

# Security and Tamper Evident Products

## About 3 Sigma

Established in 1980, 3 Sigma is a fast-growing innovator of pressure sensitive adhesive coated products. 3 Sigma uses its solvent, emulsion and hot melt technology expertise to produce specialty or complex adhesive constructions at our facility in Troy, Ohio. Our flexibility, creativity, market experience and unique product commercialization approach enables us to create higher margin, innovative products for our customers, helping them to capture market opportunities, reduce waste and production costs, and increase output.



## A Proven Approach

Research and Development of custom adhesives and top coats for highly specialized pressure sensitive products is our specialty. Our solvent, emulsion and hot melt chemistry and manufacturing capabilities are utilized every day to create unique, value-added products for our customers that add directly to their bottom line. 3 Sigma's research and development personnel have worked in large multi-national corporations and follow a unique, collaborative approach when working with customers and strategic partners, ensuring alignment and a superior customer experience.

# Solutions

## **An ISO 9001-2015 Organization Dedicated to Innovative Pressure Sensitive Solutions**

3 Sigma is a rapidly growing, resourceful innovator of unique pressure sensitive coated products. Our commitment to you, our customer, is to continuously seek ways to address and improve critical business needs: speed of development and commercialization, production efficiency, product performance and quality. We have the necessary expertise regarding material and process technologies, to consistently produce superior products that meet your ultimate requirements.

Our customer service and technical associates will work with you to develop and manufacture custom constructions that allow you to provide innovation to your end-user and differentiate yourself from your competition. All of 3 Sigma's associates are focused on assuring a "customer-friendly" experience that offers:

- Easy access to decision makers and technical experts**
- Flexible and responsive production with the quickest custom order turn-around in the industry**
- Utilization of our facility and tech support for your design and trial experiments**
- Production volumes and product designs that meet your needs, not ours**

We look forward to working with you and in assisting you in becoming a more valuable resource to your customers. Please contact us: **1-800-347-3091 • [www.3sigma.cc](http://www.3sigma.cc)**



# Sustainability & Conservation

3 Sigma is committed to the goal of reducing our energy consumption, utilization of re-cycled materials, and re-cycling of existing materials wherever possible. We work in conjunction with our customers and our suppliers in an effort to be good stewards of natural resources and minimizing our impact on the environment. Below are just a few of the processes and practices we've instituted to meet those goals.

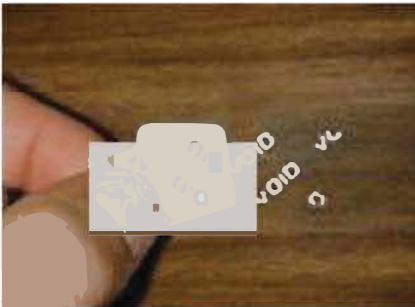
- Recycling of all paperboard and corrugated items.
- Recycling of office waste paper, plastic bottles, printer cartridges, etc.
- Recycling and collection of aerosol cans, bulbs , batteries, air compressor condensate, refuse oil, steel and other metals,
- The use of non hazardous safety cleaners and recycling of our cleaning chemicals.
- Recycling of packaging supplies and pallets. (Collection/Refurbishment/Re-use)
- Cleaning and recycling of all totes and drums used to supply adhesive materials.
- Recycling of purged adhesives into other manufacturing processes.
- Ongoing preventative maintenance programs for all manufacturing systems to ensure highest efficiency and minimize energy usage
- Monitoring electric, natural gas and water usage through the EPA Energy Star plants and facilities program, allowing tracking of improvements and reductions
- Utilization of a recycling company to handle start up and production scrap or waste as opposed to sending to a land fill.
- Monitoring and shutting down energy-using equipment when not in operation or needed in both office and manufacturing locations.
- Replacement of older lighting units with more efficient and lower energy systems.
- Auditing all air compressors and delivery systems to eliminate leaks (which causes added electricity usage).
- Using the heat generated from our process ovens as an alternate heating supply in the winter months.
- Preventive maintenance programs to make sure the HVAC systems are operating at peak efficiency.
- All Inter-office reports are generated electronically and distributed through email to minimize paper usage and waste.

# Brand Protection & Security

Over the past few years, product counterfeiting and product theft have risen dramatically and estimates of the cost to American industry are as high as \$200 billion annually. Very few industries are immune and those suffering the most include electronics, videos and music, computer software and programming, textiles and automotive. The percentage of counterfeit products impacting these industries ranges from 5% to as much as 35-40% of total sales. This not only reduces overall company sales potentials, but has a significant impact on warranty work/claims and company reputation for inadequate products. The label industry supply chain from raw material suppliers through converters has worked diligently to develop a wide range of security solutions to help minimize the overall impact on our end-user customers.

