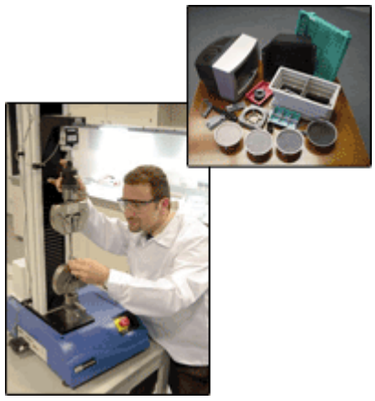
Instron® TechNotes **Getting the most up-to-date information on materials testing**

In This Issue

ISSUE 8

Application Story

Protecting Our Environment: Reducing Waste in Landfills



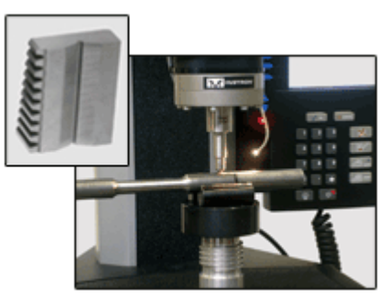
More than 60% of the refuse going to local landfills is business/industrial waste. Much of the plastic from this waste could actually be recycled. However, in order to recycle plastics, the materials must be recovered from the items they are part of; and the many plastic types must be separated from non-plastic materials and from each other. MBA Polymers, Inc. is leading the way with research, development and even large-scale commercial efforts in plastic recycling.

MBA Polymers, and its newly opened manufacturing plants in China and Austria, recover high-value plastics from popular electronics such as computers, televisions and even automobiles. Using a proprietary separation process developed over the past 12 years by R&D Manager Brian Riise and several colleagues, MBA is able to remove non-plastic materials from complex durable goods and recover purified streams of ABS and high-impact polystyrene flakes. These flakes are then extruded into pellets; a process that requires less than 10% of the energy needed to manufacture virgin plastics. MBA then measures several common mechanical properties, including tensile properties, using an Instron universal testing system.

"After the MBA separation process, we are able to create products with mechanical properties similar to what you would find in a virgin plastic. We tend to sell these pellets to customers who normally use virgin plastics, including some very demanding electronic equipment manufacturers," says Riise.

Tech Tip

Select Jaw Faces Based on the Hardness of Your Specimens



The hardness of metals and metal alloys varies. This can be a challenge when gripping metal specimens for a tension test. The jaw face material must be harder than the test specimen to provide adequate gripping and extended jaw face service life. If your jaw faces are too hard, the serrations could crack. If your jaw faces are too soft, the serrations will dull and your specimen may slip. As a general rule, the jaw face hardness should be at least 15 Rockwell scale points (Rc) higher than the test specimen.

Soft materials, such as brass and magnesium, may require serrated jaw faces with as few as 4 teeth per inch. Gripping of medium hardness materials, such as sheet steel, is often done with serrated jaw faces having 16 to 25 teeth per inch. Harder steels may require smooth jaw faces coated with carbide particles called surfalloy. Match your jaw face selection to the hardness of the test specimen using the Rc 15 point rule to reduce slippage problems and extend your jaw face service life.

Visit us online to reference our Hardness Conversion Chart. For more information, contact us.

Sign up Today!

If you would like to subscribe to this newsletter or others, click the link below.

Subscribe >>

Ask the Expert

Have a question about materials testing?
Submit your question and you may see it featured in a future issue of TechNotes.

Ask Us >>

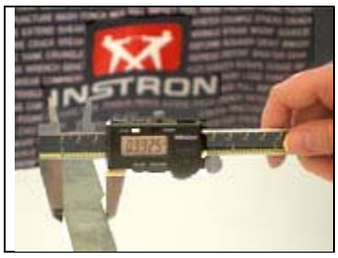
FREE iPod Nano

Tell us about your testing and you could win an iPod Nano!

Learn how >>

You Asked - We Answered

Q: What is the Difference Between Load and Stress?



A: In mechanical testing, **load** is the amount of force applied to a specimen by a test frame and is usually measured directly with a load cell. **Stress** is a measure of the strength of a material and is derived by dividing the load applied to a test specimen by the original cross-sectional area of the specimen. Load and stress are related by the following equation: Stress = Load / Area.

1 N = 0.2248 lbf = 0.1020 kgf
1 kPa = 1 kN/mm^2 = 0.145 psi = 0.0102 kg/cm^2

What do you think? Tell us!

Instron Corporate Headquarters
825 University Avenue
Norwood, MA 02062-2643 USA
http://www.instron.com/