DyStar®

Sustainability
Performance Report
2016

Committed to Sustainability

www.DyStar.com

ON THE COVER

DYSTAR CADIRA® POLYESTER

Saving Valuable Resources

Our newest innovation considerably reduces water, waste and energy consumption. Cadira concepts will help brands, retailers and their production partners to save valuable resources, reduce the carbon footprint of their textile goods and increase productivity by improving utilization of machinery.

*Actual reductions may vary. Reduction figures shown on this page represent best known performance results when DyStar Dianix dyes and Sera auxiliaries are applied in combination with Optidye PES and optimized reductive clearing processes.

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THE YEAR IN HIGHLIGHTS


Colleagues from China celebrating in their new Shanghai office


The CEO participating in the Frankfurt JP Morgan Corporate Challenge


Staff at DyStar Indonesia challenge each other to a soccer game


Annual food donation drive in Reidsville, North Carolina


End of year function at DyStar South Africa

DyStar Indonesia Family Day


Staff from DyStar India trekking in Lohagad


DyStar Singapore Team Building Day

KEY PERFORMANCE INDICATORS

CREATING RESPONSIBLE PRODUCTS AND SOLUTIONS

500
regulated or restricted substances monitored through econfidence®

1,747
customers trained in chemical management

1,187
textile mills audited for chemical risk and textile processing

4,000
ColorWall™ references available for better right-first-time performance

350,000
samples tested for eco-parameters since 1994

20
positive lists, e.g. for compliance to brand & retailer Restricted Substances Lists (RSLs)

6,470
DyStar substances pre-registered with REACH®

1,250
bluesign® approved DyStar products

1,800
DyStar products compliant with ZDHC MRSL 1.1

2,065
DyStar products approved for use on Oeko-Tex® Standard-compliant articles

CONSERVING PLANETARY RESOURCES

⬇18%
Energy Intensity
2016 vs. 2011

⬇15%
Emissions Intensity
2016 vs. 2011

⬇39%
Water Intensity
2016 vs. 2011

⬇22%
Wastewater Intensity
2016 vs. 2011

⬇21%
Raw Materials Intensity
2016 vs. 2011

⬇20%
Waste Intensity
2016 vs. 2011

32%
Customer Packaging
Reconditioned and Reused

1.8 million m³
Volume of Water Reused

CARING FOR PEOPLE

0
work-related fatalities

13%
below industry average lost days injury rate

18,700 hrs
in staff training

31%
of management roles held by women

100%
of business locations audited for corruption-related risks

241,000 m³
of water provided to communities at no cost since 2011

300 hrs
worked in volunteering

36
student scholarships

150 lbs
in food donations

10,000 m³
concrete formed from donated DyStar additives*

* Brazilian Paralympic Training Center in Sao Paulo

LETTER FROM OUR CEO

[G4-1, G4-14]

Dear Stakeholders,

I am proud to present DyStar's 2016 Sustainability Performance Report, our seventh annual sustainability report reflecting the company's commitment to responsible business practices. It is my hope that you, the reader, can benefit from the unique insight that this report offers. As a trusted provider of colorants, auxiliaries and sustainability services, DyStar is strategically placed – in the middle of the value chain – to support textile producers, brands and retailers. In this report, readers will find candid accounts of our experiences in trying to drive positive change both within our own operations, but also beyond our doorsteps. We are throwing open the doors to this conversation by examining the challenges that our teams tackle every single day as the company strives to strike a new balance between being a responsible supplier and a profitable business in these changing times.

2016 represented a momentous year for the sustainability agenda with significant global developments, chief among which were the landmark Paris Agreement and the United Nations Sustainable Development Goals (UN SDGs). At DyStar, we will make a concerted effort to link our sustainability commitments with the broader development goals, particularly in areas where we believe DyStar can contribute in meaningful ways. We also reaffirm our commitment to the United Nations Global Compact (UNGC) principles and aim to uphold the highest ethical standards in the way we interact with all our stakeholders. This report serves as DyStar's formal Communication of Progress (COP) to the UNGC principles.

DyStar continues to operate within a volatile business and political climate that has dampened textile demand in countries that traditionally enjoy strong consumer spending. Undoubtedly, many companies in the textile dyes and chemicals industry have had an uneasy time adapting to these trends. Nevertheless, the solid foundations on which DyStar was built have enabled us to weather through a challenging operating context and, ultimately, maintain healthy financial results.

Setting financial performance aside, it was an eventful year for DyStar in many ways. 2016 saw the opening of the new Color Solutions International (CSI) ColorSpace facility in North Carolina. CSI's new space features advanced robotics and software that are going to revolutionize color communication for brands and retailers.

However, the crowning achievement for our business in the western hemisphere – and for the company as a whole - was the successful acquisition of Emerald Performance Materials LLC, a leading American manufacturer and marketer of specialty chemicals. As a result, DyStar's product portfolio is broader than ever but our newer product ranges also come with the added advantage of being, on average, less resource-intensive to manufacture. Most significantly, the acquisition paves the way for DyStar's long-awaited entry into the food and beverage industry.

Regardless of the industry or stakeholder served, DyStar aims to deliver high performance products that are increasingly designed to be both safer and more resource-efficient at every point in the lifecycle. On our home turf, the textile and apparel sector, we are moving fast. Before the end of 2017, DyStar's Global Innovation Center in China will be fully operational. We have set high hopes for the chemists who will be tasked with advancing green chemistry approaches for the industry. When completed, the GIC will host state-of-the-art laboratories dedicated to process technology development and research on next-generation alternatives.

> **"WHILE WE CELEBRATE OUR SUCCESSES, WE ALSO ACKNOWLEDGE THAT WE ARE ON A JOURNEY OF CONTINUOUS IMPROVEMENT.**

One of the most warmly received innovations last year, DyStar Cadira® Reactive, continues to help textile mills save on water, electricity, steam and process time. Cadira Polyester and Cadira VAT are more recent additions to the collection, catering to clients that want a more cost- and resource-efficient dyeing process for polyester and cellulosic fibers respectively.

Ongoing efforts by our teams to develop safer products for the market have already received formal recognition in the industry. DyStar is the first textile dyes company to earn a Gold-level Material Health Certificate from Cradle to Cradle™ (C2C). The certificate guarantees that no substances present in the formulation of C2C listed products, at a concentration of 100 ppm or higher, poses risks to people or the environment during the dye application process, throughout the use phase of a clothing item, and even after disposal.

On the services front, eliot® is gaining widespread popularity among customers, brands and retailers as a reliable online tool that helps them make informed and responsible choices in product selection and process optimization. We heard what customers had to say last year and upgraded eliot so users can now print product-related technical data sheets directly from the system. To fans of eliot, please stay tuned because there are more developments in the pipeline.

Within our four walls, people remain the beating heart of the business. DyStar values its responsibility for the care of their health, safety and general well-being. Increasingly, we want our employees to see their roles as more than just jobs. DyStar needs its teams to thrive in a vibrant work culture – one with a strong sense pride and an eagerness to embrace responsibility in all decisions and activities. Transforming our corporate culture is not going to be easy but we are already taking small steps in that direction. New tools, resource centers and innovation platforms are in the works so that anyone with an idea will be able to share their thoughts and experiences with the wider DyStar community.

A recurring example that really shines a light on the vast potential of our employees to contribute in significant ways comes from our campaign to improve operational efficiency. I am grateful to report that thanks to the talent and persistence of our production teams, we have met or surpassed four of our six 2020 targets, which seek to reduce resource usage intensities and corresponding waste outputs by 20% of 2011 levels. But it will not be smooth sailing from here on out because most of the low-hanging fruits are already addressed. To get through this final leg of the race, our production teams are being challenged, more than ever, to explore innovative techniques and technologies.

While we celebrate our successes, we also acknowledge that we are on a journey of continuous improvement. A 2014 incident in Nanjing, China, led us to refocus our efforts toward ensuring that third party service providers adhere to all applicable laws and regulations. Despite the best intentions of our managers at the time, vulnerabilities in the system were exploited by external parties – with consequences to the local environment. The case concluded in 2016 and we accept the results. This experience was an invaluable learning lesson and, since then, we have bolstered our anti-corruption framework by instating new safeguards aimed at strengthening our due diligence, protecting and empowering whistle-blowers, and closing the procedural gaps that allow gross negligence of company policies to go unnoticed.

Looking back to when DyStar first began, we have come such a long way. But this is not the time to be complacent. Moving forward, we will expand our capabilities and collaborate with all stakeholders to bring real and innovative solutions to the industry.

With best regards,

Eric Hopmann
Chief Executive Officer

ABOUT US

OUR HISTORY
[G4-3, G4-5, G4-7, G4-8, G4-13, G4-17]

The DyStar Group is a global market leader in colorants, chemicals and services to the textile and apparel industry. Our comprehensive range of products and services cater to the individual needs of customers who include brands, retailers and their industry partners. Since its establishment, DyStar has continuously innovated its product and service offering within the spectrum of dyes, colorants and chemicals to help customers achieve the highest product standards for quality, safety and the environment.

DyStar was first founded in 1995 as a joint venture between Hoechst AG, Bayer Textile Dyes, and Mitsubishi. Five years afterwards, another joint venture with BASF AG Textiles Dyes and Mitsui further concentrated the world's major textile dye production businesses at the time under one organization. The inherited legacy from our early parent companies spans more than a century, reaching back to some of the first innovations in synthetic dyes chemistry. Over the years, DyStar has also built itself up to become a trusted supplier to other sectors including paints, coatings, paper and packaging.

In parallel to efforts toward greater product diversification, it was also in DyStar's strategic interest to provide a full range of solutions to textile and apparel businesses. Hence, in the last decade, DyStar stood at the center of a drive to consolidate the core solutions providing firms in the industry. Organizations that joined our family in that period include Color Solutions Inc., Yorkshire Americas, The Rotta® Group, The Boehme® Group, Texanlab, and Lenmar Chemical Corporation.

In February 2010, DyStar was jointly acquired by Zhejiang Longsheng Group and Kiri Industries Limited (KIL), thus marking the start of a new chapter for the company. Under the leadership of our shareholders, DyStar has evolved into a robust organization that thrives even in times of economic uncertainty. Today, DyStar is headquartered in Singapore and supported by a dedicated workforce of over 2,000 employees. The solid foundation on which our business now stands allows us to broaden our ambitions even further.

More recently, DyStar made significant investments to create inroads into the food and beverage, as well as personal care sectors. 2016 saw the successful acquisition of Emerald Performance Materials LLC, a leading American manufacturer and marketer of specialty chemicals. The three businesses that came under our fold are now DyStar Carolina Chemical, DyStar Hilton Davis and DyStar Foam Control. Taken together, they significantly diversify DyStar's product portfolio and form an important cornerstone in our ongoing drive to bring the same trust and reliability that defines our reputation in the textile and apparel industry to other sectors.

WE STRIVE TO BE THE GLOBAL ENVIRONMENTAL AND INNOVATION LEADER IN OUR CHOSEN INDUSTRIES.

OUR ECONOMIC PERFORMANCE
[G4-9, G4-EC1, G4-EC9]

Heavily reliant on the availability and accessibility of materials and commodities, textile remains one of the most volatile and unpredictable industries. The cost of commodities has been on the rise in recent years and the impact of changing consumer behavior has reverberated far down the supply chain. Globally, textile and clothing output sales have gone down 1.5% so businesses have had to adapt quickly to stay relevant.

Despite the challenges, DyStar maintained positive financial results in 2016 with revenues of $871 million. The results go to show that when businesses put people and the planet first, profitability has a better chance of being sustained in the long-run.

Across the world, DyStar is committed to supporting the local economies in which we operate. Roughly half of all material purchases are sourced directly from local suppliers. This policy not only mitigates indirect emissions from transport; it helps local businesses and local livelihoods. Where feasible, DyStar recruits directly from among the communities that reside near our facilities. We work to develop the full potential of local talents through training and skills development. As an advocate of fair practices, employee wages at all DyStar locations meet or exceed legal or industry minimum standards.

ECONOMIC VALUE GENERATED AND DISTRIBUTED

	2016
Revenue (million USD)	871
Operating Costs (million USD)	652
Employee Wages and Benefits (million USD)	109
Payments to Providers of Capital (million USD)	7.5
Payments to Governments (million USD)	26
Economic Value Retained (million USD)	76
Percentage of Direct External Purchases from Local Suppliers (%)	45

OUR CORE VALUES
[G4-56]

Responsibility
We aspire to be the world's most sustainable and responsible supplier of colors, chemicals and services to the global textile industry.

500 RESTRICTED SUBSTANCES MONITORED BY THE ECONFIDENCE® PROGRAM

Innovation
Through continuous innovation, we create products and solutions to meet the needs of our stakeholders across the value chain.

1,167 PATENTS AND PATENT APPLICATIONS WORLDWIDE

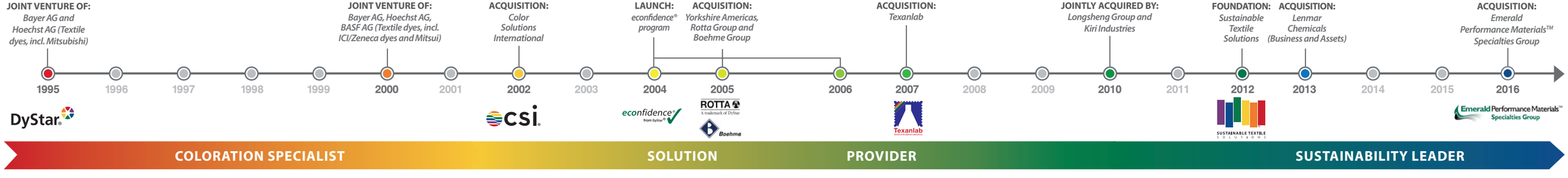
Excellence
The quality of our products and services is a key factor in our company's success and underpins the fulfilment of our corporate goals.

$871 MILLION IN GLOBAL SALES REVENUE

OUR GLOBAL PRESENCE
[G4-6, G4-8, G4-17]

17 PRODUCTION PLANTS ACROSS 12 COUNTRIES WITH OFFICES, COMPETENCE CENTERS AND AGENCIES IN 50 COUNTRIES, ENSURING THE AVAILABILITY OF EXPERTISE IN ALL MAJOR MARKETS.

FOUNDATION



OUR CORE PRODUCTS

TEXTILE & APPAREL DYES, INKS AND PIGMENTS

DyStar is a leading global supplier of textile dyes. We offer one of the broadest product ranges on the market covering nearly every fiber and quality specification, as well as catering to the diverse dyeing and printing techniques used by our customers. As part of our commitment to sustainability, we constantly innovate to deliver products that are safer and more resource-efficient for customers and end-users alike.

INKS	REACTIVE DYES	DIRECT DYES	VAT DYES	ACID DYES	DISPERSE DYES	BASIC DYES	MORDANT DYES	PIGMENTS	DENIM DYES
JETTEX®	LEVAFIX®	SIRIUS®	INDANTHREN®	TELON®	DIANIX®	ASTRAZON®	DIAMOND	IMPERON®	DYSTAR INDIGO
	PROCION®			SUPRALAN®	PALANIL®				CASSULFON®
	REMAZOL®			ISOLAN®					
	REALAN® (for wool)								

TEXTILE & APPAREL AUXILIARIES

We offer a comprehensive range of auxiliaries spanning the entire textile wet processing chain. When used in combination with our dyes, DyStar auxiliaries can help textile manufacturers further maximize cost and resource efficiency. For the eco-savvy customer, our EVO Protect range is the latest in PFC-free water-repellent solutions.

PRETREATMENT	DYEING	FINISHING	COATING	PRINTING	LAUNDRY	SPINNING & WEAVING
SERA® FIL	SERA GAL	EVO® SOFT	EVO TOP	SERA PRINT	LAVA®	ISAFIL
SERA WASH	SERA FAST	EVO PROTECT	EVO XEN	SERA BINDER		FILAPAN®
SERA ZON	SERA QUEST	EVO PRET				SYNTHESIN®
SERA WET	SERA FOAM	EVO FIN				CERAT
SERA ZYME	SERA CON	EVO CARE				
	SERA LUBE					

LEATHER

DyStar offers superior quality leather dyes that suit every application, from the basic shoe to high-fastness upholstery leathers and high-fashion products. Our specialized services help customers meet the widest range of test specifications and ecological standards pertaining to leather.

COLORANTS APPLIED IN OTHER INDUSTRIES

DyStar offers colorants to multiple industries including food, drugs and cosmetics (FD&C). Most notably, we are now a leading producer of the highest quality regulated, certified food dyes. Our regulated FD&C dyes are manufactured with strict controls to recreate exact shades every time – brilliant colors, high tinctorial strength with excellent heat and light stability to maintain color over time. Every batch of our FD&C colors is tested to meet Food and Drug Administration (FDA) requirements for certification of colors and pigments.

FDA REGULATED COLORANT					
FD&C REGULATED	D&C REGULATED	CERTIFIED SECONDARY BLENDS	TECHNICAL DYES	INORGANIC PIGMENTS	PIGMENT DISPERSIONS
FD&C DYES	D&C DYES		HIDACID®		VERDIS™ OVOC
FD&C LAKES	D&C LAKES		LUCIDA®		SUP-R-CONC®L
					BLACK SHIELD™
					SUPER SEATONE®
					AURACOTE®
					SUP-R-CRYL®
					FORMULATOR

CHEMICALS APPLIED IN OTHER INDUSTRIES

As a manufacturer of additives for food and cosmetics, DyStar's priorities are product safety and product quality. Our food foam control products and silicones for personal care meet all FDA, USDA standards. DyStar's foam control solutions for food exhibit outstanding consistency, performance and reliability, whereas silicone technologies and products enhance the performance of personal care applications.

