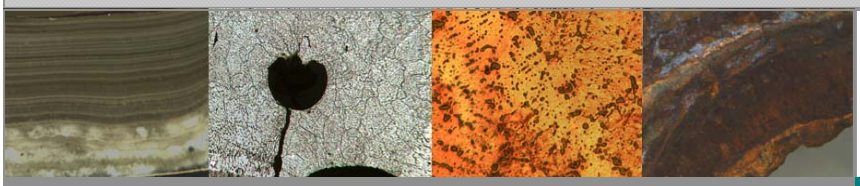
NUTS & BOLTS



New Hampshire MATERIALS LABORATORY, INC.
Your Problem Solving Partner

LEAD IN JEWELRY AND GOING GREEN ON THE GREEN

January 2009 ISSUE 1

Welcome to New Hampshire Materials Laboratory

In our hopes to become a greener and more environmentally friendly company, New Hampshire Materials Laboratory is proud to introduce the newest version of our Nuts & Bolts newsletter. We hope you enjoy this issue!

NHML is pleased to announce the newest member of our staff, Tony Tipton a Metallurgical Engineer. Watch for Tony's full bio in our next **Nuts & Bolts** or go to our website: **www.nhml.com.**

Tim Kenney
Laboratory Director

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Be sure to review our **industry definitions** if you need assistance with terminology

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Testing for Lead in Jewelry

In 2007, the words lead in jewelry, toys and other consumer products were prevalent in the news. Lead in children's jewelry continues to be a concern.

What is lead? Lead is toxic metal found in the earth's crust. Because of its abundance, low cost, and physical properties lead and lead compounds have been used in a wide variety of products including jewelry.

Lead is known to cause serious health problems especially in children. They can range from behavioral issues to neurological damage. It is estimated that more than 310,000 children under the age of six have been poisoned lead.

In December 2007, the federal government passed a law (PL 110-314, sec. 101) which governs the amount of acceptable lead content in jewelry. As of February 10, 2009, the amount of lead found in children's jewelry can not exceed .06% by weight (600 ppm). This will continue to decrease until August, 2011. At which time the lead amount will not be able to exceed 100 ppm.

Did You Know….

"Organic liquids, such as cleaning fluids, detergents, gasoline, lubricants, and sealants, may seriously reduce the mechanical properties of plastics," reports Koksal Tonyali in an article from the ASM Engineered Materials Handbook.

The effects of organic materials on plastics can be numerous and diverse. The absorption of organic fluids into plastic assemblies can permanently disrupt the physical

Before, these issues were pushed to the front headlines. Some small jewelry manufacturers had foresight. Over the past five years, New Hampshire Materials Laboratory has been providing chemical analysis for their products prior to selling them. Recently, during a non-destructive screening analysis, we found the jewelry to be lead free. Yet, it contained cadmium, a metal of nearly equal toxicity.

If you are a jewelry manufacturer large or small, you may want to consider testing the jewelry parts to ensure you are in accordance to the federal government law. New Hampshire Materials is here to assist you. We consider ourselves to be our customer's problem solving partners. Visit us at our website: **www.nhml.com** for all our services.

Going Green on the Green

Arizona golf ball manufacturer, Dixon, has developed a line of environmentally responsible golf balls. Dixon's Earth golf ball is "green throughout and does not contain heavy metals like tungsten, cobalt, lead, or non-renewable synthetic materials and compounds often found in mainstream products. The ball has a graded-density core made from a proprietary polymer combination that preserves the playable properties of the ball. The ball is fabricated from new materials to ensure consistent playing properties but is 100% recyclable. Dixon works with a local company to recycle the balls into playgrounds, football field turf, etc.

The golf balls are no less playable for being environmentally friendly. In testing, the Dixon Earth ball was found to play better than most two-piece golf balls and out-performed several three-piece, urethane cover balls. It plays the distance, spins, sticks on the greens, and has plenty of "feel" when putting. Each box of Dixon Earth golf balls includes a return mail pouch so golfers can mail used golf balls back to Dixon easily. Introduced earlier this year the Dixon Earth golf ball conforms to USGA certification standards. Website: **www.dixongolf.com.**

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Structure can result in reduced part performance or personal hazards.

Visible symptoms of organic chemical attack can include swelling, cracking, embrittlement, crazing (a network of ultrafine cracks) and color shifts. The invisible changes, such as variations in tensile or impact strength or flexural modulus can result in catastrophic part failure.

Consideration of these chemical reactions during design and verification testing once in production are good safeguards against unexpected part failure.

New Hampshire Materials Lab
www.nhml.com • lab@nhml.com • info@nhml.com
Tel: 800-334-5432 or 603-692-4110 • Fax: 603-692-4008