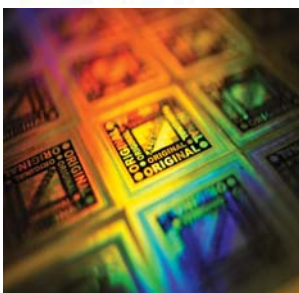
## Typical Products/Applications

*Tamper Evident/Tamper Proof Label Stocks:* Destructible acetates, customized void labels, dissolvable labels & FrangibleLabels (destruct when removal is attempted with solvents).



*Taggant-modified adhesives and inks* (scannable with specialized electronic readers), encrypted threads, specialized papers. (materials can be added to adhesives, paper and inks that appear normal to the naked eye, but have identifying characteristics that can only be identified using specialized equipment).

## Holograms and RFID Labels



# Brand Protection & Security

Other types of technologies that are in use in some form or fashion include optically variable ink labels, invisible inks, pressure sensitive scratch-off materials or block-out coatings (ideal for protecting sensitive information such as account numbers or PINs for card products), and slit-edge die-cutting (label cannot be removed or replaced in it's entirety).



In many cases, labels are designed specifically and with proprietary considerations for the end-user which limits the ability to show finished converted samples. 3 Sigma will work hand in hand with you to develop, design and implement a label solution for your security applications. **Please contact our Technical Service Group or Customer Service to discuss details and construction possibilities (1-800-347-3091).**



# Brand Protection & Security

## SigmaGuard

SigmaGuard is an Ultra-destructible cellulose acetate film with high tensile strength and stiffness. It allows for easier matrix-stripping and is capable of high speed application. When used as a label, seal or over-laminate, attached by an adhesive, the film is virtually impossible to remove without easily noticeable damage to the film itself or to the surface to which it is attached.



### Typical Applications – Security & Brand Protection

- Carton/Box Closures for pharmaceuticals, food products
- Overlaminations for security cards, identity cards, passports
- Sealing label for confidential documents
- Indoor anti-vandalism signs – warnings, information, directions

### Features

- Highly frangible/destructible
- Made from sustainable wood pulp
- Offers good printability
- Compatible with many printing and packaging materials
- Highly transparent
- Cost effective
- Available in white or clear

### Benefits

- Provides excellent, easily identifiable evidence of tampering
- Biodegradable and environmentally friendly
- Easy processing and handling
- Ideal for lamination of documents or labels
- High level of security at a non-prohibitive cost
- Increases consumer confidence in products

# Brand Protection & Security

## 4 Mil Polyart TE®

Polyart® is a polyethylene film, destructible by delamination for tamper evident labels. Once applied on the packaging, at first attempt to remove, it delaminates and shreds, proving that the product has been tampered with. Polyart TE combines excellent tamper evident capability with exceptional printing and converting performance

### Typical Applications – Security & BrandProtection

- Carton/Box closures for pharmaceuticals, food products
- Box sealing for luxury goods, wine & spirits
- Chemical drum, hazardous material labeling
- Warranty seals for automotive, electronic or industrial parts
- Sealing label for confidential documents
- Indoor anti-vandalism signs – warnings, information, directions

### Features:

- High durability
- Resistant to water, grease and chemicals
- Temperature resistant from -76 F to 140 F
- One side coated for excellent printability
- Thermal Transfer printable
- Excellent dimensional stability

### Benefits:

- Exceptional printing with all conventional print methods
- Highly accurate die cutting at high speed
- Good automatic dispensing characteristics
- Reduced waste/higher efficiency compared to many destructible films



*Polyart and Polyart TE are registered trademarks of Arjobex and Arjowiggins Security*

# Brand Protection & Security

## SigmaKcoat TE™ - Polypropylene TT (Tamper Evident Thermal Transfer)

SigmaKcoat TE is a line of destructible films with both covert and overt features for security label applications. The custom formulated top coat improves print quality and durability.

With multiple constructions available, the product provides high levels of adhesion to many surfaces, allowing the facestock to easily delaminate to show tamper evidence.