DyStar also boasts a selection of finishing products from softening to functional effects including easy care, water and oil repellency, hydrophilicity, moisture management and wellness effects for fibers and application processes. Our finishes meet requirements for color fastness and chemical safety, e.g. restrictions and regulations pertaining to formaldehyde and PFOA.

FINISHING AND COATING						
RESINS & CATALYSTS	WAXES	DEBONDERS	GLYOXYLS	INDUSTRIAL DEFOAMERS	INDUSTRIAL SILICONES	FOOD FOAM CONTROL
EVO SOFT	CARNAPOL®	FLUFFSOFT™	FREECHEM	FOAM BLAST®	FUNCTIONALIZED	FOAM BLAST®
EVO PROTECT					EMULSIONS	ACEPOL®
EVO PRET					REACTIVE FLUIDS	MAZU®
EVO FIN						KFO™
EVO CARE						MASIL®
FREEREZ						
FREECAT						
CATALYST MG-2						

TEXTILE EFFECTS AND LABELS

DyStar's Evo® finishing products provide solutions for a variety of requirements in the textile industry. Together with our Evo product range, we also offer labels for our customers to demonstrate the high quality standard on the finished product.

Evo Protect

- Water and oil repellent
- Soil repellent
- Keeps fabrics cleaner for longer
- Wash-fast durability
- Based on PFOA- and PFOS-free recipe

Evo Care Vital

- Contains natural aloe vera extract, jojoba oil and vitamin E
- Comfortable softness and absorbency
- Wash-fast durability

Evo Protect D

- Water repellent
- Soil repellent
- Keeps fabrics cleaner for longer
- Wash-fast durability
- Based on fluorine-free recipe

Evo Fresh

- Odor absorbing finish
- Long-lasting freshness
- Eco-friendly
- Reactivated by washing
- Wash-fast durability

Evo Care Aloe

- Contains natural aloe vera extract
- Comfortable softness and absorbency
- Wash-fast durability

OUR SERVICE DIVISIONS

COLOR SOLUTIONS INTERNATIONAL

CSI provides retailers and brands with a variety of flexible color options and services. Our expert staff will create, manage and distribute color standards.

We are not only a source of colors. Our dedicated Color Team supports designers and color managers from the first inspiration throughout the entire supply chain, to create the perfect product for their customers. CSI's solutions guarantee a fast, efficient and accurate color communication process to bring inspirations into reality. By improving our clients' chances for right-first-time results, we also help them save on time and money.

ECONFIDENCE

The econfidence program is designed to provide assurance to our customers that DyStar dyes and chemicals meet all applicable statutory restrictions in the markets they are sold. econfidence is backed up by the most extensive eco-testing program of any textile chemical supplier.

Overseen by a dedicated and multi-disciplinary team of experts, the econfidence program was meticulously developed to monitor over 500 restricted chemicals and ensure the continued reliability of DyStar products. Our customers and their direct stakeholders - in turn - enjoy the comfort and reassurance that their sustainability performance will not be compromised through supply chain activities.

SUSTAINABLE TEXTILE SOLUTIONS

Sustainable Textile Solutions (STS) is dedicated to assisting brands, retailers and their industry partners implement sustainable textile production practices within their organizations. Our primary goal is to guide clients in the textile industry through the complex maze of quality and eco-testing requirements, helping them meet all applicable standards and regulations. STS also provides expertise to customers interested in operating more efficiently and achieving reductions in cost and resource consumption.

The three main service activities at STS are consultancy, auditing and capacity building. We tailor our offerings to meet the unique sustainability requirements of every client.

TEXANLAB

Texanlab Textile and Analytical Laboratory is an ISO 17025 certified, boutique testing laboratory specialized in ensuring compliance and resolving failures in the customer supply chain. We are a repository of know-how in ecology testing and analysis for the textile industry, meeting the requirements of CPSIA, EU Eco-label and brand- or retailer-defined Restricted Substances Lists (RSLs).

Since 1994, Texanlab has tested over 300,000 samples for ecological parameters. Whether handling liquid or fabric samples, Texanlab applies correct and accurate methods to produce dependable results. We pride ourselves on a 100% on-time performance record, delivering accurate results in a cost-effective, fast and reliable manner.

OUR GOVERNANCE STRUCTURE

[G4-34. G4-39, G4-45, G4-46, G4-47]

DyStar's corporate philosophy is hinged on integrity and values. Over two decades, we have worked to build and uphold high standards of corporate governance, and to maintain fair dealings in all our business processes. DyStar's commitment to business ethics is led from the top by members of the Board and Senior Management. They recognize that policies and practices that promote transparency and accountability are essential in securing the long-term sustainability of any business. The strength of our method, however, depends on more than the effectiveness of prevailing principles; in a fast-changing industry, our willingness to acknowledge and repair weaknesses in the management system has become equally important to the future of this company. It is an approach that allows us to remain adaptable in a fluctuating business environment and, ultimately, keeps operations across the world aligned along the same basic principles that made DyStar what it is today.

THE BOARD OF DIRECTORS

DyStar's Board of Directors is headed by a non-executive Chairman. The Chairman and the Chief Executive Officer (CEO) at DyStar are separate persons. This arrangement encourages a balance of authority and better enables the Board to make independent decisions.

The members of the Board contribute core competencies to the Group's decisions including knowledge of applied chemistry, insight into technological advances, legal and regulatory expertise, accounting and finance skills, business and management know-how, and a developed understanding of customer expectations. Their varied combination of experience and expertise supports quality decision-making at the top and counters any tendencies toward groupthink.

Together, the Board members exercise oversight over the company and set the tone for DyStar's long-term business objectives, organizational strategy, risk management and global dealings. They review and approve business plans, and ensure that sufficient resources are available for DyStar to realize its objectives. As leaders in this niche industry, it is also the Board's priority to see that environmental, social and economic responsibilities are woven into the fabric of how we operate. Their view of corporate responsibility extends to the manner in which DyStar conducts itself in the eyes of the law and among business associates.

One Executive Director from the Board oversees the company's daily operations from DyStar's headquarters in Singapore. As the primary link between the Board and Senior Management, Xu Yalin coordinates closely with Senior Management to ensure that the Board's decisions and strategies are successfully realized.

Board of Directors

Ruan Weixiang
Chairman

Xu Yalin
Executive Director

Yao Jianfang
Director

Manish Kiri
Director

Amit Mukherjee
Director

COMMITTEES

Our governance is reinforced by specialized committees that support the Board in their decision-making and provide guidance to Senior Management. The Audit Committee and the Remuneration Committee are vital in sustaining good business conduct across the DyStar Group. Staying abreast of the latest developments is not easy so the committees meet periodically throughout the year to plan; to discuss progress and setbacks; and to deliberate on the value of newly proposed projects and policies.

The Audit Committee holds critical responsibilities in the company. Apart from monitoring the effectiveness of DyStar's internal control processes and internal audit function, they also evaluate the independence and objectivity of external auditors. The Group's financial statements as well as all announcements related to financial performance are verified by the Audit Committee before publication.

The Remuneration Committee looks after the company's human resource policies and practices, making sure that they are consistent and aligned with DyStar's long-term objectives. Their principal concern is to ensure an optimal and effective organizational structure. Within that structure, they also support human resource activities that strengthen business continuity, operational efficiency and organizational competitiveness. In addition, the Committee makes timely recommendations to the Board on market-adjusted remuneration frameworks for both management and employees. The Board, in turn, reviews management performance and looks to the Committee for advice on matters related to appointments and compensation.

THE SENIOR MANAGEMENT TEAM

The members of Senior Management, headed by the Group's CEO, work with the aim of implementing the Board's strategy and directions in an effective, transparent and sustainable manner. Day-to-day management of DyStar is entrusted to the CEO who executes strategic plans and policies together with the members of his team, while also balancing the interests of the Board and the two key committees. Four Vice Presidents hold positions in the Senior Management team and support the CEO in their individual capacities as leaders of one or more key functions within DyStar. Aside from their daily tasks, the company depends on the example of the CEO and his team to instill an ethical business culture among managers and employees alike.

Eric Hopmann
Chief Executive Officer

Gerald Talhoff
VP Global Manufacturing and Global Supply Chain Management

Vera Huang
VP Global Procurement and North Asia Region

Philip Tan*
VP Global Finance

Kevin Tan
VP Global Human Resources

* Viktor Leendertz served as VP Global Finance until June of 2017.

ETHICS AND COMPLIANCE
[G4-56]

DyStar is committed to conducting all business activities in accordance with the highest ethical and legal standards. We operate under DyStar's Code of Conduct, which was established to help employees understand the company's expectations. It sets out the legal and ethical principles that guide our daily work activities, and is binding for all employees and entities in the DyStar Group. Upholding those principles is crucial to maintaining our reputation as an employer of choice and as a reliable business partner.

Globally, a combination of political and economic trends has rendered communities and swathes of the environment newly vulnerable to exploitation by those who have no regard for the law. As the world evolves, so too must corporations. DyStar recognizes that no company is immune to bribery, fraud and corruption but we can certainly take steps to bolster existing safeguards. In addition to the Code of Conduct, DyStar instated a Fraud Policy in 2015 to protect whistle-blowers. More recently, we introduced the Code of Business Conduct for Suppliers and Third Party Service Providers, as well as the Code of Business Conduct for Sales Related Service Partners. Taken together, DyStar's principles and policies are the first line of defense in stamping out corruption, but success in the long run depends on the everyday vigilance of our managers and employees.

DYSTAR'S CODE OF CONDUCT

Each of the eight principles that constitute DyStar's Code of Conduct corresponds to an internationally accepted ethical standard in business. The Code serves as our moral compass to protect the interests of both internal and external stakeholders. When applied within DyStar, the Code of Conduct promotes transparency in operations and safer workplace practices. We believe that ethical companies are also better able to attract and retain the best people. Likewise, external stakeholders across the value chain benefit from the rules laid out in our Code of Conduct. DyStar's commitment to ensuring that each entity abides by all applicable laws and regulations guards not only the long-term interests of our company but also those of our customers, suppliers, brands and retailers, and local communities.

FRAUD POLICY
[G4-DMA, G4-SO3, G4-SO4]

When individuals act in defiance of the law for personal gain, communities and the environment are often the most severely impacted. DyStar's Fraud Policy was instated in 2015 to reinforce the company's anti-corruption efforts by fostering a work environment where staff could safely and anonymously report known or suspected instances of fraud. Although all DyStar business units are subject to internal audits for corruption-related risks, the Fraud Policy enables us to be more effective at identifying instances of wrong-doing. Fighting corruption successfully requires both a top-down and a bottom-up communication approach. By assuring potential whistle-blowers that they can act without fear of unjust retribution, we are one step closer to eliminating corruption.

Our Code of Conduct promotes eight key principles that are aligned with international standards[1].

1. **Compliance with Laws and Regulations**
2. **Protection of Intellectual Property Rights**
3. **Commitment to Fair Competition**
4. **Separation of Private and Company Affairs**
5. **Prioritizing Health, Safety and the Environment**
6. **Ensuring Product and Service Quality**
7. **Respect for the Rights of Employees**
8. **Cooperation with Authorities**

1 The international standards referred to include the following: The International Labour Organization Core Labour Standards; ILO Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy; The Universal Declaration of Human Rights; The OECD Guidelines for Multinational Enterprises; The United Nations Global Compact Ten Principles; Social Accountability SA8000; and The Responsible Care Global Charter.

> **"BY RAISING AWARENESS AMONG MANAGERS AND EMPLOYEES, THE COMPLIANCE GROUP PLAYS A CENTRAL ROLE IN MAINTAINING A CULTURE OF HONESTY AND HIGH ETHICS.**

CODES OF BUSINESS CONDUCT

In 2016, DyStar introduced the Code of Business Conduct for Suppliers and Third Party Service Providers to communicate our fundamental principles and expectations to upstream partners. The policy applies to all DyStar suppliers and third party service providers which include, but are not limited to, all suppliers of raw material, intermediate goods and finished goods; IT and engineering suppliers or service providers; and freight forwarders and logistics providers. No matter where in the world they may operate, suppliers and third party service providers that wish to cultivate long-term relations with DyStar must conduct their businesses in compliance with the principles outlined in our Code of Business Conduct.

DyStar's policy is simple: we do not give or receive bribes. Corruption is never acceptable and exposes DyStar as well as its employees to possible criminal prosecution, civil fines and penalties. Our Code of Business Conduct expressly prohibits improper payments in all business dealings and in every country, whether to government or private sector organizations. To prevent any potential or perceived conflicts of interest, it is not permissible for DyStar employees – and the relatives of DyStar employees – to accept payments, gifts or entertainment services from any individual or company desiring to do business with DyStar.

Beyond their obligation to help eradicate bribery in the value chain, suppliers and third party service providers are expected to abide by fair competition and antitrust laws; maintain accurate accounts of their business records; and comply with all applicable local, national and international laws and regulations in the provision of products and services to DyStar. A trusted supplier is one that has systems and controls in place to promote compliance with laws as well as the principles set forth in our Code of Business Conduct - including policies, training, monitoring and auditing mechanisms. Further, DyStar suppliers and third party service providers are urged to apply the same principles to their own suppliers and contractors.

Many of the risks facing our upstream stakeholders can just as easily be encountered among our downstream partners. Hence, in addition to the Code of Business Conduct for Suppliers and Third Party Service Providers, we implemented a Code of Business Conduct for Sales Related Service Partners. DyStar will not hesitate to discipline or dismiss managers and employees that are found to have knowingly acted in breach of either codes. Similarly, we have no hesitations about suspending business relations with partners that act in contravention of our policies, or repeatedly fail to implement corrective actions in their own businesses.

COMPLIANCE MANAGEMENT
[G4-57, G4-58, G4-PR2, G4-PR4, G4-PR7, G4-PR9]

DyStar's Compliance Group was created to ensure adherence to all applicable laws and regulations, as well as to DyStar's own internal policies and management directives. Its remit includes evaluating and mitigating potential risks to the business and to stakeholders across our value chain. By raising awareness among managers and employees, the Compliance Group plays a central role in maintaining a culture of honesty and high ethics.

The Compliance Group is led by a Global Compliance Manager whose contact details are supplied to new hires as part of DyStar's orientation procedure. Each region is further supported by one or more Compliance Management Representative (CMR) to ensure that all entities operate in line with company policies and relevant legislation. In addition, a legal counsel is at hand for any department or entity in the company seeking guidance on the legality of their decisions and actions.

CREATING THE RIGHT CORPORATE CULTURE AND EMBEDDING SUSTAINABILITY VALUES

A SEASONED LEADER WITH STRONG FOUNDATIONS IN APPLIED CHEMISTRY, XU YALIN DELIVERED RESULTS FOR MULTI-NATIONALS ACROSS THE ASIA PACIFIC BEFORE HELMING DYSTAR'S GLOBAL OPERATIONS IN 2010. BASED IN SINGAPORE, THE EXECUTIVE DIRECTOR OF DYSTAR SHARES HIS PHILOSOPHY ON RUNNING A SUSTAINABLE BUSINESS AS WELL AS HIS EXPERIENCE IN STEEERING THE COMPANY THROUGH TURBULENT TIMES.

AN INTERVIEW WITH XU YALIN, EXECUTIVE DIRECTOR OF DYSTAR

Can you describe DyStar's business and its value proposition?

DyStar was first established in 1995 as a coloration specialist, offering products and services to the textile and leather industries as well as to the fine chemical sector. Since then, the company has evolved into a one-stop shop providing solutions to dozens of consumer and supplier demands as well as additional services in consultancy, training and textile testing. In 2016, we acquired Emerald Performance Materials LLC, a leading American manufacturer and marketer of specialty chemicals. The acquisition diversified our product range but, more significantly, marked DyStar's entry into a new niche industry where we now cater to the food and beverage sector as well. In all our chosen industries, we strive to be the environmental and innovation leader, working to develop not only safer alternatives; we also aim to create solutions that are both less resource-intensive and more cost-efficient for the customer.

Throughout the years of restructuring, DyStar's financial performance was less than satisfactory. Under your leadership, fortunes have reversed. Tell us how you steered the company away from its lowest point.

> **"EMPLOYEES WHO FEEL THAT THEY ARE BEING VALUED AND SEEN AS CONTRIBUTING TO SUCCESSES PERFORM MORE EFFICIENTLY THAN THOSE WHO FEEL THAT THEY'RE SIMPLY WORKING FOR THE COMPANY.**

There was a span of about 15 years when DyStar was not profitable and, of course, the challenge I faced from the very beginning was to turn that around. The first thing I saw was that, like many other multinational companies, DyStar had a very complex system. In particular, it was burdened by a complicated product range, with probably only 20% of products accounting for 60% of sales revenue. I knew what we could do to rectify this and the first step was to reduce the complexities by simplifying our product range – ultimately, with the goal of raising efficiency as well as productivity. The outcomes of this approach were positive. It lifted DyStar from the low point of facing insolvency in 2009 to earning net US$50 million in 2013 and US$100 million by 2015.

Where do you place sustainability in the scheme of things?

