **FOR IMMEDIATE RELEASE**"The Inner Workings Of Autism”This story is available at: [http://cenm.ag/autism](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838916&m=1816811&u=ACS&j=9340928&s=http://cenm.ag/autism)  [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=17838917&m=1816811&u=ACS&j=9340928&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=17838918&m=1816811&u=ACS&j=9340928&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=17838919&m=1816811&u=ACS&j=9340928&s=http://www.eurekalert.org/acsmeet.php) [http://www.ustream.tv/channel/acslive](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838920&m=1816811&u=ACS&j=9340928&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=17838921&m=1816811&u=ACS&j=9340928&s=http://www.insidescience.org/) to visit the Inside Science News website.**C&EN Video Spotlight: Exclusive Chinese Drug Firm Tour**C&EN business reporter Jean-Francois Tremblay got insider access to the Chinese drug R&D firm HEC Pharm, which is rapidly building new labs and company housing facilities in a bid to become a major innovator in both drug and energy research. The [video](http://www.mmsend88.com/link.cfm?r=800557068&sid=17865891&m=1816811&u=ACS&j=9340928&s=http://www.youtube.com/watch?v=UWX5caBrqFg&feature=youtu.be) includes a tour of the labs and a peek at a team-building exercise for the company’s sales force—military-style drills.This video pairs with a story in the Feb. 27 print issue of C&EN: R&D Shapes Up at HEC Pharm.[http://cenm.ag/hec](http://www.mmsend88.com/link.cfm?r=800557068&sid=17865892&m=1816811&u=ACS&j=9340928&s=http://cenm.ag/hec)**Must-reads from C&EN: Benjamin Franklin-era technology gets a new life**A device for storing electric current that fascinated Benjamin Franklin in the 18th century is fostering excitement in the 21st century as a high-tech way of storing energy. 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=17838922&m=1816811&u=ACS&j=9340928&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=17838923&m=1816811&u=ACS&j=9340928&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=17838924&m=1816811&u=ACS&j=9340928&s=https://twitter.com/signup). Then visit [http://twitter.com/ACSpressroom](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838925&m=1816811&u=ACS&j=9340928&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=17838926&m=1816811&u=ACS&j=9340928&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=17838927&m=1816811&u=ACS&j=9340928&s=http://centralscience.org)>.**ACS Press Releases** [Press releases](http://www.mmsend88.com/link.cfm?r=800557068&sid=17838928&m=1816811&u=ACS&j=9340928&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=17838929&m=1816811&u=ACS&j=9340928&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=17838930&m=1816811&u=ACS&j=9340928&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=17838931&m=1816811&u=ACS&j=9340928&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=17838932&m=1816811&u=ACS&j=9340928&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=17838933&m=1816811&u=ACS&j=9340928&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=17838934&m=1816811&u=ACS&j=9340928&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=17838935&m=1816811&u=ACS&j=9340928&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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