### Typical Applications:

- Appliances
- Automotive
- Electronics
- Medical & Pharmaceutical
- Warehousing
- Software

### Features:

- Excellent thermal receptivity with specified ribbons
- Highly versatile top coating
- Easy to die cut and matrix strip
- Hand and machine auto dispensable
- Temp range of -40° F (-40°C) to 176° F (80°C)

### Benefits:

- Superior thermal transfer print quality
- Allows printing with UV and water-based flexo, screen, or letterpress inks
- Efficient converting, reduced manufacturing scrap & cost

*“Six thousand containers a day are shipped to the U.S. from Hong Kong and only 2% are physically inspected.”*

- U.S. Bureau of Customs and Border Protection



# Brand Protection & Security

3 Sigma PN	Film Type	Film Thickness	Topcoat	Adhesive	Liner
2.8 mil Matte White Destruct PP SigmaKcoat TE/A601/55#WG	Destruct White PP	2.8 mil	Durable Matte	A601	55# WG
2.8 mil Matte White Destruct PP SigmaKcoat TE/PE30/55#WG	Destruct White PP	2.8 mil	Durable Matte	PE30	55# WG
6.0 mil Matte White Destruct PP SigmaKcoat TE/PE33/55#WG	Destruct White PP	6.0 mil	Durable Matte	PE33	55# WG



Master Web Width	Roll Length	MSI/Roll	Minimum Order	Lead Time
46.5"	3,280 ft	1830	1830 msi	2-3 Days

Note: If these requirements do not meet your needs, please call customer service to discuss possible options.



# Brand Protection & Security

## Tamper Evident Tapes

The need for security in the packaging of consumer and industrial goods continues to require innovative products that provide protection and show evidence of tampering. 3 Sigma offers a time-tested, high quality range of constructions that meet that need. Our Tamper Evident products have multiple potential uses for various applications and can be customized to meet your specific needs.



### Typical Applications:

- Drug Samples
- Clinical Trials
- Evidence Packages
- Document Storage
- Primary Packaging
- Raw Materials

### Packages:

- Wrapped Pallets
- Shipping Cartons
- Folding Cartons
- Poly, Steel, or Fiber Drums
- Envelopes
- Money or financial document bags

### Features:

- Specially designed and formulated not to tear fiber board products
- Made from durable and sturdy 1 mil Polyester
- Available in widths 1" to 3" and roll lengths 180 ft to 3,000 ft
- Special matte finish on the polyester enhances the message if tape is re-applied
- Custom colors, logos, tamper messages and size configurations are available.

- Note: Custom printing will require an up-charge cost for printing plate(s)

### Benefits:

- Ability to design a proprietary customer design product
- Usable in a wide array of applications and situations
- Offers excellent tamper evidence for brand security
- Offers excellent protection for sensitive products

# Brand Protection & Security

## SigmaKcoat TE™ CLR – Destructible Polystyrene

SigmaKcoat CLR is a 2 mil clear destructible polymer film. It is a high-quality, sensitive product that is ideal for brand protection and anti-counterfeiting. It is odorless, with high transparency and excellent flatness characteristics

SK-TE CLR 2mil CL can be combined with multiple adhesives and liners



*Construction Example: SK-TE CLR 2m CL / SP-110 / 50# Liner*  
*Note: Current Minimum Order Quantity is 25,000 msi*

### Typical Applications – Security/Brand protection

- Medical
- Pharmaceutical
- Electronics
- Packaging
- Warehousing
- Software
- Pouches with secure documents or currency

### Features:

- Defined, very low elongation at break point
- Optimal tensile strength at break point
- Odorless
- Excellent clarity (no yellowing)
- Product requires added care in handling (delicate and sensitive)
- Recommended processing and storage temperature is 68 to 78 degrees Fahrenheit
- Recommended processing and storage relative humidity is between 45-55%

### Benefits:

- Good printability
- Works with multiple adhesive systems
- Offers excellent tamper evidence for brand security
- RoHS and REACH compliant

# Brand Protection & Security

## SigmaKcoat TE™ TAC - Destructible Triacetate

SigmaKcoat TAC is a 2 mil clear destructible film with a wide range of outstanding properties related to both print quality and security features. This custom formulated film has greater dimensional stability and is more temperature resistant when compared to standard acetate products. It has excellent clarity and very stable mechanical properties

SK-TE TAC 2mil CL can be combined with multiple adhesives and liners



*Construction Example: SK-TE TAC 2m CL / PE-18 / 50# Liner*

*Note: Current Minimum Order Quantity is 25,000 msi*

### Typical Applications:

- Medical
- Pharmaceutical
- Electronics
- Packaging
- Warehousing
- Software

### Features:

- UV Resistance
- Phthalate Free
- Resistant to oil and grease, but not solvents or aids
- Consistent mechanical properties both laterally and longitudinally
- Self extinguishing fire behavior
- High inherent scratch resistance
- Outstanding optical purity

### Benefits:

- Excellent printability, high color brilliance
- Works with multiple adhesive systems
- Offers excellent tamper evidence for brand security
- RohS and REACH compliant

# Brand Protection & Security

**(Product has been discontinued/no availability)**

## SigmaKcoat TE™ VIP - Destructible Vinyl

SigmaKcoat VIP is a 2 mil white destructible polymer film. It is very unique in that one side has a matte finish and the opposite side is glossy giving you flexibility in the look of your label with uncoated stock at 3 Sigma. It exhibits a defined, very low elongation at break, making it perfect for security applications. It's tensile strength however, makes it ideal for processing roll labels.