I see sustainability as no longer an option but essential to the running of businesses, especially one like ours with its global network and operations. In fact, sustainability and business go hand-in-hand. DyStar acted fast to mitigate adverse environmental impacts and it's no secret that we are the most sustainable and responsible supplier of textile dyes. Old chemicals are now of no use to the international textile industry, so we're continuously innovating to bring cleaner chemical substitutes to our customers so they can continue to meet regulatory requirements – even as they become more stringent. For Dystar, moving forward on our sustainability journey also requires embedding principles, values and ethics into our mindsets. Without the right culture at the core of a company, business won't grow.

How did you go about trying to strike the right balance for a healthy and vibrant corporate culture?

There is no straightforward formula for creating the right kind of behavior or corporate mindset. When I joined DyStar, I found the corporate culture to be quite complicated. A lot of employees were working on their own without a clear vision. There wasn't much sense of involvement and it was far too bureaucratic. I saw this as one of the key reasons why the company was not profitable for many years. So I changed a lot of things, and the first change was to get a good cultural fit.

I believe that in order to get this cultural fit, employees must feel that they're not just working for the company, but also for themselves. Employees who feel that they are being valued and seen as contributing to successes perform more efficiently than those who feel that they're simply working for the company. So we implemented an excellent performance-related incentive system. Our employees now work knowing that if the company makes money and is profitable, they will be rewarded as well.

My personal philosophy is that both the company and its employees have to be treated fairly. I always encourage fairness and trust. We have set up policies and there are systems in place now to foster open communication within DyStar. So employees who contribute also understand that they will receive fair rewards. It is a system based on fairness, family and a sense of ownership. That's the core culture of the company.

What is your approach to leadership?

To be a good leader, or a successful leader, you must be a missionary. You need to lead by example; you need to design achievable but also challenging targets and provide an execution plan for them to be implemented. Then you walk together with the employees to reach those goals so they can enjoy the success and share in that success.

OUR APPROACH TO SUSTAINABILITY

THE VALUE CHAIN APPROACH
[G4-14]

The textile and apparel industry has earned a reputation for being highly pollutive. Every step that goes into the production of a garment is complicated - involving long and mixed supply chains for fiber production, raw material sourcing, textile manufacturing, garment construction, shipping, storage, retail, use and disposal. Any comprehensive analysis would have to take into account not only the direct sources of pollution which include – but are not limited to – the excess use of fertilizers and pesticides in cotton farming; the copious quantities of dyes and auxiliary chemicals applied in textile manufacturing; the accumulation in lakes and oceans of plastic microfibers shed by synthetic garments; and, not least, the growing volume of waste composed of cast-off clothing. But an equally concerning factor is the profuse amounts of natural resources that are required for raw material extraction, farming, harvesting, processing, manufacturing, storing and shipping.

No doubt, the problems of the industry are the responsibility of numerous and various stakeholders. For its part, DyStar acknowledges that the potential and magnitude of the risks associated with the use of dyes and auxiliaries are, in some cases, far more severe than those resulting from the actual synthesis of chemicals. The substances applied by our customers in textile production can, in the absence of appropriate and adequate waste and wastewater disposal methods, be very pollutive. To meet the rising tide of public concern, the governments of emerging markets are stepping up to the game and becoming increasingly stringent at enforcing environmental laws and regulations – particularly those that target emissions, waste and wastewater. Consequently, many textile producers face immense but necessary pressure to clean up. These converging forces have made DyStar a necessary partner to businesses that are keen to survive the challenging – but ultimately worthwhile – demands to reform.

We have learned first-hand that it is a much easier task to control what happens within our own premises than it is to exert influence over businesses upstream and downstream. But, given recent industry trends, we understand and accept the necessity of broadening our attention beyond internal operations. DyStar is committed to sustainability across the entire value chain and that commitment begins at home, where we work to reduce our own operational impact, but it also extends upstream to our suppliers who are expected to uphold basic standards of ethical conduct. At the other end of the spectrum, a diverse range of responsible products, tools and services cater to the needs of upstream stakeholders. So, we understand that the scope of our sustainability program is wider than ever but how does DyStar bring depth to that commitment? The guiding principles that help us understand our positive and negative impacts across the value chain are known simply as the "Four C's" – Creating, Conserving, Caring and Communicating.

CREATING
Responsible Products and Solutions

Product stewardship at DyStar starts at the front of the value chain with green design and responsible sourcing, and is bolstered by a comprehensive range of services that enable our stakeholders to select, communicate and utilize colors sustainably. The precautions taken at design and sourcing have significant and positive impacts beyond our own doorsteps.

CONSERVING
Planetary Resources

Our production teams are tasked with the goal of reducing the energy, water and raw materials consumed for every ton of production by 20% of 2011 levels by the year 2020. The same target applies to the waste, wastewater and greenhouse gas emissions resulting from our internal operations.

CARING
for People

DyStar's sustainability framework recognizes the importance of our employees and local communities – whether pertaining to their health, safety or general well-being. We maintain an open-door policy and believe that all reported grievances should be addressed in a fair and just manner.

COMMUNICATING
with Stakeholders

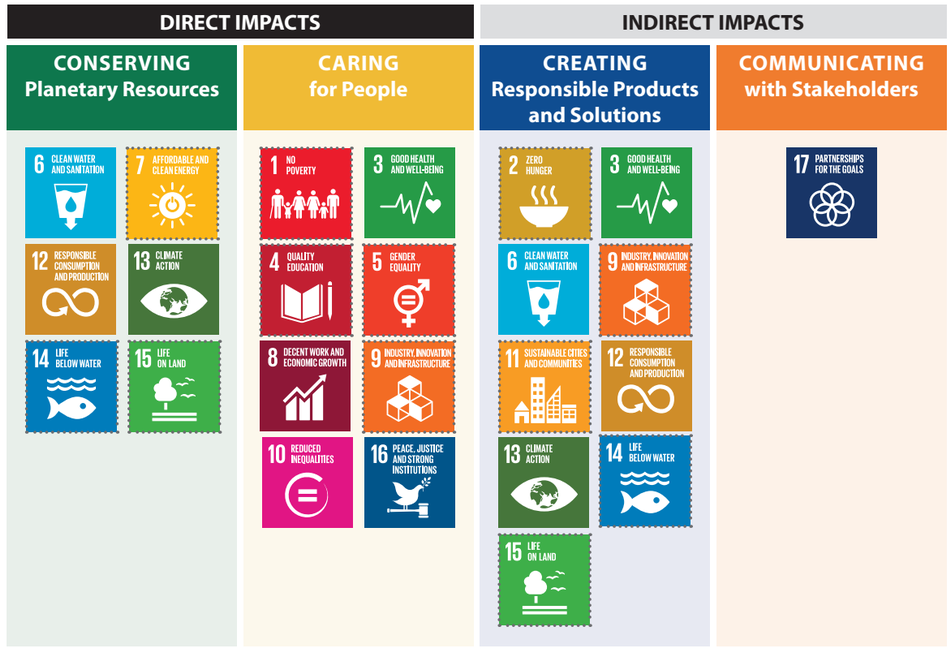
We value the views of both our internal and external stakeholders. Praise or critical feedback – we aim to understand the opinions of anyone who cares enough to express them. By actively engaging with stakeholders, we are able to keep our Creating, Conserving and Caring activities relevant.

DYSTAR AND THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

In September 2015, the United Nations (UN) launched the 17 Sustainable Development Goals (SDGs) as a common framework for all countries, companies and civic societies to base their efforts in a campaign to transform the world by 2030. DyStar has joined the global movement in welcoming the new SDGs and, as a starting point, has taken the opportunity to evaluate the alignment of our sustainability strategy to the UN agenda.

Here, we clarify how DyStar's approach to sustainability (through its activities across the Four C's) relates to the UN SDGs. Of the 17 UN goals, eight are recognized as targets to which DyStar can make significant contributions. We do engage on the other nine goals, when appropriate, but believe that they are goals that other stakeholders are better able to influence directly. DyStar does however acknowledge all 17 Goals to be interconnected, and therefore deserving of consideration and support wherever and whenever the opportunities arise.

For example, Goal 12, which promotes responsible consumption and production, is one where DyStar has had a direct and positive impact through our internal commitment to the second 'C' – to conserve planetary resources in our own operations. Indirectly, we also contribute to Goal 12 through our internal commitment to the first 'C' – to create responsible products and services, many of which are designed to help our customers become more resource-efficient. Moreover, DyStar's colors are made to last; this is not just a matter of product performance, though, because high quality dyes can also reduce the number of basic replacement items (e.g. t-shirts) purchased over a consumer's lifetime.



UN SDGs that the company has limited capacity to contribute in a direct manner

DRIVING SUSTAINABILITY FROM THE TOP
[G4-34, G4-35, G4-36, G4-45, G4-46, G4-47, G4-48, G4-53]

At DyStar, sustainability is driven from the very top. At the helm of this effort is DyStar's senior management team who work to integrate sustainability within the Group's business strategy, corporate culture, ground operations and more. This is, in fact, one of the key strengths of DyStar's program – the unerring commitment of our leaders. Without their support, the scope and depth of our approach would be limited.

The Chief Executive Officer serves as chair of DyStar's Sustainability Committee which comprises nine members, each representing a different key function in the company. Together, the Committee sets the overall direction of our long-term sustainability strategy and spearheads its implementation in line with the company's core objectives. Once each quarter, the members convene to discuss progress, deliberate on the value of newly proposed initiatives and debate recent developments in the industry. In keeping with the principle of transparency, the Committee oversees the preparation and distribution of DyStar's Sustainability Performance Report which, each year, presents interested internal and external parties with a candid overview of the company's achievements and failings throughout the calendar year.

DyStar Sustainability Committee
Eric Hopmann, *Chief Executive Officer*
Gerald Talhoff, *VP Global Manufacturing & Supply Chain Management*
Ron Pedemonte, *Vice President North & Central America and Head of DyStar Textile Services*
Fanny Vermandel, *VP Global Marketing Coloration*
Clemens Grund, *Senior Director Global Technology and Ecology*
Hartmut Behnke, *Director Global Marketing Auxiliaries*
Leong Li Sun, *Global Sustainability Manager*
John Easton, *Global Brand and Retail Sustainability Advisor*
Stephanie Schank, *Global Head of Marketing Communications*

EMBEDDING SUSTAINABILITY

Despite numerous recent advances witnessed in the sector – including the rise of circular economy models – the collective drive by players all across the length of our value chain to achieve a sustainable equilibrium with the planet is a journey that, right now, has no obvious end in sight. There is no question that DyStar and its leaders are in this for the long haul but, on a day-to-day basis, we depend on hearts and minds of our most talented colleagues to stay on course. Nearly every one of us contributes to the effort – from the chemists innovating to create safer and more resource-efficient products; to the members of our Ecology team who watch out for hundreds of potential contaminants in the supply chain; to the plant managers entrusted with the well-being of workers and community residents alike; and especially our on-the-ground sales teams who travel far and wide promoting cleaner products to textile producers. In every part of our organization, sustainable practices are taking root, evolving through innovation and setting new standards for both our clients and competitors.

Recognizing the power of knowledge to transform behavior, DyStar is increasingly focused on staff engagement and is working to deliver access to resources that will enable our teams to learn, innovate and share with the wider DyStar community. More formally, the Committee also ensures that all managers and employees with the potential for significant positive or negative impact, by virtue of their roles and responsibilities, are tasked with sustainability-related performance targets. As much thought and planning that goes into becoming a better organization, though, DyStar recognizes that no company can succeed in these economic times by taking a head-in-sand approach. We value your opinions so reach out via Sustainability@DyStar.com.

> **"UNDER NO CIRCUMSTANCE DOES DYSTAR ENCOURAGE OR CONDONE ACTIONS THAT CAN COMPROMISE THE WELL-BEING OF THE ENVIRONMENT AND THE COMMUNITIES WHO DEPEND ON ITS RESOURCES. WITHOUT EXCEPTION, THIS PRINCIPLE APPLIES TO ALL MANAGERS AND EMPLOYEES, AS WELL AS SERVICE PROVIDERS.**

ENVIRONMENTAL COMPLIANCE
[G4-DMA, G4-EN29, G4-SO8]

DyStar fully recognizes that, because of the nature of the materials we both handle and produce, even one misstep can have severe consequences. In 2016, we received a total of two fines that were related to the environment. The first, amounting to USD 10,000, resulted from a mistake that led to gas and steam production volumes being incorrectly registered. The second, however, was a far more serious matter. In Nanjing, China, based on a final court ruling in 2016, a fine of USD 2.9 million was imposed on our subsidiary company DyStar Nanjing Colours Co. Ltd (DNCC) for a 2014 incident involving a vendor and two employees that dealt with used sulfuric acid resulting from DNCC production processes.

We acknowledge and deeply regret any damage that may have been caused to the environment due to the improper handling and disposal of this chemical and accept the fine as well as the sentence meted out to the individuals involved. In keeping with the principles of transparency, we present here a overview of the incident.

In June of 2014, we were informed by local authorities that a vendor, after having accepted used sulfuric acid for re-sale and re-use, had transferred a significant amount of the material to another party that, in turn, was caught illegally discharging chemicals from multiple companies, including sulfuric acid from DNCC, into a local waterway. DyStar cooperated fully with the authorities throughout the investigation that ensued.

Though our vendor was fully licensed to deal and trade with hazardous chemicals, they did not possess licenses to treat and dispose hazardous waste.

Our local team had hired the vendor under the assumption that the sulfuric acid would be resold to and reused by other companies in the chemical or metal processing industries, rather than destroyed, a practice that was common in the industry. An external environmental consulting firm engaged as early as 2006 had concluded that this was an appropriate option under certain and well-controlled conditions. However, transferring the used acid to a trading company without appropriate controls and necessary permits was a violation of both government regulations and existing company rules.

It was revealed to us over the course of the investigation that at least one employee involved in securing the arrangement had received bribes from the vendor.

DyStar's management has not once authorized the illegal disposal of hazardous waste material in any of the countries where we operate. Under no circumstance does DyStar encourage or condone actions that can compromise the well-being of the environment and the communities who depend on its resources. Without exception, this principle applies to all managers and employees, as well as service providers.

This experience was a valuable learning lesson and highlighted weaknesses in our procedures and internal structure. Since the incident was brought to our attention in 2014, we have instated a new framework of policies and bolstered our compliance system to prevent similar incidents from occurring. Across the world, all DyStar manufacturing plants now conduct annual site inspections of their waste and wastewater management contractors. Beyond implementing more rigorous vendor audit and approval procedures, however, a new Fraud Policy and Code of Business Conduct now govern the interaction of our staff with suppliers as well as third-party service providers. Internally, we enable employees to bring known incidents of unethical conduct to the attention of senior management without any risk of unjust retribution.

Despite the fine, we are relieved that the practice was brought to light before any further damage could be caused. It is a sign of the deep commitment by local authorities to tackle pollution. Their dedication will be essential in stamping out some of the inherent risks associated with operating a business in this industry.

SPOTLIGHT ON

Levafix® ECO Range
Black, Navy and Forest

Zero p-CA or other regulatory controlled amines for responsible textile production

The new Levafix ECO Range of reactive dyes presents customers with dual sustainability benefits. Our researchers started with the health of the end-user in mind and created a product free of p-CA and other regulatory controlled amines. They then mitigated its overall impact to the environment by giving their product enhanced fastness properties. Levafix ECO range demonstrates how DyStar's chemistry creates products for both people and the planet.

See pages 26-27 to learn more about how DyStar creates responsible products and solutions across the value chain.

CREATING RESPONSIBLE PRODUCTS AND SOLUTIONS

> **"SUSTAINABILITY BEGINS WITH DESIGN AT DYSTAR BECAUSE WE UNDERSTAND THAT THE MOST EFFECTIVE WAY TO MITIGATE A PRODUCT'S LIFECYCLE IMPACT IS TO GET IT RIGHT FROM THE START.**

FROM PRODUCT STEWARDSHIP TO SUSTAINABILITY SERVICES

DyStar is committed to helping stakeholders across the value chain achieve higher standards for quality, safety and the environment. Over the past decade, we have continuously invested resources in innovation to deliver responsible products and solutions to the customer. When we first started down this path, our teams were chiefly concerned with product quality and product performance. While still in the development stages, the entirety of a product's lifecycle is scrutinized by our R&D chemists. It is an approach that was founded on the knowledge that the precautionary steps applied early on, at design and sourcing, could have positive and resounding impacts further down the value chain.

The straightforward principles behind DyStar's product stewardship program successfully delivered products that not only minimized our own impacts but those of our customers and end users as well. For a time, however, we were missing the bigger picture because it soon became apparent that customers required more than a good product; they were also looking for a comprehensive support system. Bearing these needs in mind, DyStar Textile Services (DTS) was formed to provide brands, retailers and textile producers with the specialized tools and services they need to achieve results in the most sustainable way possible. Yes, product stewardship continues to be an essential component of our sustainability framework, but the scope of our responsibility has widened to encompass a panoply of solutions that now enable downstream stakeholders to make informed and responsible choices from product selection to process optimization.

