Making Progress Possible

Positive Support for ZDHC

Our Three Pillars of Success

Boosting the Digital Inks Revolution
Making Progress Possible

Positive developments are keeping the global textile industry on a forward trajectory as the journey towards Zero Discharge of Hazardous Chemicals by 2020 continues.

The aim of the Zero Discharge of Hazardous Chemicals (ZDHC) Group is as ambitious as it is significant: remove hazardous chemicals from all textile production by 2020. With specific commitments and timelines set out in the ZDHC Joint Roadmap, it will lay the foundation for a more accountable and sustainable apparel and footwear industry.

Achieving ZDHC will not be easy. It will require collaboration from across the supply chain with a multitude of organizations around the world. The industry is calling for greater transparency as to what chemicals are being used, where and how. Chemical companies like Huntsman have a role to play to help textile mills and suppliers learn about alternative chemistries. And we can help brands communicate with a public that is increasingly vocal and involved.

What’s more, this vital development is taking place under intense public scrutiny in a world of social media and instantaneous global communications. We now find the front line of the ZDHC debate in the high street stores of some of the world’s most famous apparel brands and retailers. But it is the textile mills and their partners in the likes of Dhaka, Tirupur, Shaoxing, Biella, or Blumenau and other centers of the global textile industry where the real change will be driven.

Positive support for ZDHC

As the leading global supplier of textile chemicals and dyes, and the acknowledged industry innovator, Huntsman Textile Effects is committed to supporting our customers around the world to meet the ZDHC targets.

We have been working hard with our ZDHC partners to contribute towards the second version of the Joint Roadmap, released in June. As a member of the working committee on Version 2, we were privileged to be able to contribute and to share our expertise in industry best practices and to demonstrate that there are alternatives...
for the 11 chemical groups being prioritized under the ZDHC plan. This Roadmap reflects some of the progress made over the past 18 months and clearly sets out next steps.

In further support of the Roadmap, we have now also released the Huntsman Positive Substances List. It details dyes and chemicals that do not intentionally contain any of the ZDHC priority chemicals and as such can be used to manufacture textiles for companies that have signed up to the ZDHC Roadmap.

**Building on a Strong Foundation**

Our part in the ZDHC movement ably illustrates the three pillars on which Huntsman Textile Effects is built: **Sustainability, Innovation** and **Collaboration**.

In partnership with textile mills, industry associations, government agencies, non-governmental organizations and brands and retailers worldwide, we are committing to solving the industry's toughest challenges. Our innovative products and processes make advancements possible as we all move towards a sustainable textiles sector that is safe and efficient, with minimal environmental impact.

At Huntsman, we are well positioned to progress on this vital journey together with you.

**Paul Hulme**  
President  
Huntsman Textile Effects

## A Commitment to Our Three Pillars of Success

**Sustainability, Innovation and Collaboration** are at the heart of Huntsman Textile Effects and form the basis of a new communications campaign that will help us stay at the forefront of our industry.

The textile industry is today facing unprecedented environmental and economic challenges. Even as the sector copes with fast-rising costs and increasing competition, it is engaged in a monumental struggle to slash its use of water, energy and toxic chemicals and meet the expectations of governments, non-governmental organizations and the public.

These challenges are urgent, complex and critical. How successfully textile processing mills rise to them will determine whether they can compete and, indeed, survive in the modern marketplace. All will have to innovate and create sustainable business models, but none will be able to do it alone.

**Meeting the toughest challenges**

“Confronting these tough challenges head-on, our industry is now being reshaped by three powerful imperatives for competitiveness: sustainability, innovation and collaboration,” says Steve Gray, Vice President of Strategic Marketing and Planning at Huntsman Textile Effects. “It is no coincidence that Huntsman Textile Effects has built its business by leading in these three areas, or that we remain the only textile dye and chemical supplier consistently delivering on all three fronts.”
We have now built a complete Huntsman Textile Effects global messaging platform on these three pillars. It will guide all of our communications with external stakeholders, including customers, brands and retailers, business partners and the media, as well as with staff and prospective employees.