SK-TE VIP 2mil WHT can be combined with multiple adhesives and liners



*Construction Example: SK-TE VIP 2m WHT / SP-110 / 50# Liner*

*Note: Current Minimum Order Quantity is 25,000 msi*

### Typical Applications:

- Medical
- Pharmaceutical
- Electronics
- Packaging
- Warehousing
- Software
- Pouches with secure documents or currency

Product has been discontinued

### Features:

- High degree of whiteness and opacity
- Absorbs virtually no water
- Very well suited for dispersion adhesives
- Base product is packaged in foil to protect against light and dust
- Approved for food contact
- Suitable for Flexo, Screen, and Offset printing (ensure inks have adequate adhesion to vinyl film)
- Gloss and Matte finish on opposing sides
- Recommended processing temperature is 68 to 78 degrees Fahrenheit
- Recommended storage temperature is between 59 and 86 degrees Fahrenheit

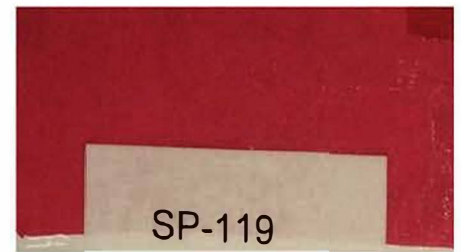
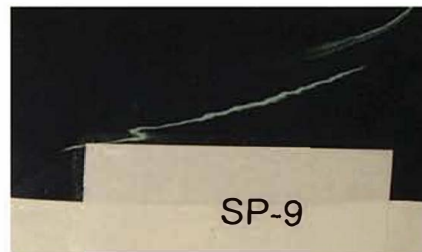
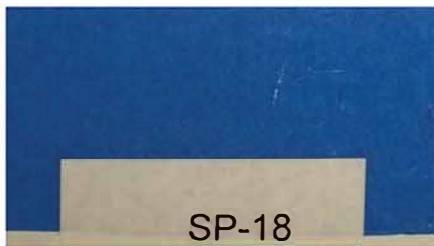
### Benefits:

- Excellent printability, high color brilliance
- Works with multiple adhesive systems
- Offers excellent tamper evidence for brand security
- RohS and REACH compliant

# Brand Protection & Security

## Custom Adhesive Formulation – Pigments or Taggants

3 Sigma has the in-house capability and expertise to develop and formulate unique adhesives and top-coatings that can be used as a detriment to product tampering or product/brand copying. Through design and mixing, we can bring one more layer of security to your label or tape construction, making it more difficult for criminals to pirate, steal or damage your brand image.



From a true block-out/opacity adhesive or coating to custom designed colors for brand protection, 3 Sigma will work with you to design the proper coloration and adhesive characteristics that work perfectly for your product.

Adhesive additives, in general, are relatively low cost modifications compared to custom designed face-stocks or highly engineered destructible materials. When combined into a complex construction, it provides multiple layers of protection and security for your respected and valuable brand name.

In addition to pigmentation, 3 Sigma can work with you to incorporate specifically engineered taggants or additives that can be unique and proprietary to your company that can be read or identified through special equipment which can go a long way in reducing warranty costs and fraud.

Whatever your security or brand protection requirements, 3 Sigma can work with you to develop the right product to meet your cost and application needs.

# Brand Protection & Security

## Available Security Products - Summary

### Face-stocks

- Sigmaguard Destructible film
- Polyart TE® Destructible film
- Sigmakoat TE Destructible Polypropylenes
- Sigmakoat TE Destructible Vinyl
- Sigmacoat TE Destructible Triacetate
- Sigmakoat TE Destructible Polystyrene
- Holographic Constructions
- Void Tapes
- Custom papers with additives (fluorescing agents, threads, etc)

### Adhesives and Custom Processing

- Pigmented adhesives
- Blockout coatings
- Fluorescing adhesives
- Adhesives with Taggants
- Custom adhesive patterns (including cross-web)
- Sigmakoat TE Destructible Polystyrene
- Void Tapes
- Custom papers with additives (fluorescing, threads, etc)

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