PRODUCT AND MARKETING COMPLIANCE

Throughout the reporting period, DyStar did not receive any fines, penalties or warnings for violations related to the health and safety impacts of our products and services. Neither were there any violations of prevailing laws and regulations concerning the provision and use of our products and services. DyStar was subjected to no fines or penalties concerning product and service information and labelling during the reporting period. We also adhere to all applicable regulatory and voluntary codes governing marketing communication practices. 2016 saw no fines, penalties or warnings in relation to our advertising, promotion or sponsorship activities.

econfidence® from DyStar

500
regulated or restricted substances monitored through econfidence®

SUSTAINABLE TEXTILE SOLUTIONS

1,747
customers trained in chemical management

SUSTAINABLE TEXTILE SOLUTIONS

1,187
textile mills audited for chemical risk and textile processing

csi

4,000
ColorWall™ references available for better right-first-time performance

Texanlab Textile & Analytical Laboratory

350,000
samples tested for eco-parameters since 1994

eliot®

20
positive lists, e.g. for compliance to brand & retailer Restricted Substances Lists (RSLs)

PRODUCT STEWARDSHIP ACROSS OUR VALUE CHAIN (TEXTILE PRODUCTS)

At DyStar, product stewardship is an integrated process that depends on the dedication and expertise of multiple divisions, all serving a common purpose – to identify and minimize environmental, health and safety risks at every stage of the product's lifecycle. We recognize that the indirect impact of a product can be comparable, if not greater, than that resulting from our internal activities. Our strategy focuses on how we can embed sustainability at the early stages of design and sourcing. In so doing, our customers stand a better chance of attaining the desired color and effect, and not at the expense of workers, communities and the environment.

PRODUCT DESIGN
[G4-DMA, G4-PR1]

Laying foundations in green chemistry

DyStar's Product Stewardship program is built on the foundations of our ideas and innovations. Sustainability begins with design at DyStar because we understand that the most effective way to mitigate a product's lifecycle impact is to get it right from the start. Our R&D efforts are driven by Green Chemistry* design principles to provide safer and more environmentally benign products for customers and end-users alike.

TEN GREEN CHEMISTRY PRINCIPLES APPLIED AT DYSTAR
Preventing pollution
Maximizing the incorporation of material inputs into the final product
Using or generating substances with little or no toxicity
Developing high performance products with reduced toxicity
Minimizing the use of solvents
Improving energy efficiency
Reducing derivation steps
Leveraging on the power of catalysts
Designing for degradation
Designing for human safety

RESPONSIBLE SOURCING
[G4-DMA, G4-PR6]

Building confidence with the right ingredients

The performance of a dye or chemical depends on much more than its recipe. Ultimately, the quality of the ingredients can make or break any product. DyStar's econfidence program provides the assurance that customers need, giving them the certainty that our products meet all applicable statutory chemical restrictions in the markets they are sold. Backed up by the most extensive eco-testing program of any textile chemical supplier, econfidence is the gatekeeper that stops over 500 restricted substances from entering our supply chain. For textile producers, this assurance lets them work with our dyes and chemicals knowing that their merchandise is safe.

Why do businesses need to know what they are buying?

1. The science community has made significant advances in the understanding of carcinogenic, mutagenic and reprotoxic substances. Our knowledge of the environmental impacts that can be caused by toxic and hazardous substances has also matured considerably.
2. Keeping up with recent developments in science, governments around the world are bolstering chemical regulations surrounding textile, leather and apparel articles.
3. But, at the same time, sourcing for textile and leather articles has become dynamic and multi-national, making supply chains lengthier and more fragmented.
4. A growing number of brands and retailers are becoming aware of the reputational impact that can result from product contamination and have created their own restricted substances lists (RSLs). Suppliers, for their part, must comply with RSLs to continue business relations with large brands and retailers.
5. The public is also better informed about environmental and health issues. In a world more connected than ever before, where huge swathes of the population now have access to the internet, every individual has a say in these matters.

What is the econfidence commitment?

1. **Leadership:**
   A multi-disciplinary team of experts in the econfidence group are tasked with studying and preventing potential risks across the length of our product chain.
2. **Expertise:**
   DyStar's team of chemists know where to look for impurities at every stage of the product chain. We leverage on their extensive knowledge to create specific monitoring scenarios for individual chemicals.
3. **Dependability:**
   For reliability, eco-testing is systematic and starts early with raw materials. We want certainty that our purchases and, by extension, our products meet all applicable quality and ecological specifications.
4. **Traceability:**
   A global business platform monitors, controls and services the complete supply chain to ensure traceability.
5. **Guarantee:**
   Eco-conformity declarations are available for brands, retailers and their industry partners.

* Anastas, P.T.; Warner, J.C.; Green Chemistry: Theory and Practice, Oxford University Press: New York, 1998, p.30

"...WHEN SUPPLIERS ARE IDENTIFIED THAT MEET OR EXCEED OUR MINIMUM EXPECTATIONS, IT IS IMPERATIVE THAT WE MAINTAIN LONG-TERM RELATIONSHIPS WITH THEM BECAUSE THAT GIVES US THE BEST CHANCE TO INFLUENCE THEIR DECISIONS FOR THE BETTER.

SUPPLIER SUSTAINABILITY
[G4-12, G4-DMA, G4-EN32, G4-EN33, G4-LA14, G4-LA15, G4-HR10, G4-HR11, G4-SO9, G4-SO10]

We hold all our suppliers to same basic standards of ethical conduct. DyStar recognizes that good supplier management requires constant vigilance and continuous improvement. Companies like ours function in a business environment where essential materials are often only available from a limited number of specialized suppliers. For this reason, when suppliers are identified that meet or exceed our minimum expectations, it is imperative that we maintain long-term relationships with them because that gives us the best chance to influence their decisions for the better. At the same time, it is also important to remember that responsible procurement begins at home and, internally, we have had to make changes to ensure that the procurement process is fair and transparent at all times. As part of this effort, we recently implemented the Code of Business Conduct for Suppliers & Third Party Service Providers to define the minimum expectations that apply to our suppliers as well as all DyStar employees that have interaction with suppliers. For more details on this policy, refer to Ethics and Compliance.

Most of our Tier 1 suppliers are producers of raw and intermediate materials that are needed in the production of dyes and auxiliaries. More than 1,200 suppliers fall in this category. At the start of our screening procedure, all potential suppliers are requested to submit samples for targeted eco-testing. This first phase of the selection process is important to ascertain the quality of a supplier's material and, more crucially, allows us to rule out suppliers whose samples test positive for restricted substances. Those that pass our testing requirements move on to the second step of the selection process, where they are evaluated against a more extensive list of criteria. A supplier that reaches the final stages of the screening process can expect a site visit from members of our sourcing team who aim to examine – among other things – the quality and reliability of services provided, competitiveness in pricing, adherence to environment laws and regulations, waste and wastewater management capabilities, treatment of workers, etc.

Following the screening procedure, accepted suppliers of raw and intermediate materials are required to submit samples for targeted eco-testing on a regular and frequent basis. This ensures that, in the rare case of a contamination, restricted chemicals are identified and removed before they can make their way into our product chain. In addition, for existing suppliers, our procurement team conducts an annual re-evaluation that includes the top 80% of material suppliers (by purchase volume). Through a combination of desktop reviews and site visits, they cover a range of topics that touch on commercial, quality and sustainability performance. Vendors with consistently strong performance records undergo full audits on alternate years, whereas new or less established vendors are required to undergo full assessments every year. Subsequent to each audit, we share with our suppliers a list of suggestions on how to improve and monitor their progress year-on-year. In cases where a supplier is found to be in minor breach of our basic principles for good conduct, our approach is to work closely with the supplier to help improve their performance and ensure that corrective actions are implemented wherever necessary. For suppliers that are found to be in material breach of laws and regulations, business relations are either terminated or suspended until an audit can establish that all necessary corrective and preventative actions are implemented.

Our Tier 1 supplier base also consists of equipment and packaging providers as well as a variety of service contractors – including those working in waste management, wastewater treatment, cleaning, maintenance, IT, security, etc. With regards to this category of suppliers, the assessment employed for each is specific to the nature of the services provided as well as the risks associated with those services. To illustrate, the selection of waste and wastewater contractors – owing to the potential severity of the risks involved – requires an added level of due diligence. As such, hazardous waste and wastewater contractors are subject to initial site audits during the screening process. Further, existing contractors receive annual site visits from members of our HSE team to ensure the safe transport, treatment and disposal of hazardous materials.

Three sustainability-related supplier surveys are conducted annually at DyStar. The Environmental Incidents Summary lists all major accidents that occur within a reporting period – including explosions, leaks and spills. The Ecological Compliance Questionnaire is a self-declaration that touches on all major classes of regulated substances in our industry. The most recent addition, the Supplier Sustainability Questionnaire, provides our partners with the chance to share their principles and targets where environmental and social issues are concerned. The topics included in this survey are as diverse as energy consumption, emissions targets, community relations, health and safety, labor conditions, etc. Together, the surveys give us an indication of how well our suppliers perform on average across a spectrum of issues. Just as importantly, though, for suppliers that may be unfamiliar but eager to join the global agenda, the surveys encapsulate what we expect to see from our best business partners.

PRODUCT STEWARDSHIP ACROSS OUR VALUE CHAIN (TEXTILE PRODUCTS)

Direct Impacts

PROCUREMENT	DESIGN	MANUFACTURING	STORAGE	TRANSPORT	CUSTOMERS	BRANDS AND RETAILERS	CONSUMERS
Sourcing of Materials and Services	**Research and Development for New or Improved Products and Processes**	**Production of Dyes and Auxiliaries**	**Warehousing of Dyes and Auxiliaries**	**Delivery of Dyes and Auxiliaries to Customers**	**Application of Dyes and Auxiliaries in Textile & Apparel Manufacturing**	**Sale of Clothing and Apparels**	**Use of Textiles and Apparels**
The econfidence® program prevents more than 500 restricted substances from entering the value chain, some of which can have long-lasting impacts to the natural environment. The program also protects workers, communities and consumers all throughout the value chain from substances known to be carcinogenic, mutagenic, reprotoxic, etc.	Product stewardship in DyStar starts with the application of green chemistry principles. The development of safer and more resource-efficient products benefits the environment and our stakeholders all across the value chain.	Product and process design for the planet reduces raw material, energy and water consumption during production, e.g. by utilizing catalysts and shortening the synthesis process chain. Reducing waste and wastewater as well as gaseous emissions throughout the entire production chain remains an on-going effort and is part of our continuous improvement program.	We optimize product stocks and strategically situate warehouses near client locations and shipping ports to reduce costs and transport emissions.	Our logistics optimization approach aims to maximize the use of cargo space. This strategy minimizes space wastage, fuel consumption and annual transport costs. In some regions, clients can return intermediate bulk containers to a DyStar partner who will oversee their reconditioning and distribution.	Customers can benefit from a range of resource-efficient DyStar products to achieve cost savings at various stages of textile production while also yielding quality results. For example, our latest Cadira® VAT module gives customers a significantly less resource-intensive option in the dyeing of cellulosic fibers.	High fastness dyes improve the average longevity of clothing and apparels. When colors last longer, consumers delay disposal and reduce the need to replace basic clothing and apparel items over the course of their lives. This has indirect but positive impacts further upstream because, at every point of the supply chain, resources are saved that would otherwise have been used to meet consumer's desire for new pieces.
By eco-testing raw materials and ensuring that contaminated substances do not enter the production process, we safeguard the well-being of nearby ecosystems, our own workers as well as stakeholders further down the value chain.	Cleaning kits are available and clean up protocols are in place so that leaks and spills can be safely contained and cleared.	Quality packaging material mitigates risks and prevents damage to the product while en route to the customer.	On top of raw material testing, product eco-testing is conducted by DyStar as an added precaution to identify and control for restricted substances. This added step protects customers in textile and apparel production from the risk of contaminating their textiles and, possibly, the environment with restricted chemicals. Brands and retailers also get the reassurance they need that their clothing and apparel are free of harmful substances.	Consumers active in outdoor sports can don water-repellent jackets with the confidence of knowing that they will not leave behind traces of non-biodegradable chemicals. DyStar's Evo® Protect range of auxiliaries is a green alternative that uses modified fatty acids in place of persistent PFCs.
Risk assessments are carried out for all production steps and precautions are taken to mitigate any known risks. Products are discontinued if there are indications that their production or application present a significant danger to human lives.	Risk assessments are also carried out for warehousing and transportation. Proper packaging, storage and handling practices help workers stay safe from accidents and incidents in the workplace.	We comply with the Globally Harmonized System (GHS) for labelling which requires product packaging to display correct warning symbols and statements so that workers can know the chemicals that they are handling, the hazards involved as well as the precautionary measures to take.	The safety of workers in the supply chain is increasingly a matter of concern for responsible brands and retailers. Risk assessments conducted at the design phase ensure that, when handled appropriately, the chemical nature of our products do not pose intrinsic risks to the safety of textile workers.	
At all times, the use of adequate personal protective equipment (PPE) is mandatory to prevent long-term health risks to on-the-ground staff.	Dyes and auxiliaries placed in storage should only be handled by trained personnel with appropriate PPE.	The mode of product delivery can also contribute to worker health and safety. For example, DyStar Indigo Vat 40% Solution is mainly delivered in tank containers to minimize physical handling by workers.	Brands and retailers want assurance that the chemicals used in their value chain are not substances known to be hazardous to human health. Product testing keeps restricted chemical substances out of the value chain and away from textile workers. However, the physical nature of a product can also be a significant factor in safety (e.g. Dystar Indigo Vat 40% Solution reduces the risk of inhalation exposure compared to indigo powder).	Protecting consumers from exposure to carcinogenic, mutagenic and reprotoxic substances is pertinent to the clothing and apparel industry. DyStar does its part by ensuring that raw material and product batches undergo targeted eco-testing.

PRODUCTS DESIGNED TO MAKE A DIFFERENCE

[G4-EN27]

CADIRA® REACTIVE

Saving Costs and Valuable Resources in Reactive Dyeing

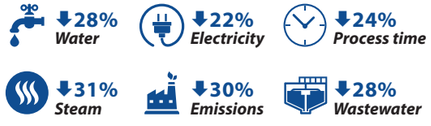
We want our customers in textile production to know that being environmentally responsible is not necessarily more expensive. By investing in better products and processes, and thereby improving resource efficiency, textile manufacturers can achieve cost savings and simultaneously reduce their impact on the environment.

Cadira Reactive is DyStar's new resource efficiency program for reactive dyeing. The module helps brands, retailers and their production partners save on energy, water and steam. Besides being a more energy- and water-efficient process, Cadira also delivers significant reductions in greenhouse gas emissions and wastewater.

How does it work? It's all about the right combination of dyes and auxiliaries.

1. **High Fixation Dyes**
   Cadira Reactive is a selection of Remazol and Levafix dyes that have high fixation yields, thus ensuring a more effective dyeing process and reduced wastewater.
2. **Process Optimization**
   Compared to conventional dyes, the selected reactive dyes offer similar or enhanced fastness performance. Cadira has the added advantage of being effective at lower application temperatures, which yields additional energy savings.
3. **Special Wash-off Process**
   Using DyStar's Sera Fast C-RD allows a lower temperature wash-off at 60°C instead of 100°C. The process also requires only four instead of six wash-baths which reduces overall water consumption by almost 30%.

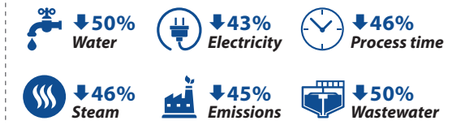
Cadira® Reactive Dyeing > Compared to Conventional Reactive Dyeing



NEW! CADIRA POLYESTER

Resource-efficient exhaust processing of polyester fibers with Dianix® dyes and Sera® process chemicals†

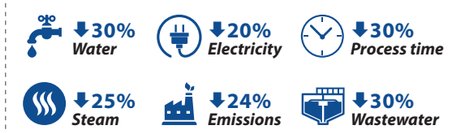
*Fully Optimized Cadira Polyester Dyeing > Compared to Conventional Polyester Dyeing**



NEW! CADIRA VAT

Resource-efficient exhaust processing of cellulosic fibers with Indanthren® dyes and Sera process chemicals

*Cadira Vat Dyeing > Compared to Conventional Vat Dyeing**



* Actual reductions may vary. Figures presented in diagram represent best known performance results.
† Fully optimized process for Cadira Polyester includes combined application of scour/dyeing, Optidye PES and optimized reductive clearing.

DYSTAR INDIGO VAT 40% SOLUTION

The Cleanest Indigo on the Market

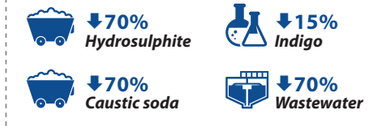
About 1.2 billion pairs of jeans are sold worldwide annually and that number is set to grow with denim's rising popularity as a fashion apparel. This is all good news for business but not so much for the environment if conventional processing methods continue to be widely used. Indigo's intrinsic insolubility in water makes it a difficult pigment to work with. To render it soluble, indigo powder must undergo a chemical reduction process requiring considerable amounts of hydrosulphite powder prior to the dyeing process.

DyStar's answer to this challenging but coveted pigment is our pre-reduced Indigo Vat 40% Solution – the cleanest and safest alternative to conventional indigo. The solution gives a consistently cleaner denim production and up to 70% reduction in sodium hydrosulphite usage. Moreover, the catalytic hydrogenation step that achieves indigo reduction in our process is carried out safely in a closed system (at a DyStar production plant) and generates water as the sole by-product.

