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Reactive Protection Technology

This column started out as a product review of the Extreme Edge tablet case made by G-Form. The company representative whom I spoke to at a technology conference guaranteed that G-Form's product revolutionized impact protection.

Its protective cases and sports protective "armor" use what the company calls Reactive Protection Technology (RPT™) that stiffens when it is impacted. The armor case then absorbs the shock that could have damaged your iPad. (See Photo 1.) The company also makes body protective gear for sports enthusiasts. It wants you to use its products not only to protect your electronics but also to protect your elbows, heart, and other easily damaged body parts. (See Photo 2.)

RPT is a Poron XRD composite, and this material, made by Rogers Corp., has a miraculous ability to protect whatever it surrounds. Rawlings, a manufacturer of sporting equipment, has a full line of protective gear that uses Poron XRD. Rawlings advertises that the Poron in its gear can absorb "up to 90% of the most intense force—hit after hit" that players receive while playing football. Rawlings' slogan for its wearable protective garments is "feel the intensity of the sport, not the impact." The company uses Poron XRD in football helmets, and shoulder pads, and as spot protection pads in other protective garments.

Rogers Corp. divides its Poron urethanes into three categories based on their specific real-world uses. Each category has a urethane that has been tweaked to best meet the engineering characteristics associated with the shocks it will have to absorb once it is molded into products.

Rogers Poron microcellular is designed to be used for gaskets and

sealants, or as an absorber of sound and vibration energy. There is a good chance you have Poron ShockSeal protecting the glass screen of your computer, tablet, or Smartphone. At the Rogers' website ([http://rogerscorp.com/case-studies/5/protecting-](http://rogerscorp.com/case-studies/5/protecting-tablet-displays.aspx)



Photo 2—The yellow patches on this shirt protect the wearer from physical injury.



tablet-displays.aspx) you can see a short video that shows ShockSeal in action. The video might help to explain why your unprotected cell phone screen has been able to survive all the times that you dropped it even if it isn't protected by a case.

Rogers Poron Medical urethanes are used in medical orthotics to reduce pressure and shock, control joint movement, and protect already injured areas from further injury. Ten months ago, my doctor diagnosed what I thought was a foot injury as plantar fasciitis. His prescription for my condition was a specific Poron

orthotic shoe insert. This inset fully stopped the pain I was previously experiencing when walking or jogging.

The Rogers Poron performance urethanes are specifically designed to protect people from injury when they are engaged in sports. G-Form is possibly the first company to realize how the Poron performance urethane can also be used to protect electronics. G-Form, Rawlings, and my doctor can't guarantee that body parts or electronics protected by Poron won't be injured or break. They do know that Poron will reduce the impact force and that will reduce the chance

Photo 1—The shell of this case is designed to stiffen when it is impacted so it can absorb shocks that might damage an iPad.

of physical injury or damage to an electronic device or body part.

What originally piqued my interest and eventually led to this column was a video that showed a batting cage pitching machine throwing a ball at an iPad inside a G-Form Extreme Edge case. I didn't know until I conducted research for this column that I was walking on the same stuff that G-Form molded into cases.

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Since this column started out as a product review, I think I need to take the time to evaluate the functionality

from extreme shocks. To hit a home run the designers also needed to take into account the normal functionality

car rollover, but in its present form it doesn't positively impact your use of your iPad as a communication device. However, in the case of a classroom set of iPads, in extreme sports, or active military duty, this case might be the perfect choice because it does, very effectively, absorb extremely violent shocks.

Many people have taken the time to record video that shows the protective nature of G-Form's Reactive Protection Technology. You can find links to some of these videos at www.technologytoday.us/page13.html.



Photo 3—The four corners that hold an iPad in this case offer some frontal protection from most drops, but they also block easy access to the edge controls on the tablet.

of the Extreme Edge tablet case that led to my initial research into reactive protection urethanes.


In industrial design courses, students learn that the form of a product should be an outgrowth of the product's function. The designers of this case would have hit a home run if the only function of a tablet case was protecting the device inside it

of the tablet it encases. Their case doesn't provide any access to most of the buttons that Apple placed on the edge of the iPad. The four urethane corners that hold the iPad in the case block easy access to the ON button, sound/vibration switch, and volume control. (See Photo 3.)

This case can stop baseballs and perhaps help your iPad survive a

Recalling the Facts

1. Why did G-form locate its Poron XRD composite material at the specific locations that you see in the photographs that illustrate this column?

2. The form of a product should be an outgrowth of its function. Identify a product that you think can be improved and describe the changes that you think will make it a better product. 

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The National Academy of Engineering developed an action plan to address the "technology" and "education" components of STEM (science, technology, engineering and math) with representatives from business, government and education to address growing employment demands.

Strengthen the "T&E" pipeline to address the looming shortage of talent prepared to enter these careers. Prepare your students by being the best.