



product development  
technologies, inc.

# PULSE

A bi-monthly publication by PDT

Issue 4  
August 2008



## In this issue:

- What do those Recycling Numbers Really Mean?
- Designing for Defense: ITAR Certification
- Asian Design: Part 2: The Opportunities and Realities



# The Meaning of Plastic Recycling Numbers



Number 1 Plastics

**PET or PETE**

**(polyethylene terephthalate)**

Found in: Soft drink, water and beer bottles; mouthwash bottles; peanut butter containers; salad dressing and vegetable oil containers; ovenable food trays.

Recycled into: Polar fleece, fiber, tote bags, furniture, carpet, paneling, straps, (occasionally) new containers



Number 3 Plastics

**V (Vinyl) or PVC**

Found in: Window cleaner and detergent bottles, shampoo bottles, cooking oil bottles, clear food packaging, wire jacketing, medical equipment, siding, windows, piping

Recycled into: Decks, paneling, mudflaps, roadway gutters, flooring, cables, speed bumps, mats



Number 2 Plastics

**HDPE (high density polyethylene)**

Found in: Milk jugs, juice bottles; bleach, detergent and household cleaner bottles; shampoo bottles; some trash and shopping bags; motor oil bottles; butter and yogurt tubs; cereal box liners

Recycled into: Laundry detergent bottles, oil bottles, pens, recycling containers, floor tile, drainage pipe, lumber, benches, doghouses, picnic tables, fencing



Number 4 Plastics

**LDPE (low density polyethylene)**

Found in: Squeezable bottles; bread, frozen food, dry cleaning and shopping bags; tote bags; clothing; furniture; carpet

Recycled into: Trash can liners and cans, compost bins, shipping envelopes, paneling, lumber, landscaping ties, floor tile



...continued



Number 5 Plastics

**PP (polypropylene)**

Found in: Some yogurt containers, syrup bottles, ketchup bottles, caps, straws, medicine bottles

Recycled into: Signal lights, battery cables, brooms, brushes, auto battery cases, ice scrapers, landscape borders, bicycle racks, rakes, bins, pallets, trays



Number 7 Plastics

**Miscellaneous**

Found in: Three- and five-gallon water bottles, 'bullet-proof' materials, sunglasses, DVDs, iPod and computer cases, signs and displays, certain food containers, nylon



Number 6 Plastics

**PS (polystyrene)**

Found in: Disposable plates and cups, meat trays, egg cartons, carry-out containers, aspirin bottles, compact disc cases

Recycled into: Insulation, light switch plates, egg cartons, vents, rulers, foam packing, carry-out containers



## WHAT DO THE NUMBERS REALLY MEAN?

The plastic recycling symbols were created by the Society of the Plastics Industry in 1988 at the urging of recyclers around the country. Unfortunately, there is much confusion surrounding the real meaning of the symbols and whether they truly mean the plastic you're holding is, in fact, recyclable.

Here's where it gets tricky: the arrows in the symbol are meaningless. The number inside the arrows, which indicates the general class of resin used to make the container, is the important information. This number identifies the molecule shape of the plastic, or what type of plastic it is. It only indicates the kind of plastic, not that it can be recycled.

The Attorneys General of 11 states objected to false and misleading claims about plastic recyclability. Recently, they and the American Plastics Council reached a settlement that paves the way for a true outlining of what claims can or cannot be made about plastic recycling and recyclability.

This is a step in the right direction because it will (hopefully) lead to a more educated public. I personally hope to see this awareness spark us- the designers, engineers, product developers and manufacturers of the world- to educate ourselves on what we use to build the products that will surround us in the future and encourage us to push for, and support those, who make advances in those materials and the life they have after we're done with them.

-Tim J Morton

# Designing for Defense: ITAR Certification

With the intertwining of today's global economy, an increase in defense related product development and concerns about national security at an all time high, new rules and regulations have been constructed by the US government to address these issues in the context of product development and intellectual property.

Recently, headlines have highlighted big penalties for companies who don't follow rules set by the International Traffic in Arms Regulations (ITAR), a set of rules that anyone involved in defense projects must follow. Hundred million dollar fines are not unheard of and there are serious consequences for either being unknowledgeable or uncooperative with the guidelines set by the government.

PDT works in a wide range of industries on a variety of products. One of the areas in which we have expertise and on-going projects is the defense industry. Because of this, we felt it was crucial to take the proper steps to become compliant with the government's ITAR regulations to ensure our processes are appropriate and sufficient when working on these projects.