“Huntsman has so many good things going on in sustainability, innovation and collaboration that we need a clear, effective and consistent way to communicate them,” he explains.

**The three pillars in action**

Innovation has long been a strong suit of Huntsman. Textile Effects consistently invests about 5 percent of revenue in innovation and a quarter of its current products are less than five years old. Furthermore, at least half of Huntsman Textile Effect’s innovation output is directly linked to reducing the environmental impact of its operations and those of its customers by reducing water and energy consumption or using greener technologies. A lot of this work is done in collaboration with customers, brands and retailers and innovation partners in the industry.

“Huntsman can point to a lot of recent examples where sustainability, innovation and collaboration have come together,” Mr Gray says. “And this is the heart of the communications program: there is real substance behind our messaging.”

Among a host of exciting collaborations, Huntsman is cooperating with DuPont to drive the industry transition from C₈ to C₆ short-chain chemistry through its PHOBOL® range of products. It also recently launched the PHOBOTEX® fluorine-free range of rain and stain management technologies and continues to work with major brands and retailers under the Zero Discharge of Hazardous Chemicals (ZDHC) Joint Roadmap.

In partnership with DyeCoo, Huntsman is developing a special range of dyes and chemicals for the Supercritical CO₂ textile processing technology, thus pioneering waterless dyeing for the industry. It is also working with leading digital printing machine manufacturers such as MS and Reggiani to provide customized solutions in digital inks which is fast gaining ground in the print industry.

Huntsman Textile Effects also collaborates closely with textile mills through its Productivity Improvement Program (PIP), helping them identify gaps in their processes and implement
productivity solutions that are both ecologically friendly and economically sound. It also works with textile industry associations, such as the China National Textile and Apparel Council (CNTAC), to raise industry standards and improve productivity.

“Our ongoing commitment to sustainability, innovation and collaboration is the realization of our shared vision of Huntsman as the industry's most trusted provider of innovative textile solutions. In a crowded and competitive environment, this clarity is a distinct advantage,” Mr Gray concludes.

Asia Seminars help prepare Customers to tackle Industry Challenges

Huntsman Textile Effects hosted a series of intensive seminars for its Asian business partners during May. Held in Korea, Taiwan and Indonesia, the meetings engaged more than 350 senior executives in high-level discussions about the challenges and opportunities that manufacturers, suppliers and retailers face in today's apparel industry.

The seminars inspired a lively exchange of ideas, with the attendance of representatives from major retailers such as Adidas, Nike, H&M, PUMA, GAP and Li & Fung, as well as many leading textile mills, including Lucky Print Abadi and Dytech.

Covering a multitude of issues ranging from the Joint Roadmap towards Zero Discharge of Hazardous Chemicals (ZDHC) to the Restricted Substances List (RSL) and innovative solutions to the industry's toughest environmental demands, each country specific session was crafted to help prepare the local industry to better address these challenge.

Asia is a key growth market for Huntsman Textile Effects. We have invested $100 million in the region over the last few years, opening world-class chemical formulation distribution centers and other facilities in China and Pakistan, for example, and, most recently, a $17.5-million synthesis plant in Thailand. These measures firmly position Huntsman as a truly competitive global and regional dyes and chemical manufacturer and demonstrate our confidence in the growth of the textile industry in Asia.
Larger than ever in 2013, Techtextil in Frankfurt, Germany lived up to its reputation as the leading international trade fair for technical textiles and nonwovens, showcasing the latest innovations in the design, production and application of technical textiles.

The Huntsman Textile Effects booth highlighted a wide spectrum of solutions that enhance textile functionality and coloration in the areas of protective fabrics, nonwovens and technical fabrics for automotive applications. We also featured oil and water repellents relating to the industry move from C₈ to C₆ short chain chemistry as well as sustainable water-based coating agents and other new products.

In addition, Peter Johnson from our Global Environmental, Health & Safety and Product Stewardship team delivered an enlightening presentation entitled “Innovation in a Regulated Age”. He explained how our products achieve the balance between innovation and adherence to industry environmental regulations.