Why DyStar Indigo Vat 40% Solution is Safer and Cleaner:

1. Because the dye is delivered in the form of a solution and stored in closed circulating systems, a cleaner and safer working environment is achieved.
2. Working with a dye solution also removes the respiratory risks that can result from inhaling chemical dust.
3. Chemical input is significantly reduced. Consequently, customers also save on costs for specialized waste disposal services.
4. By doing away with the hydrosulphite-dependent chemical reduction step, considerably less sulphates end up in wastewater. Up to 70% reduction in Chemical Oxygen Demand (COD) levels is achievable, with proportionate energy saved from reducing the load on effluent treatment plants.

Indigo Vat 40% Solution > Compared to Conventional Powdered Indigo



ECONTROL® T-CA

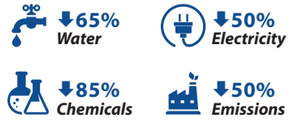
Sustainable Technology for Continuous Dyeing

Rising cost pressure remains a problem in the textile industry. It is a particularly pertinent issue for parts of the industry that specialize in woven polyester/cellulose. The conventional pad-dry-thermosol-pad-steam (PDTPS) dyeing process used for PES/CO fabric is as complicated as it sounds. Consisting of multiple separate and repetitive steps, it is a system that frequently leads to high costs and poor reproducibility. By contrast, Econtrol T-CA is a significantly shorter process, involving three steps instead of the eight required in PDTPS.

As a single bath process, Econtrol T-CA may seem minimalistic, but its simplicity belies the substantial cost and resource savings that can be achieved. Econtrol T-CA delivers tangible benefits for customers through a smart combination of machinery, dyes and auxiliaries.

1. No intermediate reduction clearing and no steamer required
2. Wide range of shades available to fulfil fastness requirements
3. Significant cost savings for textile producers

*Econtrol T-CA Single Pad Continuous Dyeing Process > Compared to the Standard Pad-Dry-Thermosol-Pad-Steam Process**



* Actual reductions may vary. Figures presented in diagram represent best known performance results.

GETTING IT RIGHT FROM THE START

Fanny Vermandel (third from left) and Clemens Grund (fourth from left) pictured alongside other key members of the team in Raunheim

LAUNCHED OVER A DECADE AGO, ECONFIDENCE® CONTINUES TO BE THE FOUNDATION OF DYSTAR'S PRODUCT STEWARDSHIP PROGRAM. FANNY VERMANDEL AND DR. CLEMENS GRUND SHARE INSIGHTS INTO WHAT IT TAKES TO DELIVER RESPONSIBLE PRODUCTS AND SOLUTIONS IN THIS INDUSTRY.

AN INTERVIEW WITH FANNY VERMANDEL, VP GLOBAL MARKETING COLORATION, AND DR. CLEMENS GRUND, SENIOR DIRECTOR GLOBAL TECHNOLOGY & ECOLOGY

Tell us about how DyStar's products perform against others in the market.

Fanny:
We have observed that the quality of our products with respect to eco-specifications is still markedly superior compared to the overwhelming majority of products that are sold and used in the market. This has been reaffirmed time and again through product testing against samples from key competitors.

Why are DyStar's products among the most reliable in the industry?

Fanny:
Our extensive econfidence process ensures that we are checking for and controlling the relevant potential contaminants in each product. At DyStar, we have experts with the right know-how to determine what needs to be tested. It's also very important that reliable test methods are in place to detect and measure contaminants.

What makes econfidence unique compared to similar programs out there?

Fanny:
The econfidence process is unique because it involves all aspects of our business. DyStar colleagues from all departments receive training and follow an agreed-upon set of procedures that are documented in our ISO quality manual. To make the system truly rigorous, though, we also conduct internal and external audits throughout the year.

Clemens:
I would add that DyStar was a pioneer in this area. We launched the econfidence program back in 2004 when it was first registered as a trademark. DyStar was responsible for a lot of the pioneer work in this focus area. Back then, we were the only company willing to invest significant resources toward addressing the problem of chemical contamination in a systematic and scientific manner.

What do brands and retailers value most about econfidence?

Fanny:
We are grateful for the trust that brands and retailers place in us. Many see DyStar as a stable and reliable partner, and econfidence is central to why we have enjoyed such a great track record in the industry. More recently, our new online tool eliot® has also generated keen interest from customers. eliot gives our stakeholders in the textile supply chain constant and unfettered access to key product information. It is free to use and brings an added level of transparency to the selection process.

Clemens:
The benefits of econfidence for brands and retailers are nicely summarized in DyStar's slogan "We know what we are selling, ...do you know what you are buying?". When brands and retailers place their faith in DyStar's econfidence commitment by buying our products, they also receive better guidance than they would from non-traditional competitors.

Tell us about some of your teams' key achievements in 2016.

Clemens:
I was very pleased to see the launch of our new metal-free navy dye for wool; it is a safer alternative to existing chromium-containing dyes. Our teams also developed a new high light-fast dye for Nomex which is more sustainable because it prolongs the lifespan of garments, allowing them to be worn many more times. Similarly, we introduced a new organic halogen-free disperse red dye with high wash-fastness characteristics to extend the lifespan of the garment. These three products have been significant developments from a health and safety perspective. However, in terms of resource consumption, it was the three new Cadira modules that took center stage this year.

Fanny:
My favorite development in 2016 was the launch of the three Cadira® modules: Cadira Reactive, Cadira Polyester and Cadira VAT. They were warmly welcomed by the international textile community and it's always satisfying whenever a customer expresses appreciation for the savings they achieve thanks to Cadira. On a broader scale, some of our more environmentally-conscious brand partners have initiated wide-reaching projects to apply Cadira know-how across their textile supply chains. Brands and retailers wield so much influence that even one smart decision on their part could be magnitudes more effective than what any single producer could ever accomplish. It's another good example for why sustainable solutions should never be treated as individual projects. Collaborations like this really drive home the importance of partnering with different stakeholder groups.

How central is the role of research and development to product stewardship at DyStar?

Clemens:
In our business, a detailed understanding of the chemistry behind each product is essential to effective product stewardship, and the R&D group serves as the principal store of this knowledge. In the development of every new product, we always prioritize ecological properties. The basic list of chemicals that we control against is quite extensive but, as the industry continues to strive for a better balance, we have also had to widen our vision for what product stewardship means. For example, dyes free of Adsorbable Organic Halides (AOX) feature among some of our recently launched products because more customers are looking to manufacture synthetic fibers that can also be safely recycled.

Fanny:
DyStar's R&D team plays a central role in delivering safer dyes and auxiliaries for the textile industry. When we develop new products, we start with one seemingly simple aim – to avoid using chemistry that can lead to disturbing contaminations. The effort and expertise that goes into meeting that expectation is not always easy and certainly never cheaper, but there is no question in our minds that every route needs to be checked.

Do you think the drive toward sustainable manufacturing across this industry has changed DyStar's approach to product development?

Clemens:
Yes, we have had to focus on products that improve the sustainability of our customers' production processes for many years. These include high strength, high fixation reactive dyes which are sought after because they help our clients mitigate their impact on the environment. There are also many dyes available on the market these days that are free of harmful by-products, which wasn't always true of the older technologies they replaced. No doubt, we have made significant advances but the industry needs more. High R&D costs continue to be a limiting factor in innovation, but I am hopeful because customers seem increasingly prepared to pay a fair premium for cleaner products.

How do you see technology and R&D evolving in the industry over the next decade?

Fanny:
Across the textile supply chain, there will be even more focus placed on saving resources – particularly water. The pressure will only deepen if the availability of clean water becomes more problematic. There are potentially enormous business opportunities for anyone with a viable alternative process or product.

Clemens:
A shortage of process water could lead to stronger interest in dyes with easy wash-off properties or promote the adoption of water-free dyeing mediums such as supercritical CO_2. Another trend I have observed is increased automation. The rise of robotics has led to a growing preference for reliable processes, which is compatible with our existing philosophies: "Right First Time" and "Controlled Coloration". Lastly, it's worth noting that there is an increasing demand for high fastness dyes. This trend stems mainly from continuing growth in the athleisure market as well as the increasing use of low liquor ratio washing machines.

AN INTERVIEW WITH CRADLE TO CRADLE'S LEWIS PERKINS AND ANNIE GULLINGSRUD

Annie Gullingsrud (l), Cradle to Cradle Products Innovation Institute Director, textiles and apparel sector, and Institute President Lewis Perkins (r) tour the Botto Giuseppe spinning and dyeing facility in Italy. The water discharged into the river after the Botto Giuseppe dyeing process is cleaner than the water at the beginning of the process.

THE CRADLE TO CRADLE PRODUCTS INNOVATION INSTITUTE, A NON-PROFIT ORGANIZATION, EDUCATES AND EMPOWERS MANUFACTURERS OF CONSUMER PRODUCTS TO BECOME A POSITIVE FORCE FOR SOCIETY AND THE ENVIRONMENT, HELPING TO BRING ABOUT A NEW INDUSTRIAL REVOLUTION. LEWIS PERKINS, PRESIDENT OF THE CRADLE TO CRADLE PRODUCTS INNOVATION INSTITUTE, AND ANNIE GULLINGSRUD, THEIR DIRECTOR OF TEXTILES AND APPARELS SECTOR, ADDRESS SOME FUNDAMENTAL QUESTIONS ABOUT HOW THE INDUSTRY CAN BECOME MORE CIRCULAR.

Tell us about Cradle to Cradle's vision for the future.

The Cradle to Cradle Products Innovation Institute envisions a future in which the circular economy is powered by Cradle to Cradle Certified™ products - one in which we collectively design from a place of abundance and plenitude, using safe, healthy materials that are perpetually moved through a positive cycle of use and reuse.

What can Cradle to Cradle offer to designers and manufacturers?

Cradle to Cradle offers designers and manufacturers a positive design methodology for innovating materials and designing products for the circular economy. The Cradle to Cradle Certified product standard itself is a rigorous, globally recognized third-party product sustainability standard used by designers and manufacturers to verify and assure the safety, health and circularity of the materials they use and the products they create.

The Cradle to Cradle Certified™ Product Standard assesses products and materials across five quality categories: material health, material reutilization, renewable energy and carbon management, water stewardship, and social fairness. A product receives an achievement level in each category – Basic, Bronze, Silver, Gold, or Platinum – with the lowest achievement level representing the product's overall mark. Because manufacturers must demonstrate good faith efforts to improve their products in order to have their products re-certified every two years, the Cradle to Cradle Certified product standard also offers designers and manufacturers a clear pathway towards continuous improvement for materials and products that are Cradle to Cradle Certified – as well as a roadmap for products moving towards Cradle to Cradle certification.

"WE BELIEVE ONE OF THE MOST IMPACTFUL OPPORTUNITIES UP AND DOWN THE VALUE CHAIN COMES FROM EVALUATING THE WAY A COMPANY'S PRODUCTS ARE DESIGNED AND MADE "FROM THE CHEMISTRY UP".

How do you see the role of Cradle to Cradle changing in years to come?

The Cradle to Cradle Certified Product Standard has been gaining momentum in recent years with more and more designers and manufacturers turning to Cradle to Cradle certification as a credible means of verifying materials and products made for the circular economy. Given the rigor of the Cradle to Cradle Certified Product Standard and the growing number of global influencers and brands embracing the circular economy, we see the Cradle to Cradle Certified Product Standard becoming the verification tool for designers and manufacturers in this new and fast-emerging economy.

Is there a story that has inspired you this year?

In 2016 we launched Fashion Positive membership where apparel companies have come together to identify and create the building blocks of the circular economy for circular fashion. Through this launch, we've seen diverse brands such as H&M, Kering, Stella McCartney and Eileen Fisher, along with small brands such as Zero + Maria Cornejo and Loomstate, truly come together to share time, resources and costs to do more together than they could do as individual companies. It has been very inspiring to facilitate and witness these companies share common goals. The result of their efforts will be a focused list of dyes and fibers that the group will push forward to become Cradle to Cradle Certified GOLD-Level.

What recent innovations have really stood out?

In the past year, there have been a number of material innovations arise as a result of the implementation of Cradle to Cradle design practices and greater engagement with the circular economy. As a result, we have seen Cradle to Cradle Certified products emerge in several new product categories including fragrance, printing inks, adhesives and other essential materials, along with even deeper engagement from companies like DyStar, whose investment in Cradle to Cradle verification has led to an uptake in the usage of cradle to cradle dyes for fashion.

How can brands and retailers evolve their businesses to become more circular?

Brands and retailers can evolve their businesses to become more circular in a variety of ways. We believe one of the most impactful opportunities up and down the value chain comes from evaluating the way a company's products are designed and made "from the chemistry up". In other words, assessing a product's material health to ensure the use of safe, healthy ingredients, then working across the supply chain to optimize material health as a first step towards circular design. This creates a sound platform from which to implement Cradle to Cradle design methodology and move towards Cradle to Cradle certification as a means of ensuring products are designed and made with true circularity in mind.

What can suppliers like DyStar do to become more integrated into the circular economy?

DyStar is already helping to lead the way for other suppliers who wish to become more integrated into the circular economy. Suppliers like DyStar can do several things, chief among them would be to proactively seek to optimize their own materials using the Cradle to Cradle Material Health Certification and the Cradle to Cradle Certified product standard so that designers and manufacturers are assured that the materials they source from suppliers already meet Cradle to Cradle Certified standards. Another significant opportunity for suppliers to become more integrated into the circular economy is via collaboration with the Cradle to Cradle Products Innovation Institute on Material Wise, a new material health database we are developing to help designers and manufacturers identify and source safe, healthy ingredient materials.

What would you like to see from DyStar next year?

DyStar has shown a commitment to Cradle to Cradle by achieving Material Health Certifications at the GOLD-Level. Our Fashion Positive PLUS members and the fashion industry at large is strongly requesting material inputs that are primed for circular fashion. In order to achieve this goal, we'd like to see DyStar elevate their certificate into full Cradle to Cradle Certification, achieving the GOLD Certified level in water stewardship, renewable energy and carbon management, material reutilization in addition to the GOLD-Level DyStar has already achieved in Material Health.

ENABLING SUSTAINABILITY ACROSS OUR VALUE CHAIN

DyStar's commitment to sustainability is all-encompassing in its approach. We go beyond product responsibility by presenting brands, retailers and textile producers with a reliable and innovative system of support. A multitude of tools and services is available to help our customers make informed product selection choices; accurately communicate color requirements with industry partners for better right-first-time results; train employees in the finer points of chemical management; and conduct chemical testing for traces of contamination at their end of the supply chain.

The wide-ranging tools and services that fall under the umbrella of DyStar Textile Services (DTS) are led by three DyStar business units - Color Solutions International (CSI), Sustainable Textile Solutions (STS) and Texanlab. Although not directly related to our core products, DTS's solutions have become indispensable to our customers and play a central role in DyStar's broader vision for how sustainability can become truly embedded in the industry. We see only better things to come for this growing and dynamic group.

ELIOT®

Sustainability Made Accessible via Online Technology

eliot is a recent addition to DyStar's collection of specialized tools. The first of its kind at DyStar, eliot is a free, internet-based tool that provides quick-access guidance on product selection and process optimization. Through eliot, DyStar makes sustainable products and processes easy to understand and freely accessible to any client with an internet connection. Any time of the day, any place in the world – customers can skip the middleman and get the latest updates directly from our system.

Four comprehensive modules can be accessed through eliot: Positive Lists, Product Finder, Optidye, and Information. In just one sitting, customers can explore the entire DyStar product list, choose from our wide selection of RSL and eco-standard compliant products using the Positive Lists module, and even determine the most resource-efficient recipe for their chosen product through Optidye.

POSITIVE LISTS

Search through a selection of recommended DyStar products that comply with brand and retailer Restricted Substances Lists or selected eco-standards, such as bluesign® and GOTS. Preferred products can be bookmarked in the system, giving users the added flexibility to explore their favorite products in other eliot modules.

OPTIDYE® PROGRAMS

Through Optidye, users can access recipes and process optimization tips to help shorten their dyeing cycles and reduce effluent load. Optidye programs were designed to improve the reliability of the dyeing process for better right-first-time processing and improved product quality.

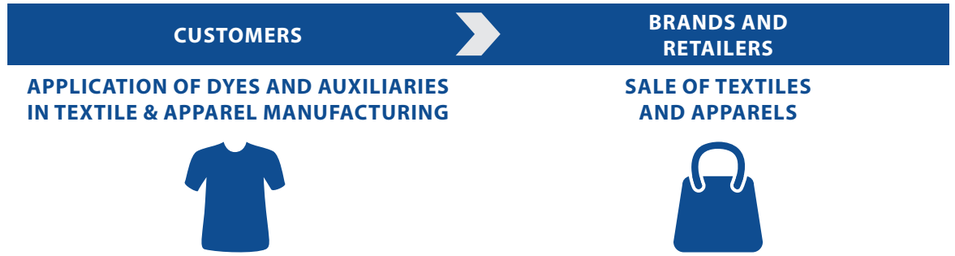
PRODUCT FINDER

The Product Finder module helps customers narrow down the dyes and chemicals that meet the required fastness and dyeing performance criteria. Users can search for products based on the desired technical properties and export results onto a spreadsheet before exiting.

INFORMATION

eliot gives users direct access to product information from different industry segments including active wear, technical textiles, denim, work wear, carpet, digital printing, home textiles, automotive and fashion. Shade cards and brochures are also available through the Information module.