## The Challenge

Design firms, by nature, are open and creative. Our teams work together in open environments to generate innovative ideas and solutions for customers. Designing under ITAR created a challenge for PDT as it became necessary to protect this work and safeguard information or products deemed "defense articles."

Given that the environment at PDT was designed to facilitate creative brainstorming, everyday tasks that other firms take for granted, such as file sharing and open communication, gave rise to ITAR compliance issues. Employees were expected to still work creatively in teams, yet protect and properly handle the sensitive work they were charged with. PDT has met the challenge by creating specially secured work-spaces, setting up separate computer servers, restricting access to unauthorized persons, maintaining strict document control procedures, and conducting random internal audits to ensure compliance.

## Steps to Ensure Compliance

Unique to the world of design firms, PDT maintains in-house counsel. Under legal supervision, PDT was registered with the Directorate of Defense Trade Controls (DDTC) in mid-2006. By registering, PDT is assuring not only the US Government, but also its defense industry customers that we will abide by all rules and regulations set forth by the ITAR.

In early 2006, PDT began taking active steps to become compliant and we undertook the time-consuming but necessary process of educating every employee on the regulations. PDT's legal counsel and myself, the regulatory compliance manager, were both charged with ITAR issue management. While we have much experience related to process and procedure controls, as PDT is ISO 9001-2000 and ISO 13485 certified, it was necessary to take a lengthy training course that equipped us to properly train every employee within the company on the rules and unique requirements we must abide by for ITAR. To date, every PDT employee has been trained and annual re-training of all employees occurs in November of

each year.

In addition, isolated and locked project zones were allocated specifically for ITAR-controlled projects. Only screened, approved employees that meet ITAR restrictions who are assigned to that specific project have access to these zones. These zones are secure both day and night and allow our team members a place to openly brainstorm, sketch and converse about their sensitive work. Similarly, our secure, firewall-protected servers have special ITAR areas that are password protected and are only accessible to the project members.



## ... continued

PDT employees are encouraged to only use US citizens and US suppliers when designing projects under ITAR. Although it is possible to obtain a license from the government to be able to export anything from information to products, this process is costly and very time-consuming. Though there may be added costs to this compliance, these added costs are minute compared to the costs, both in time and money, involved in obtaining a license. However, because PDT is registered with the government, obtaining a license to export is an option open to our customers.

It is imperative that PDT maintains compliance at all times for all customers because of accountability relating to the security of the country, not to mention the severe financial penalty for not doing so.

A company found in violation of ITAR may be fined a lofty \$500,000 per occurrence of a violation- and these fines can skyrocket in the blink of an eye. As an example, the government considers a violation to be one email containing controlled information in the form of a drawing sent to one non-US person.

If two drawings were sent in that same email to that same non-US person, then two occurrences would be logged and the fine could reach \$1,000,000. That's pretty painful for one email conceivably composed and sent in a five-minute time frame, but the government believes these heavy fines are necessary to deter non-compliance. Some recent fines imposed by the government on corporations who have violated the regulations have reached a frightening \$15 - \$100 million.

Obviously, it is unsettling how easily and quickly violations can add up if a company is not persistently careful and educated on the rules. By maintaining current knowledge of ITAR regulations as well as IP issues, PDT has the unique ability to offer world-class creative services while maintaining strict procedures that ensure the security of our customers' data. In a time when the security of the country is constantly being questioned, it is extremely important for US companies to be acutely aware of just what they are sending beyond our borders or sharing with non-US citizens. When our clients trust PDT to help them with their sensitive projects, they can rest assured that these issues will be handled properly and with the utmost regard for national security.

-Diane Enot and Heather Kartsounes



# Asian Design: The Opportunities and Realities

In our last issue of PULSE we explored the rising Asian design landscape, the companies who seem to be getting it right and the trends we see developing. In the second half of this article let's look at the situation from another angle—what are the real opportunities in Asia, and is it time to start thinking about them in the context of your firms' product development process?

## The Challenge for Chinese Design

It is, admittedly, the early years for Asian design and innovation in countries like China and India (in sharp contrast to Korea, which has climbed the curve quickly and is fast approaching Japan's level of international design sophistication). While savvy and well funded Asian competitors such as Haier and Lenovo are gaining market share in the US by investing in research and development to target US consumers, the large majority of Chinese firms do not yet understand your customers and see little incentive to learn given the perceived opportunities in their own market.