During the course of the three-day fair, Huntsman Textile Effects engaged with more than 150 customers and prospects, giving us a vital opportunity to show mills and retailers how we can help them achieve differentiated product performance while achieving economic and environmental sustainability!
Spurring Sustainability: Latin America on the uptake

In the drive towards higher sustainability in Latin America’s textile industry, Huntsman Textile Effects was at the heart of the action taking place at the Textile Chemical Congress of Latin America (FLAQT) in Colombia.

With a presentation centered on the theme of “Towards a sustainable future: textile trends and initiatives”, Julio Carrillo from our marketing team extolled the benefits of Huntsman’s solutions for Sustainability and strengths in Digital Inks to an audience of more than 80 people. In addition, we hosted a private event with up to 70 key customers from Argentina, Ecuador, Peru, Brazil, Colombia, Venezuela, El Salvador and Honduras. What transpired was the sharing of technical experiences relating to usage of our renowned AVITERA® range of dyes and digital inks in Brazil as well as insights on collaboration projects with brands and retailers.

This allowed us to have an intimate understanding of customers’ needs which in turn enables us to tailor solutions that can effectively enhance their businesses.

The event met with a rousing success as Huntsman Textile Effects continues to engage customers closely to forge ahead in textile trends while achieving economic and environmental sustainability!
Digital Printing wins Fans in Pakistan

New technology widens the appeal of traditional apparel

Huntsman Textile Effects continues to make inroads in digital printing, gaining a significant foothold in the nascent Pakistan digital print market.

Pakistan is emerging as one of Asia’s digital printing epicenters. Huntsman’s technology is now helping the nation’s mills print intricate patterns on silk and cotton in the most vibrant hues. These beautiful fabrics are used to make traditional lawn dresses for the high-fashion market in Pakistan and overseas.

Boosting the Digital Inks Revolution

Huntsman Textile Effects continues to make a splash in the domain of Digital Inks with its presence at key trade events such as ITM Texpo Eurasia 2013, ShanghaiTex and FESPA Digital 2013!

Across various geographical regions, our products met with a great reception as we acquainted mills and retailers with our solutions in inkjet printing. Many expressed keen interest in our comprehensive range of digital inks which can be used with machines based on Kyocera, Seiko and Epson Heads to meet end-uses such as Apparel, Home Textiles, Swimwear and recently also Automotive. In addition, our collaboration with the leading print heads, machines, and software partners allowed us to advise customers on how to adopt the best available digital printing technology in combination with Huntsman’s inks.

With our cutting edge technology and vast industry knowledge, Huntsman Textile Effects continues to create value for customers by enriching their business capabilities to advance further in the digital inks revolution!
Huntsman Opens New Asia Pacific Technology Center in Shanghai

Shanghai, China - Huntsman Corporation held an inauguration ceremony on 17 September to mark the official opening of its new Asia Pacific Technology Center (ATC) in Shanghai’s Minhang Economic & Technological Development Zone.

The event was hosted by Huntsman’s Founder and Chairman, Jon M. Huntsman and its CEO Asia Pacific, Anthony P. Hankins. The audience of more than 300 included customers, local authorities, suppliers, Huntsman employees and corporate officers.

The new $40 million facility forms an integrated technology and innovation campus together with the existing technology center that was opened in September 2008. The state-of-the-art facility includes machine halls, laboratories and offices and can accommodate up to 400 technical experts and will complement existing technology centers in The Woodlands, USA and Brussels, Belgium as well as smaller regional centers.