[G4-DMA, G4-PR6]



CSI has the tools and know-how to accurately communicate and efficiently distribute colors from brands and retailers to their production partners. Color communication is a strong determinant of whether the desired result can be realized, with the potential to save or cost the producer both money and resources. CSI provides a comprehensive color management program with coordinated colors across substrates to ensure colors are correctly achieved on products, packaging and marketing materials. Simply stated, CSI ensures color consistency. It does not matter where the merchandise is manufactured; CSI's Certified Color Standards provide accurate color communication across the globe.

econfidence® is more than DyStar's responsible sourcing program. It is a commitment from DyStar toward the ecological quality of its dye and auxiliary products. econfidence guarantees that all DyStar products are sold in full compliance with chemical legislations. This assurance allows downstream stakeholders to proceed confidently in their business activities. Brands and retailers who place their trust in econfidence gain multiple benefits:

- Confidence in the eco-performance of their textiles and garments
- Help in communicating how to meet eco-specifications to their textile production partners
- Shorter lead times and more reliable supply
- Support for reputation and brand integrity
- Advice on the coloristic consequences of their Restricted Substances List (RSL) criteria

DyStar's Sustainable Textile Solutions unit has a proven track record in helping textile manufacturers optimize production and resource consumption. They reduce operational costs for customers, all while delivering the same or better quality of goods required.

The STS team also supports brands and retailers in their efforts to develop, implement and communicate their Restricted Substances Lists (RSLs) to existing as well as aspiring production partners. At the same time, by facilitating compliance with brand and retailer RSLs, the STS team also assists textile and apparel producers in mitigating their impact on society and the environment.

DyStar's Texanlab unit provides accurate and reliable testing services to guide textile and apparel producers through the complexities of chemical compliance. They are equipped to meet the most stringent industry testing standards and resolve failures in the customer supply chain.

Texanlab has the capabilities to meet all major brand and retailer testing requirements. Beyond testing services, they also help textile producers meet buyer specifications through guidance and training, thus widening the pool of responsible suppliers for brands and retailers to choose from.

Textile and apparel producers can access eliot via the internet and use the Product Finder module to identify a dye or auxiliary that meets the requirements of a restricted substances list (RSL) or a voluntary eco-standard. The Optidye® module lets users explore multiple parameters to decide on the optimal recipe for their selected product.

The sustainable procurement manager of a brand or retailer aims to comply with the latest chemical eco-standards. eliot serves as a one-stop center for DyStar's extensive collection of compliant dyes and chemicals. For the hands-on procurement professional assisting multiple textile production partners, eliot is a convenient self-service tool that allows users to make quick and informed product choices.

SETTING THE STANDARD
FOR COLOR COMMUNICATION

AN ESTABLISHED INNOVATIONS LEADER IN THEIR FIELD, COLOR SOLUTIONS INTERNATIONAL (CSI) SETS THE STANDARD FOR COMMUNICATING COLOR ON TEXTILES, PLASTIC, PAPER, METAL AND WOOD SUBSTRATES. STARTING WITH THE FIRST DESIGN INSPIRATION, THROUGH COLOR SELECTION AND THEN TO THE FINAL PRODUCT IN THE STORE, CSI'S EXPERT STAFF PROVIDE FAST, EFFICIENT AND ACCURATE PROCESSES TO RESPOND QUICKLY AND EFFECTIVELY TO TODAY'S RETAIL MARKET. RON PEDEMONTE EXPLAINS WHY RELIABLE COLOR COMMUNICATION HELPS CUSTOMERS STAY COMPETITIVE.

AN INTERVIEW WITH RON PEDEMONTE, VICE PRESIDENT NORTH & CENTRAL AMERICA AND HEAD OF DYSTAR TEXTILE SERVICES

How has CSI changed the way color is communicated from brands and retailers to their suppliers?

We have a saying at CSI that we "Set the Standard". We have created and refined over the years our certified color standard that brands and retailers use to communicate color to their supply chain. Our certified standards result in faster color approvals for their suppliers (50% less lab-dipping time) and more consistent colors from color creation to the garments in the store. Today, over 125 brands and retailers globally use our color management system.

Why is accurate color communication important to businesses?

Wrong color leads to lost sales. Color is failing in today's supply chain and, as a result, the color in the store is in many cases far from the designer's original inspiration. How does this happen? It's often caused by a failure to communicate color properly from the designer to vendors and textile mills. Color failures cost time, money and environmental resources that result in compromised timelines and delays. Late changes are costly for everyone in the supply chain but consumers expect to buy that perfect color at the best price so, to meet these demands, there is no room for color failure.

"IN 2017, WE WILL CONTINUE THE PURSUIT OF COLOR EXCELLENCE BY UPGRADING OUR DYEING OPERATION WITH STATE-OF-THE-ART DYEING EQUIPMENT AND AUTOMATION.

What makes CSI unique compared to other companies that provide similar services?

There are several key factors that make CSI unique:

1. The strong network between CSI and DyStar. Every color that CSI develops is created with globally available, environmentally friendly econfidence® vetted dyes from DyStar. In addition, DyStar has strong technical teams positioned in every major textile producing country, so if a brand or retailer has a color issue, the DyStar team is there to support.
2. CSI has the largest color selection, offering about 3,700 ColorWall colors and over 6,000 ColorLibrary colors with custom matching capabilities.
3. We provide customized services. Every customer receives a customized solution from CSI.
4. CSI has the most comprehensive and stringent quality control of any color service provider.

What do brands and retailers appreciate most about CSI's tools and services?

The variety of color that we offer, the ability to obtain customized color, a customized approach to each customer, and our expertise that ranges from color creation in design to color achievability in the supply chain.

CSI offers a broad range of color tools and services. What would you suggest for the designer who is new to CSI's methods?

Start with our new seasonal trend magazine called Color Analysis. Our trend magazine provides a unique feature called the Relative Color Popularity (RCP) Index. The RCP provides color validation based on seasonal color palette usage by comparing similar hues. Its combination of color forecasting and validation within a trend forecast is breakthrough methodology.

Tell us about the new CSI space in North Carolina. What excites you most about the new facility?

Our new 18,000 sq. ft. color space, which opened in Fall of 2016, is a unique Color Studio that allows designers to efficiently create seasonal color palettes and consult with our staff. Since its opening, a visit to the Color Space has become an important part of our customer's color development process. In 2017, we will continue the pursuit of color excellence by upgrading our dyeing operation with state-of-the-art dyeing equipment and automation.

In the 25 years that you have been with DyStar, how have the demands of the industry changed?

Obviously, the biggest industry demand today compared to 25 years ago is the increasing environmental standards that are coming from NGOs, brands and retailers, and the textile mills. When I first started 25 years ago in R&D we developed a line of reactive dyes for the US market that were called Remazol EF (Environmentally Friendly), but our main focus then was to reduce the amount of salt used in the dyeing process. We were successful in developing a line, but the products never gained traction in the market, because the reduction of salt was a requirement of only a few customers. Today, the demand for environmentally friendly products has taken on a whole new level of meaning. The reduction of salt is only one of many aspects that needs to be addressed in creating a sustainable dye line. Resource efficient designs – whether targeting water, energy, chemicals, time – and the avoidance of restricted substances are all equally important for today's product development teams.

What changes do you predict for the industry in years to come?

Communicating and managing color digitally. This is a challenge for many who still like to manage color in a physical manner.

SPOTLIGHT ON

Denim Solutions

DyStar Indigo Vat 40% Solution – the cleanest Indigo on the market

DyStar Indigo Vat 40% Solution has met the Gold level requirements of the Cradle to Cradle Certified™ standard in Material Health, making it a preferred choice in terms of human and environmental health. DyStar Indigo allows a cleaner, healthier work environment, a reduced effluent load and lower water consumption.

See pages 28-29 to learn how our products are helping customers conserve planetary resources

CONSERVING PLANETARY RESOURCES

SIX-YEAR ENVIRONMENTAL PERFORMANCE

Summary: 2016 vs 2011

⬇18% *Energy consumed per ton production*

⬇15% *GHG emitted per ton production*

⬇39% *Water drawn per ton production*

⬇22% *Wastewater per ton production*

⬇21% *Raw materials per ton production*

⬇20% *Waste per ton production*

The 2020 Target: Achieve 20% Reduction from 2011

Our production teams are into the sixth year of a journey that began when they took firm steps toward reducing DyStar's production footprint by 20% for every ton of production by the year 2020. That goal applies to the resources needed for production including energy, water and raw materials but, just as crucially, also addresses their corresponding outputs – greenhouse gas (GHG) emissions, waste and wastewater. There is no question that running efficient production systems is essential to maintaining our balance with the planet and its ecosystems, but it is a strategy that is also cost-effective and allows us to remain competitive in the industry.

DyStar has met or surpassed four of the six 2020 targets. We owe these successes largely to the talent and commitment of our production teams. Due credit should also be given to a series of wise decisions made over the past half-decade that brought markedly more efficient facilities into the Group. In parallel to these changes, average resource requirements have been diluted by newer product ranges that demand less energy and water to produce.

Scope and Methodology

A centralized reporting platform is employed to monitor DyStar's impacts across all production sites, warehouses, offices and laboratories. In addition, a standardized auto-dashboard tool is available to help our teams understand their performances with respect to all six 2020 targets. Throughout the year, the dashboard doubles as a reporting tool that facilitates and aligns communication across our various departments.

This year's data consolidation exercise was widened to include smaller office locations in South America and Northeast Asia, as well as warehouses owned or operated by DyStar across five continents. Taken together, the newly added office and warehouse locations do not contribute significantly to our overall environmental profile. Nevertheless, they do give us, for the first time, a truly complete overview of all locations that are owned or operated by the company.

The impact of our internal operations is still overwhelmingly the result of production activities. Owing to the magnitude of the footprint associated with production, this year's report also incorporates environmental performance data from the three newly acquired manufacturing sites in the United States.

"The city of Omuta has been producing synthetic dyes for over a century. DyStar Japan Ltd., for its part, has had 40 years of history in Omuta. Our factory, at the time of set-up, boasted some of the latest technology. Even with the best machines, though, one must keep in mind that we operate in a country that has limited domestic energy resources. Over the years, we have implemented multiple energy-saving measures, such as pre-heating cold air entering the spray dryer by using excess heat retained in hot air exiting the same spray dryer (via a heat exchanger). More recently, in 2016, new steam traps were installed that reduced overall steam consumption by 5%. With 40 years of history, change does not always come easy but we believe that where there is a will, there is a way. Whether tackling production, warehousing or quality control processes - we apply this attitude to all our efficiency improvement efforts." – Dr. Kazuhiko Asao, Head of Omuta Production Site

Dr. Kazuhiko Asao (far right) pictured alongside members of his management team in Omuta

ENERGY
[G4-DMA, G4-EN3, G4-EN5, G4-EN7]

Much of the energy utilized at DyStar is derived from purchased electricity, steam, natural gas and liquefied petroleum gas (LPG). The bulk of electricity is used to run plant machinery, IT systems and air conditioning. Our supply of steam, which is both generated on site and purchased from external providers, is required mainly for process heating purposes.

Production sites consume the most energy at DyStar and, hence, also represent the biggest potential for energy savings. For this reason, production heads work to meet specific reduction targets each year. Throughout the reporting period, energy – along with other resources – undergoes joint reviews with members of senior management. These discussions are valuable not only to monitor progress; they also give our teams the opportunity to debate the feasibility of newly-proposed measures on a regular basis.

DyStar's overall energy consumption in 2016 was 1,420 TJ, compared to 1,279 TJ in 2011. The difference was primarily due to the impact of three newly acquired production sites. However, through our active efforts to conserve energy, we have managed to reduce energy intensity by 18%, from 10 GJ to 8.2 GJ for every ton produced over the same six-year period, which keeps us well within our target. Much of that reduction can be attributed to the dedication of our production site engineers. Product portfolio diversification in favor of less resource-intensive substances as well as the careful selection of newer facilities have also been key contributors.

Within manufacturing, textile dyes production typically utilizes the largest proportion of energy. In 2016, these activities were responsible for 1,186 TJ in energy consumption. By comparison, our auxiliaries and chemical production activities consumed just 192 TJ. Taken together, offices, laboratories and non-production site warehouses used 42 TJ.

Indirect energy from purchased electricity and steam made up about 65% of our overall energy use, amounting to over 924 TJ in 2016. Annual consumption in this category was 8% (78 TJ) lower than in 2011, despite steadily increasing production volumes. This pattern demonstrates the increasingly positive impact that auxiliaries are having on our overall environmental footprint. It also speaks volumes for the efforts of our dyes production engineers, where the per ton demand for energy tends to be significantly higher.

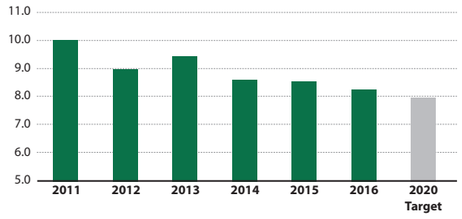
Direct energy sources now make up about 35% of our total demand compared to just 28% in 2014. Between 2014 and 2016, there was a notable shift from purchasing steam to generating more of it on-site. This shift, along with the acquisition of three new production sites, caused direct energy consumption to rise from 353 TJ to 495 TJ over a two-year period. Among direct energy sources, we consumed more than 386 TJ of natural gas and 84 TJ of LPG, accounting for 27% and 6% of our total (i.e. direct and indirect) energy consumption respectively.

The remaining 2% of energy, amounting to 24 TJ, was derived from a combination of other stationary combustion fuels and vehicular fuels.

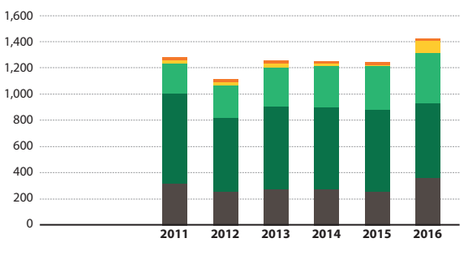
The steep rise in direct energy consumption has not gone unnoticed. Our engineers are actively looking for ways to counter this trend. For example, one of the teams that has successfully maintained a stable energy profile over the years, DyStar's Corlu production site, recently adjusted the operating frequency of a water pump leading to their dry steam generator and, as a result, was able to reduce the amount of natural gas consumed to meet their annual demand for steam by about 1 million MJ.

Renewable energy sources make up about 0.6% (2 TJ) of overall electricity consumption at the company. Right now, most our site leads face the same dilemma – limited access to cost-effective forms of renewable energy that are also appropriate for the geography and climate of their respective locations. Nevertheless, it is an exciting time and we are hopeful that renewable energy technologies will soon become widely available.

NON-RENEWABLE ENERGY INTENSITY
(GJ energy used per ton production)



ENERGY CONSUMPTION BY SOURCE
(TJ)



	2011	2012	2013	2014	2015	2016
Vehicular Travel	25	21	21	22	22	21
St. Combustion (other fuels)	25	24	29	17	10	88
St. Combustion (natural gas)	227	251	295	314	330	386
Purchased Steam	686	556	628	620	621	564
Purchased Electricity	316	257	277	277	257	360

GHG EMISSIONS
[G4-DMA, G4-EN15, G4-EN16, G4-EN18, G4-EN19, G4-EN20]

Direct (scope 1) emissions are those that occur from sources owned or operationally controlled by DyStar. These include emissions from stationary combustion fuels, vehicular fuels, process emissions, refrigerants and ozone-depleting substances. The vast proportion of our direct emissions come from the stationary combustion of fossil fuels. Indirect (scope 2) emissions, by contrast, are produced during the generation of purchased electricity and purchased steam.

At our production sites, GHG emissions are evaluated in terms of tons of CO_2-equivalent (tCO_2e) per ton production. Non-production sites, which make up a comparatively minor fraction of our emissions footprint, also contribute to the commitment by tracking and assessing their emissions profiles in absolute quantities.

Overall, GHG emissions in 2016 amounted to about 147,000 tCO_2e, representing a 14% increase since the 2011 baseline year; 16% compared to 2015. Collectively, scope 2 sources made up about 80% of our emissions, with an almost equal split between purchased steam (59,600 tCO_2e) and purchased electricity (58,000 tCO_2e). The remaining 20% of our emissions in 2016 were scope 1 emissions, of which natural gas alone accounted for 21,000 tCO_2e. LPG combustion resulted in 5,800 tCO_2e in emissions, while the remaining stationary combustion fuels combined with vehicular fuels accounted for 1,700 tCO_2e in emissions. Scope 3 emissions are not provided in this report. Facilities used for textile dyes production were responsible for emissions totalling to about 125,000 tCO_2e, more than 85% of our total footprint. The remaining 22,000 tCO_2e resulted from a combination of activities at our auxiliary and chemical production sites, as well as non-production sites which include laboratories, offices and warehouses.

Energy reduction measures go hand in hand with GHG emissions management. Despite increases in our overall emissions, we continue to actively mitigate energy use every day by streamlining production operations and product ranges. The reductions achieved have made these endeavors worthwhile because GHG emissions intensity stands at 0.847 tCO_2e for every ton of production, 15% below our 2011 levels and 2% below 2015 levels.

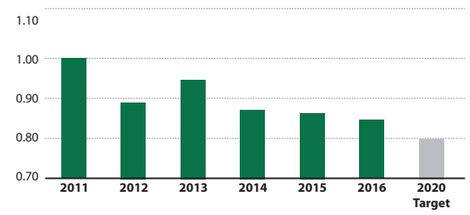
The methodology employed to quantify scope 1 and scope 2 emissions is in accordance with the Greenhouse Gas Protocol Corporate Standard, developed by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD). Scope 1 emissions are selected for reporting based on their presence in our operations. Hence, CO_2e figures for scope 1 emissions sources include carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. Global Warming Potentials (GWPs) and scope 1 emission factors are sourced from the GHG Protocol guidelines.