Despite an increased awareness of consumer needs, design in China is still largely focused on more superficial and aesthetically-oriented cultural influences. Decoration, rich color palettes and opulent (often non-functional) forms are deeply engrained in Chinese history and are seen throughout daily life – a stark contrast to the minimal, subtle design elements common to many western products and environments.

While design leaders in the west have for many years appreciated the value of customer led solutions, Chinese manufacturers as a whole still concentrate on decoration and form for differentiation and invest little toward product development aimed at rich user experiences and functionality. And it must be acknowledged that the Chinese people are proud of their history and culture, and will not soon abandon its influence on design. The challenge for western firms, then, will be to embrace these perspectives while integrating appropriate solutions to user needs and market opportunities in their products.

Perhaps in part because they don't invest in understanding their customers (and in part because manufacturing costs have been so low, though that is changing) Asian manufacturers often approach new product introductions by applying a strategy of overwhelming quantity. Multiple SKU's, variations on a theme and niche designs are “thrown against the wall to see what sticks”. That isn't really an option for PDT's clients, and will (as costs increase) soon lose its appeal to the Chinese as well. While a limited number of Chinese manufacturers are starting to tap into US research and design resources to localize their product lines for the US market, this is limited to a select few firms with more visionary management.

The Chinese manufacturing sector was built on replicating high volume products with low cost margins. The Chinese education system, with its focus on learning through repetition and technical skills, echoes that solution. At Chinese schools and corporations a “groupthink” mentality—where designers are hesitant to stand apart from the team



in decision making—often rules. And while there are surely creative professionals with innovative ideas, the culture as a whole can stifle such individuals and restrict perspectives.

Analogously, Chinese manufacturers are famously skilled in producing counterfeit goods, learning from the success of others and quickly duplicating such products at an astounding pace at a low cost. But this “success” has also become a significant disincentive for domestic design innovation as local firms seeking to compete with a more “western” approach to product development suffer the same costly theft of their intellectual property that US and European manufacturers have battled for years. In time, as Chinese companies face the same problems foreigners have endured, the government will likely become more willing to crack down to everyone's benefit. But for the moment intellectual property protection is still very much an issue to contend with.

Perhaps the most significant new challenge to a China that wishes to compete with the west in

...continued



terms of design and innovation is the recent rash of tainted Chinese exports. This much publicized problem will seriously hinder China's growth in western markets as consumers currently have a fundamental lack of trust in the safety of Chinese goods. This could be advantageous to firms wishing to reach Chinese consumers, though, as surveys show that they place more trust in imported goods than those from domestic manufacturers - who they feel regularly cut corners in pursuit of greater profits.

### The Asian Design Opportunity

The challenges above paint a picture of a superpower with much to learn, but the fact that China is an emerging (if not formally emerged) economic superpower is not up for debate. The question is how can our clients capitalize on this coming wave rather than be swamped by it? Simply put, manufacturers

must develop a strategy to gain a foothold in the minds and wallets of Chinese consumers. Western firms who gain brand recognition and loyalty at this early stage will have the advantage over all who follow.

But merely replicating approaches for the US or European markets will more than likely fail, as will superficial cosmetic treatments or offering lower cost variations of the same products sold in your home market. It's about "localizing for the market"-it is essential to drive all aspects of design based upon a solid understanding of these customers and all that influences their purchasing decisions. Only then can you truly connect through your products.

Just as American firms hold an inherent advantage designing for the particular demands of their US and EU customers, the Chinese have a natural advantage selling within China and the Indians in India-they understand local needs and aspirations better, and translate them into commercial propositions without the complexities of cultural barriers. It is critical that western manufacturers hoping to woo Asian buyers invest in understanding the unique problems they face and desires they have.

To address this deficiency in information smart multinationals like Sony, Samsung, Motorola, Nokia, Volkswagen and others have opened design studios in China to immerse their teams in the culture of their new customers. In the run up to the Beijing Olympics both Nike and Adidas have aggressively promoted 'localized' products which allow young Chinese to express their identity while affiliating with an international brand.

Firms unable or unwilling to make that kind of financial commitment are not left out of the race, however. Consultancies like PDT offer the ability to access these insights and embed themselves into prospective markets via local research teams and product strategy consultants. The investment for such a program, while not insubstantial, is the key to successful expansion into what amounts to uncharted territory for most of our clients.