Tony Hankins commented: “The Asia Pacific ATC investment reflects Huntsman’s long-term commitment to grow in partnership with our customers in this key market. We now have a world-class technology facility in Shanghai, employing talented local scientists, developing fit-for-purpose applications that are suited to the specific needs of our customers across the region. We started construction of the facility in February 2012 and in close cooperation with the Shanghai Minhang United Development Co. Ltd. and the Government of Minhang District, the Center was completed on schedule in June. We appreciate their strong commitment and I sincerely thank them for all their support in the creation of this outstanding facility.”
Change is Coming!
Don’t pull Wool over your Eyes

LANASOL® CE outclasses traditional chrome dyes
Chrome dyes have been traditionally used to dye wool. However, the chemicals used to apply these dyes are toxic and are classified as a Substance of Very High Concern (SVHC). Major brands and retailers have committed to remove Chromium IV as one of the 11 priority chemicals by 2020 as part of their Zero Discharge of Hazardous Chemicals (ZDHC) Joint Roadmap. However, legislation will force the change to happen sooner rather than later. The bell is already tolling for chrome dyes as dyehouses across China and Italy are increasingly adopting alternatives to chrome. Recently, the Ministry of Environmental Protection in China passed directive GB 4287-2012 which will require dyehouses to eliminate the use of chrome in their dyeing process by end of 2014 at the very latest.

LANASOL® CE dyes achieve the same or even better shades and fastness ratings as chrome dyes. In addition, they hinder chemical damage during dyeing and preserve the qualities of the natural wool fiber. LANASOL® CE dyes won an EU award for Best Available Technology proving beyond a doubt that it is far superior to chrome dyes. In fact, independent industrial scale comparisons have shown that LANASOL® CE outclasses chrome dyes and delivers superior wool quality in spinning and deep shades can be consistently achieved, resulting in cost savings and quality improvements.

If you’re ready to make the switch to a product that is more economically and environmentally sustainable, Huntsman Textile Effects can help you or your suppliers transit to LANASOL® CE. We can help you demonstrate compliance to the ZDHC Joint Roadmap as well as the latest government legislation.

Contact Lee Howarth at lee_howarth@huntsman.com for more information!
Benefits of LANASOL® CE

- LANASOL® CE delivers the same shade and depth as chrome dyes
- Higher bulkiness in LANASOL® CE dyed wool at lower energy expenditure due to less aggressive chemistry in the dyeing process (See pics below)
- The LANASOL® CE dyeing process preserves the average fiber length for finer high quality yarns
- LANASOL® CE dyed wool is less fragile, produces less waste and results in greater machine efficiency
- Greater efficiency from fiber to fabric translates to higher profit
- Non-hazardous to workers and lower environmental impact

![Image of LANASOL® CE dyed wool]
Huntsman Textile Effects participates actively in key events around the world because we want to be part of your world. So wherever you may be, we can serve you and we will see you there soon!

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<thead>
<tr>
<th>Date</th>
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<tr>
<td>22 October 2013</td>
<td>Shanghai, China</td>
<td><strong>Planet Textiles Annual Conference 2013</strong>&lt;br&gt;Join us and other stakeholders from the textile industry as we address current challenges facing the textile manufacturing sector, some of which include supply chain transparency and compliance as well as improving environmental profile and resource efficiencies.</td>
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<td>23-25 October 2013</td>
<td>Orlando, USA</td>
<td><strong>SGIA EXPO 2013</strong>&lt;br&gt;Find out more about Huntsman’s capabilities in making, selling and supporting digital inks for textiles as part of our offerings in the digital inkjet market at SGIA, the ideal platform for specialty imaging technologies and networking opportunities.</td>
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<tr>
<td>18-20 November 2013</td>
<td>Shanghai, China</td>
<td><strong>FESPA China 2013</strong>&lt;br&gt;Come explore our leading technologies in digital inks across a wide variety of applications and fibers!&lt;br&gt;Our inks suited to Kyocera-based machines, Seiko Heads and Epson Heads, can help you meet an extensive range of end-uses in Apparel &amp; Fashion, Swimwear, Home Textiles, Signage and Automotive in order to become more competitive in the area of digital printing!</td>
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Please note that products may differ from country to country. If you have any queries, kindly contact your local Huntsman representative.

Huntsman is a member of:

(Ecological and Toxicological Association of Dyes and Organic Pigments)

www.huntsman.com/textile_effects