Non-GHG emissions such as NOx, SOx and Particulate Matter (PM) can also occur during the production process. These are controlled through regular monitoring and testing of air exiting our smokestacks.

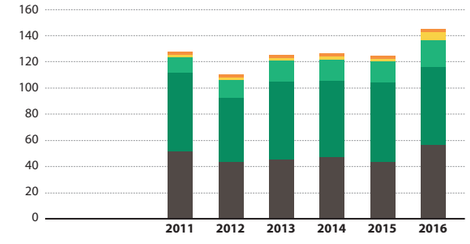
Ozone-depleting substances

DyStar dyestuff, pigments, and auxiliary preparations do not contain any ozone depleting chemicals (ODCs) as intended components. To the best of our knowledge, these substances are not used in the synthesis or finishing of DyStar products. Therefore, ODCs are not expected to be present in DyStar's products. We do, however, include in our GHG emissions calculations any ODCs that are used as refrigerants at our locations. Scope 1 emissions from ODCs amounted to 477 tons, all from the use of R22 (Chlorodifluoromethane). The GWP for refrigerants, including R22, are derived from the Intergovernmental Panel on Climate Change's Fifth Assessment Report (AR5)

GHG EMISSIONS INTENSITY
(tons of CO_2e emitted per ton production)



GHG EMISSIONS BY SOURCE
(thousand tons CO_2e)



	2011	2012	2013	2014	2015	2016
Other Scope 1 Emissions*	2.2	2.2	2.4	2.2	2.4	2.4
St. Combustion (other fuels)	1.8	1.7	2.1	1.2	0.7	6.1
St. Combustion (natural gas)	12	14	16	17	18	21
Purchased Steam	61	50	60	59	61	60
Purchased Electricity	53	44	47	48	44	58

* Category includes emissions resulting from the use of vehicular fuels, refrigerants, ozone depleting substances and process emissions.

THE PURSUIT OF A GREENER PRODUCTION AND LOGISTICS MODEL

Gerald Talhoff (center) pictured alongside the Global Head of Engineering & HSE and the General Manager at Gabus Production Plant

BACK IN 2011, GERALD'S TEAM TOOK THE BOLD STEP OF COMMITTING TO MEASURABLE SUSTAINABILITY TARGETS. NOW, SIX YEARS INTO THE JOURNEY, HE TALKS ABOUT SOME OF THE SUCCESSES AND FUNDAMENTAL CHALLENGES ENCOUNTERED.

AN INTERVIEW WITH GERALD TALHOFF, VICE PRESIDENT OF GLOBAL MANUFACTURING AND GLOBAL SUPPLY CHAIN MANAGEMENT AT DYSTAR

DyStar is now past the halfway point toward its 2020 target. What have been the highlights of the program thus far?

Running improvement projects at our manufacturing sites and then actually seeing the reductions in energy and wastewater; these have clearly been the highlights of this experience. Individually, not all projects have resulted in major improvements but every effort counts and it has been satisfying to observe how the sum of our projects and initiatives, collectively across the world, have helped to mitigate the impact of our products.

Are there any strategies that you have found to be widely applicable?

Process improvements and the upgrading of infrastructure and production equipment have played a major role in reducing energy consumption and wastewater. On a day-to-day basis, though, streamlining the production planning process to minimize product changeover effects can yield tremendous results. Keep in mind that every changeover comes with additional resource requirements; equipment needs to be cleaned out with copious amounts of water and then heated up again to prepare for the next batch. Through careful planning, production teams can increase batch sizes and minimize changeovers from one product to another. On the other hand, we need to stay lean and refrain from accumulating excess inventory. It would be counterproductive to create more quantities than can be sold. So, we are always trying to find that sweet spot between optimized planning for reduced consumption and, at the same time, being able to run with a reasonable inventory. Overall, I think we found the right balance here.

"MORE THAN EVER, INNOVATION REQUIRES BOTH A TOP-DOWN AND BOTTOM-UP MANAGEMENT APPROACH SO WE CAN FULLY LEVERAGE THE TALENT OF OUR WORKFORCE.

Tell us about the principles that guide decision-making at DyStar manufacturing plants.

We are focused on continuous improvement, the drive to improve product competitiveness and the 2020 reduction targets. We have seen first-hand how resource-efficient production can improve the cost and competitiveness of our products. This is only possible, however, because our teams know that sustainability-driven projects also need to make sense from a cost vs. benefit perspective.

Can you describe some of the challenges encountered in trying to reduce resource consumption and waste at our manufacturing locations?

We are dealing with a broad range of products and nearly every one of them has its own distinct manufacturing process. As such, process improvements that are worked out by our production and process development teams, in general, can only be applied to one product or process and not to any other. This is challenging because, with any process change, we also need to monitor product properties and performance. This takes time.

Technical systems related to infrastructure or utilities are easier to tackle. But I must admit that there aren't many "low hanging fruits" at this point. More than ever, innovation requires both a top-down and bottom-up management approach so we can fully leverage the talent of our workforce. The DyStar CEO Sustainability Challenge was launched, in part, because we wanted to throw open the doors to this conversation and create a culture where solutions can be put forward by anyone with an idea.

What are the key challenges you face in this last leg of the journey?

There are multiple projects currently underway, so I am confident that we will improve our footprint even further. But we are starting to sense the limits of what is feasible given the current technologies available. Yes, our teams have been able to identify and adopt some great technologies in recent years but, right now, we are not seeing as many new innovations on the market as we would like.

What sustainable manufacturing trends do you anticipate in the coming years?

Regarding the manufacture of dyes, inks and chemicals, nothing stands out strongly as a "disruptive" innovation. Rather, we are seeing a gradual movement toward energy-efficient equipment, higher levels of automation, in-process analytics and so forth.

Where pollution-related risks are concerned, how has DyStar's approach evolved in recent years?

The HSE and compliance leads at each location work hard to ensure that regulatory requirements and standards are met. Overall, our internal precautions have been relatively successful at preventing major spills and accidents. However, what has become obvious in recent years is that it is much easier to control what happens within and around our own premises. Our experience shows that the more worrying source of pollution-related risk comes from the activities of external waste and wastewater contractors. Given the state of the industry, we have deemed it necessary to impose increasingly stringent audits on external contractors. Yes, it's a lot of effort on the part of our teams just to sort out the few bad apples in the business. But, considering the scale of the damage that can result from actions by even one bad waste contractor, it is critical that we continue to fortify our vetting procedures.

Tell us about some of the ways that companies can go about mitigating their logistics related environmental impact?

Our global distribution network has been and is still being reviewed. I don't want to oversimplify our efforts but being smart about transportation boils down to two factors: location and planning. Our preference is to have production sites situated in proximity to places where existing and potential clients are concentrated but, given the global nature of our production, this is not always a feasible or efficient option. Since trucking is still the most common way to bring our products to the final customer, the optimization of our regional distribution systems is important. We have been successful at reining in land transportation, for example, by setting up local satellite warehouses at strategic locations or providing consignment stocks to selected buyers.

But with intercontinental long-haul transportation, our goal is to minimize air freight in favor of sea freight. Air transportation is always the last option for us; it is both expensive and has a much higher carbon footprint per ton-kilometer than transport by sea. Regardless of the transportation mode, a great deal of planning goes into making sure that unnecessary hauls are avoided while also maintaining a high service level for our customers.

WATER
[G4-DMA, G4-EN8, G4-EN10]

Water is necessary in almost all our activities. It is an ingredient in synthesis, serves as a convenient medium for dispersions that are required at various stages of processing, and is frequently added as a formulant in many products. Water is also commonly used at our plants for more routine purposes such as equipment cleaning but its most important function is to keep our staff sufficiently hydrated throughout their shifts.

Overall, water withdrawal went up to 7.6 million m^3, a 10% increase since 2015 but which can largely be explained by the purchase of three new production plants. Despite this year-on-year increase in volume, our overall water intensity has improved and we are pleased to report improvements in efficiency for the fifth consecutive year. Water withdrawal intensity stands at 45 m^3 per ton production, demonstrating an improvement of 8% since 2015 and 39% since 2011. Much credit goes to our business development teams, who have demonstrated time and again the importance of taking the environment into account with each new investment or divestiture. Upgrading technology can do a lot to improve the overall performance of a company. Likewise, maintaining outdated methods and technologies can not only be detrimental to the environment; it can affect long-term profits.

Diligent planning on the part of our production managers has also been an important factor in reducing DyStar's water intensity. One of the most effective methods we have found to minimize water withdrawal has been the reuse of steam condensate. Production typically requires large quantities of steam and the resulting liquid condensate can be safely reused for a range of purposes such as floor cleaning. As the condensation process takes place through indirect heat exchange mechanisms, steam condensate remains uncontaminated by chemical mixtures and, thus, can be used in place of municipal water, surface water or ground water. This is a basic and easily-applied practice that has helped us reduce water withdrawal quantities at multiple locations. Altogether, in 2016, reused water made up 1.8 million m^3, the equivalent of 19%, of our total consumption needs.

WASTEWATER
[G4-DMA, G4-EN22]

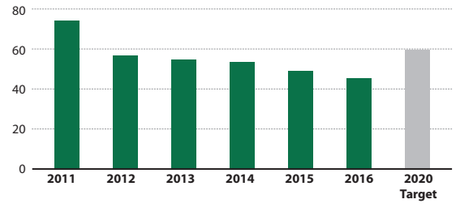
Wastewater, when managed responsibly, can pose minimal risks to communities and the environment. DyStar employs a combination of on-site and off-site methods in order to ensure that wastewater is sufficiently treated. There is no one-size-fits-all in our approach because an effective course of treatment must consider the unique characteristics of each plant and its activities. What is included in the sequence of chemical, biological, mechanical or thermal treatment processes depends very much on the physical and chemical nature of the wastewater generated at each production plant.

A common rule in our approach is that, regardless of whether final treatment is carried out by DyStar or by an external contractor, treated wastewater should only be discharged in accordance with all applicable legal frameworks and local permits. Further, treated wastewater that is intended for final treatment elsewhere should undergo monitoring to ensure that regulatory or contractual threshold limits are not exceeded; this applies equally to wastewater bound for final treatment to a municipal plant as well as wastewater handled by third-party contractors. DyStar does not allow the reuse of our wastewater by other organizations.

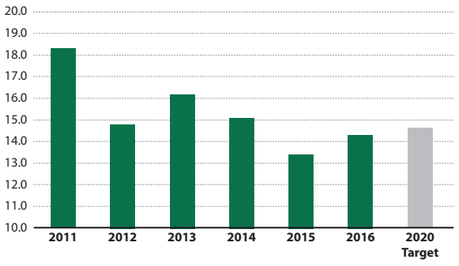
At a number of locations, our production plants are authorized to discharge treated wastewater into nearby river bodies. In such situations, extra precautions need to be taken to ensure that all applicable standards are met. At our production plants in Apiúna and Corlu, treated cleaning water needs to meet acceptable levels of chemical oxygen demand (COD) before being released into local waterways. In Germany, the Ludwigshafen Production Plant is legally allowed to release only uncontaminated cooling water into the nearby river. Their water is monitored against high temperatures before being allowed to exit the site. Even though the water discharged into their river is uncontaminated, this step is important to the ecosystem of the river and safeguards the development of temperature-sensitive species.

Following the upward pattern of our production volume, we treated 2.2 million m^3 of wastewater in 2016 compared to 1.7 million m^3 in the previous year. Conversely, wastewater intensity stands at 14.3 m^3 per ton production, which is 6% higher than it was in 2015, but 22% below 2011 levels – hence surpassing our target. Most of our teams are thinking along similar lines when it comes to tackling wastewater – they address the water-demanding processes that result in wastewater. For example, by maximizing batch sizes wherever and whenever possible, we have been able to reduce the volume of cleaning water needed for product changeover processes. Another contributing factor has been the conversion of two sizeable production plants to zero wastewater discharge plants. For years now, our productions sites in India and Indonesia have employed a combination of evaporation and spray drying methods to convert their wastewater into solid or semi-solid sludge. The conversion reduces some of the difficulties in handling and treating wastewater, but the trade-off is that active drying processes tend to be energy-intensive.

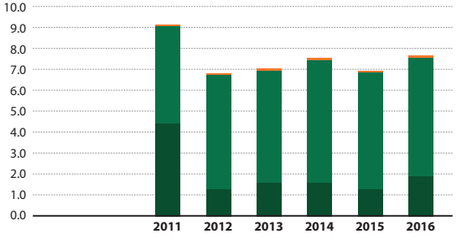
WATER WITHDRAWAL INTENSITY
(m^3 water withdrawn per ton production)



INTENSITY OF WASTEWATER PRODUCTION
(m^3 water withdrawn per ton production)



WATER WITHDRAWAL BY SOURCE
(million m^3)



	2011	2012	2013	2014	2015	2016
Ground Water	0.09	0.09	0.09	0.09	0.09	0.12
Surface Water	4.6	5.4	5.3	5.8	5.5	5.6
Municipal Water	4.4	1.3	1.6	1.6	1.3	1.9

Reidsville Production Plant wastewater pre-treatment facility

RESPONSIBLE WASTEWATER MANAGEMENT AT DYSTAR LOCATIONS

LEGEND

On-site Wastewater Treatment
- *Precipitation / Coagulation / Flocculation*
- *Sedimentation or settling tank*
- *pH neutralization*
- *Chemical treatment*
- *Biological treatment*
- *Anaerobic pond*
- *Sequence batch reactor*
- *Dissolved air flotation*
- *Distillation*
- *Evaporation and Spray Drying*
- *Filtration*
- *Reverse Osmosis*

Off-site Wastewater Treatment
- *Municipal wastewater treatment facility*
- *Discharged to river after monitoring*
- *Industry park wastewater treatment plant*
- *Zero Discharge Plant*
- *Sludge treatment by licensed contractor*

MATERIALS
[G4-DMA, G4-EN1, G4-EN2]

Raw materials at DyStar are chemical substances that are either processed or manufactured into a finished product. Across our production plants, raw material consumption totalled to 132,700 tons. Utilization intensity, on the other hand, stood at 0.79 tons for every ton of production, 2.4% higher than the previous year but 21% lower than base year - hence exceeding our 2020 reduction target by 1%. Associate materials, such as glass beads used for grinding press cakes, are necessary in the production process but do not actually become part of a product. Overall, 1,740 tons of associate materials were purchased in 2016.

With the exception of lignin-based dye dispersants, the vast proportion of our materials are derived from non-renewable sources. As with other chemical industries, there are limited options available when sourcing for many essential materials and - for lack of better choices - our raw and associate materials are overwhelmingly derived from virgin, rather than recycled, sources. We do recognize that all our materials have an accumulated environmental footprint by the time they arrive at our premises so we have to make every bit count.

Over the years, we have become better at preventing excess inventory from accumulating. Our master planners know that by being smart about what and when to purchase, we can mitigate some of the impact associated with extracting, processing and delivering those materials. Once an order passes our testing requirements and is accepted for manufacturing purposes, however, it is up to our R&D chemists and process development teams to make sure that we get to the final product in as few steps as possible. It takes our best scientific minds to work out pathways that maximize the utilization of material inputs.

HAZARDOUS AND NON-HAZARDOUS WASTE
[G4-DMA, G4-EN11, G4-EN23, G4-EN25]

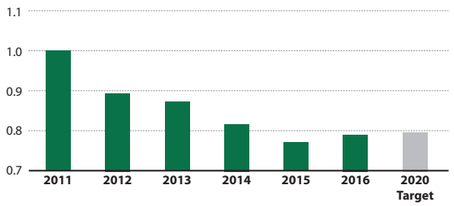
Manufacturing activities are responsible for most of our hazardous waste. Laboratories, by comparison, produce insignificant quantities. Our hazardous waste comprises primarily of packaging material; product residues; residues resulting from the distillation recovery of solvents; solutions and other liquids that cannot be disposed as wastewater; and, at zero wastewater discharge plants, residues remaining after wastewater evaporation.

Non-hazardous waste, which makes up a small proportion of overall waste quantities, mostly consists of office waste, uncontaminated packaging material and pallets. Our teams aim to reuse and recycle as much of their non-hazardous waste as possible. The categories of material that are deemed acceptable for recycling by contractors from country to country do tend to vary. Hazardous waste that cannot be recycled is disposed as municipal waste.

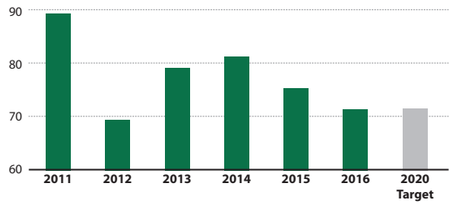
Altogether, hazardous and non-hazardous waste totalled to 10,700 tons in 2016, an increase of 11% from the previous year; 9% compared to 2011. The amounts generated for every ton of production, however, have fallen by 20% since 2011. Hazardous waste intensity, by itself, has seen a drop of 13% since 2011[1]. 2016 saw no major environmental accidents or spillage incidents at any of DyStar's locations.