### The PDT Local Lens™

Do we recommend that you make Asia your number one priority for new product development? Should you fear the imminent loss of shelf space at Walmart to a new influx of Chinese branded goods? Probably not. But now is very much the time to start investing in the resources and methodologies to connect with this new market.

To be sure, Asia presents immense opportunities for many of our clients. But we caution that



## ...continued

popular conceptions about the growth of the newly sophisticated Chinese consumer class are only half true. Before running headlong into this huge, untapped market you should remember that the income disparity between the (rapidly growing) urban class and masses of rural dwellers is staggering.

The majority of wallets in Asia are not yet able or willing to open up for innovation built on carefully researched user needs... as the recent tragic earthquake has shown, many Chinese don't have sufficient disposable income to concern themselves with such niceties. This reality ensures that stores in China will for some time be filled with a mass

of products that largely fail to meet the necessities and challenges of peoples' lives, let alone respond to higher level needs and desires.

That's an opportunity we'd like our clients to be thinking about.

So what are consumers in China really looking for? What options are available to them? How can you innovate to offer solutions to problems unmet by domestic or imported offerings? What are the brands you will compete against, and how can you make inroads into their home turf? And what sort of product roadmap should you develop to gain a foothold in this market, then grow your presence over the long haul?

To answer those questions you need a genuine understanding of where your company's products can fit in the landscape of the Asian marketplace. The PDT Local Lens™ is a focused research and innovation program which paints a crystal clear picture of this territory, allowing you to see the lay of the land through the eyes of your potential customers—and respond decisively with innovation that's optimized to its contours.

-Joel Delman

Want to discuss how PDT can design a Local Lens™ that's tailored to maximize your firm's success in Asia? Contact Joel at 310.601.7167 or joel.delman@pdt.com



Jakob Montrasio, Flickr

## About PDT

At PDT we believe the success of a project relies on our team members' insight into today's product development issues, advances, technologies and trends. We actively seek out the information needed to stay savvy to the issues and opportunities facing our clients, continually building a foundation of knowledge and inspiration that helps our team design products which spark desire, devotion and success in the global marketplace. We are happy to share just a few of our team members' insights, observations and opinions with you in this publication. For more information, please visit us at [www.pdt.com](http://www.pdt.com) or contact us.



### PDT Lake Zurich

p 847 821 3033

### PDT Minneapolis

p 763 694 8851

### PDT Austin

p 512 244 1795

### PDT Oxford, UK

p +44 (0) 1844 278 000

### PDT Chicago

p 312 440 9404

### PDT Fort Lauderdale

p 954 428 3404

### PDT Los Angeles

p 310 601 7167

### PDT Lviv, Ukraine

### PDT Shenzhen, China

[askpdt@pdt.com](mailto:askpdt@pdt.com)  
[www.pdt.com](http://www.pdt.com)

## This Issue's Contributors

**Joel Delman** is Director of PDT's L.A. Office. With a background in law and business as a foundation for thirteen years in product development, Joel understands the business side of creativity and how to strategically guide innovation and design to meet the demands of today's competitive markets. Joel's prior experience includes a successful startup toy development firm and a stint in corporate law, which "I'm thankful to have left behind before the 'golden handcuffs' got too tight... you have to do what you love."

**Diane Enot** has been a PDT team member for 10 years. "I love that PDT keeps me on my toes – always busy, always challenged – no 2 days are ever the same." Outside of work Diane is kept extremely busy with her family: a 15 month old daughter, 3 college-age step children and 3 dogs. "One day I hope to finish the numerous home improvement projects that were started before our daughter was born!"

**Heather A. Kartsounes** has served as in house counsel to Product Development Technologies, Inc. as well as to PDT's sister company, Telezygology, Inc since July 2005. She is a registered United States Patent Attorney, licensed to practice law in the State of Illinois, the United States District Court for the Northern District of Illinois and the Seventh Circuit of the United States Court of Appeals.

**Tim J. Morton** is passionate about knowledge, family and adventure. Design Manager at PDT-Austin, Texas, Tim quickly discovered how experiences outside of your regular 'lifesphere' can lead directly to breakthrough ideas for design, business and life. 'Don't be afraid to step out once in a while!'



Joel Delman, Diane Enot, Heather A Kartsounes, Tim J Morton