From our total non-hazardous waste, 29% (1,110 tons) was either reused or recycled, 8% (285 tons) incinerated and 63% (2,387 tons) landfilled. In terms of our hazardous waste, 96% (6,424 tons) was incinerated, 2% (159 tons) either reused or recycled, and a further 2% (140 tons) sent to specialized landfills for hazardous waste. Of the amount that was eventually incinerated, about 15% was converted to energy.

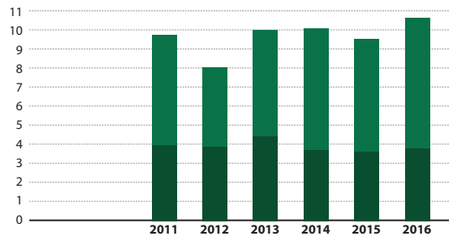
RAW MATERIAL USAGE INTENSITY
(tons of raw material used per ton of production)



WASTE PRODUCTION INTENSITY
(kilograms of waste generated per ton of production)



WASTE PRODUCTION BY CATEGORY
(thousand tons)



	2011	2012	2013	2014	2015	2016
Hazardous	5,797	4,133	5,610	6,419	5,951	6,843
Non-hazardous	4,005	3,861	4,458	3,725	3,642	3,845

The framework of precautions governing the handling and disposal of hazardous waste is a central tenet of DyStar's HSE management system. Hazardous waste marked for disposal will only exit our premises accompanied by licensed waste management contractors. We expect all external partners to abide by all applicable laws and regulations. Further, regardless of local laws and regulations, DyStar's policy prohibits hazardous waste from being discarded in a manner that can harm communities or the environment. We do not allow the transportation of our waste across national borders.

To the best of our current knowledge, DyStar does not operate near ecosystems that are either protected or known to be highly biodiverse. When considering new sites for manufacturing, we conduct environmental and social impact assessments to evaluate the potential risks that could result from our presence and activities. Hazardous waste and wastewater contractors are also evaluated along this same criterion.

SUSTAINABLE PACKAGING AND LOGISTICS
[G4-DMA, G4-EN30]

During the transportation of dyes, auxiliaries and other chemicals, there is always the possibility of spillage caused by cargo mishandling. The potential consequences to human health and safety as well as to the environment are not taken lightly. It requires many layers of precaution to ensure that our products arrive safely and intact. We minimize much of the potential risks by simply choosing to work only with experienced and license transportation contractors. The choice of packaging is also a factor that requires considerable thought. At the very least, good packaging should be functional and effectively contain and protect our product throughout the entire course of a journey. The right packaging also needs to be strong enough to withstand the unique weather conditions of the destination, wherever that might be.

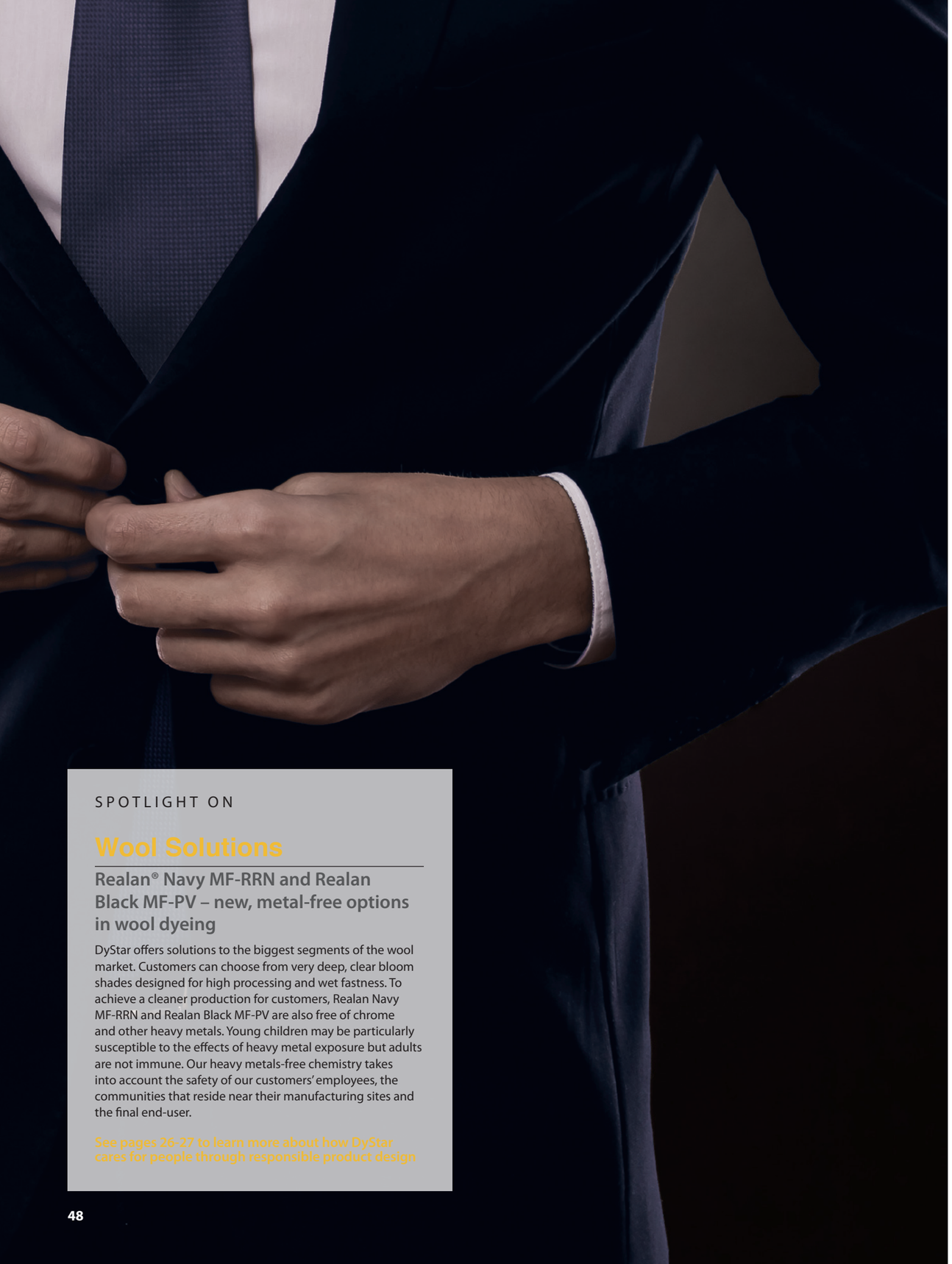
DyStar used 5,525 tons of packaging material in 2016 – including cardboard boxes, plastic drums, bulk containers, plastic wrapping, etc. Over the years, we have increasingly taken up services that allow us to be more circular in our approach. In countries where the service is available, specialized service providers can be engaged to collect, clean and re-distribute our Intermediate Bulk Containers (IBCs) for reuse. More than 32% of DyStar's 2016 global packaging needs were met by these reconditioned IBCs.

Before any product is sent on its way, appropriate warning labels need to be applied on every box, drum and container, and in accordance with the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Without these labels, those working directly with our products on the customer side would have limited information at their disposal on appropriate handling and emergency response. We are proud to report that we are 100% compliant with GHS requirements and have not had a serious labelling-related incident in recent years.

For the transport stage of a product's journey, our logistics team has taken active steps toward minimizing DyStar's indirect environmental impact. Each day, they coordinate with a multitude of customers and transport companies, striving to meet the expectations of all partners. However, wherever possible, our logistics team aims to make optimal use of their container loads. Each and every time they are able to send off a full, rather than partially-empty, container, they help mitigate the company's indirect emissions impact and cut overall transportation costs.

Our distribution networks are also organized with efficiency in mind. As much as possible, we make use of direct shipments from production plants to sales regions. Within each region, we maintain a regional distribution center as well as a network of smaller local warehouses which are strategically situated near cities that host high numbers of textile producers. Ultimately, the careful selection of warehouses, i.e. based on their geographical locations, helps us reduce the number of partial truckload trips required to reach our various customers. In places where purchase volumes tend to be consistently high, we also provide on-site consignment stocks. Even though we bear the risks for any consignment inventory that are not eventually sold, the benefits from being able to reduce our trucking frequency makes this a feasible arrangement at certain locations. Because of these and other mitigation measures, DyStar has managed to reduce the overall cost for logistics by 15% compared to 2014, despite overall transportation quantities going up by 24% over that same period.

1 Waste data includes DyStar production sites and laboratories only, as they account for the majority of waste generated



SPOTLIGHT ON

Wool Solutions

Realan® Navy MF-RRN and Realan Black MF-PV – new, metal-free options in wool dyeing

DyStar offers solutions to the biggest segments of the wool market. Customers can choose from very deep, clear bloom shades designed for high processing and wet fastness. To achieve a cleaner production for customers, Realan Navy MF-RRN and Realan Black MF-PV are also free of chrome and other heavy metals. Young children may be particularly susceptible to the effects of heavy metal exposure but adults are not immune. Our heavy metals-free chemistry takes into account the safety of our customers' employees, the communities that reside near their manufacturing sites and the final end-user.

See pages 26-27 to learn more about how DyStar cares for people through responsible product design

CARING FOR PEOPLE

OUR EMPLOYEES

We view our employees as our greatest asset. DyStar seeks not only to attract and recruit the best people, but also strives to cultivate a diverse and inclusive work culture. Our employee engagement program reaches out far and wide. It is built on the foundation of enhancing employee skills in accordance to each and every individual's career aspirations. By mapping employees' needs to relevant training and development opportunities, we present numerous avenues to help our people succeed both in their professional and personal lives. The success of our approach is evident in the diversity of our workforce and the growing number of people who choose to remain with DyStar.

Of the 2,100 employees that work at DyStar, 89% are permanent full-time employees; roughly 3.5% are permanent part-time employees. Non-permanent employees, which include employees with fixed-term or temporary employment contracts, make up 7.5% of our workforce. Based on the number of man-hours, about 10% of work performed on our premises are handled by external contract workers including those overseeing security, cleaning, IT and maintenance services. Employment numbers at DyStar are not subject to seasonal variation. All permanent employees receive annual performance reviews.

SKILLS ENHANCEMENT
[G4-DMA, G4-LA9, G4-LA11]

It is not just technical prowess and business acumen that can be credited for DyStar's success – the human factor has contributed greatly to our market leadership. Across the world, our leaders are dedicated to maintaining high-quality skills in their regions through a range of training and development programs. We also see it as a priority to make sure that employees with many years of service, and who already possess a wealth of skills and knowledge, continue to remain relevant as well. For these individuals, we offer additional learning opportunities to help them remain up-to-date with industry trends and technological advances.

DyStar has processes in place through annual performance appraisals and career development planning where line managers and individuals discuss work progress and achievements, as well as training opportunities to fulfil tasks and targets effectively. Training opportunities extend across all levels of the company, from boots-on-the-ground production workers and laboratory technicians, and all the way to middle and senior management.

In 2016, over 18,700 hours were invested in skills enhancement at DyStar, with roughly a third of those hours dedicated to occupational health and safety topics. Male employees received about 70% of overall training, with most of the disparity being traceable to the markedly higher number of hours invested in production sites workers. Owing to the physical nature of their work, applicants for production site roles continue to be overwhelmingly men. Although they make up only 33% of the company, production workers received over 43% of all training because the number one priority with regards to our staff is keeping them safe from physical harm. Outside of our production sites, however, the total number of hours invested in training men vs. the hours invested in training women at DyStar evens out.

TOTAL HOURS INVESTED IN STAFF TRAINING BY FUNCTION AND GENDER

	Men	Women
Senior Management	620	275
Middle Management	1564	1008
Administration and Support	1632	2347
Technical and Laboratory	1769	1456
Production Workers and Supervisors	7781	300
Total Training Hours	**13,366**	**5,386**

2016 DyStar Singapore team building event

Communication is the glue that binds us all together and having a common language gives us the advantage of cohesion. DyStar's global presence makes language skills an imperative because we believe that no idea should be lost from a simple lack of understanding. Some years ago, we started promoting the English language – the lingua franca at DyStar – and we continue to do so year after year with reported success. Our teams have expressed positive feedback on their ability to communicate information and gain knowledge from colleagues outside of their own countries.

In some locations, we encounter human resource challenges such as a lack of skilled labor. This is especially true at our rural-based production plants. At such sites, we endeavor to provide opportunities to members of the local community by hiring them and then skilling them up with on-the-job training and personal coaching. By taking this approach, we are better able to ensure a good job fit. The residents, in return, acquire skills that give them lasting employment prospects.

2016 DyStar Singapore team building event

DIVERSITY AND EQUALITY
[G4-DMA , G4-LA12]

As a global company, DyStar is committed to promoting diversity throughout its offices, laboratories and 17 production plants. We ensure a fair and equitable workplace for all employees at all times. DyStar does not support discrimination in any form, and no employee may be disadvantaged based on ethnicity, religion, ideology, gender, age, disability or sexual orientation. Our Code of Conduct does not condone any kind of harassment and will act on reported incidents pertaining to discrimination or harassment. Bound by the principles of equality, we recruit, promote and reward employees based on merit.

DyStar actively encourages women to join their male counterparts in entering our workforce. Of the 31 women employees that went on maternity leave in 2016, nearly 75% had returned to our workforce before the close of the year. We acknowledge, however, that at our production sites, the clear majority of applicants and employees continue to be men due to the nature of the job which involves manual labor and machinery. These are roles that most women choose not to work in. However, we are fortunate to have a considerable number of talented women who serve as engineers, chemists and laboratory technicians at many of our production sites. We also find that women are far better represented in non-production sites. Overall, 31% of our management roles are held by women; among technical and administration staff, this figure rises to 40% and 47% respectively. Clearly, there is still room for improvement at DyStar. With women increasingly opting to forge careers of their own – particularly now in emerging markets – we can expect more opportunities to further narrow the workplace gender gap.

BREAKDOWN OF EMPLOYEES BY FUNCTION AND GENDER
[G4-10]

	Men	Women
Senior Management	75	17
Middle Management	218	115
Administration and Support	320	292
Technical and Laboratory	217	146
Production Workers and Supervisors	654	46
Total Workforce	**1,484**	**616**

EMPLOYEE HEALTH, SAFETY AND WELL-BEING
[G4-DMA , G4-EN24, G4-LA6]

DyStar treats occupational health and safety with the priority and seriousness that it deserves. The manufacturing of dyes and chemicals sometimes involves harsh elements that, in the absence of proper training and expertise, can pose significant health and safety risks. Our managers are conscious of the danger that employees at production plants, laboratories and warehouses can face when adequate precautions are not taken. On a near constant basis, our teams need to be vigilant of the risk of exposure to hazardous substances. At the same time, chemical production often also involves working with powerful and high speed equipment, as well as large volumes of chemical mixtures, so mistakes have the potential to trigger severe accidents.

Compliance with all applicable laws and regulations is never optional. Internally, we go one step further by implementing health and safety policies specific to activities at each location. An established global network of teams function under a global HSE leadership. The local HSE manager and his or her team is responsible for ensuring that all employees and subcontractors adhere to laws, regulations and internal policies. They also develop guidelines and training programs to educate technical and production staff on the ways to exercise vigilance – both for the sake of their own safety and that of their colleagues.

On the ground, the most basic but vital aspect of our health and safety framework is the provision of adequate personal protective equipment (PPE) to employees so that they are shielded from direct as well as long-term health risks. The other central pillar of our approach is the implementation of regular and rigorous site inspections which are essential to identify health and safety risks. Any gap recorded during an inspection is addressed within a set timeframe with appropriate follow-up actions. In the event of an incident or accident, our safety protocol requires on-site management to conduct thorough investigations into the cause and, thereafter, implement appropriate remediation plans to prevent recurrences.

There were no workplace fatalities in 2016. Neither were there any recorded cases of occupational disease. The year 2016 saw 10 cases of staff injury with lost time at DyStar. Three contractors also suffered injuries while working on our premises. In total, 138 work days were lost. The lost day rate for injuries in 2016 was 7.2. Our injury rate, at 0.52, was 13% below the average figure for the chemical manufacturing industry which, as of 2015, stood at 0.6†.

Overall, our 2016 health and safety performance, despite being better than the average for the industry, was far from what we would consider ideal. Best practices continue to be promoted and diligently monitored; for example, each injury or near miss requires a follow-up Corrective and Preventative Action Plan (CAPA). At the same time, however, we recognize that if we are to challenge ourselves to be better, then there needs to be change. We see every injury as a serious event and continue to find ways to reduce them by improving communication between teams and streamlining aspects of health and safety management. The most notable addition to our health and safety framework in 2016 was the implementation of a centralized Accident and Incident Management System (AIMS). It has been instrumental in making communication more effective with real-time incident reporting and system auto-alerts for key regional managers and global department heads. By removing any veils of secrecy between the different levels of our organization, we raise attention and accountability for each incident. Through effective communication, we hope to be better at acknowledging our shortcomings – without blame – and working together toward effective solutions.

Staff making use of a well-maintained pedestrian crossing

* Incidence rates represent the number of injuries per 100 full-time workers and were calculated as: (N / EH) X 200,000 where, N=number of injuries and illnesses, EH=total hours worked by all employees within the calendar year, 200,000=base for 100 full-time workers (working 40 hours per week, 50 weeks per year).
† Source: Bureau of Labor Statistics, U.S. Department of Labor, Jul 4, 2017

A WEEK DEDICATED TO HEALTH AND SAFETY

DyStar Brazil set an example for other production sites by dedicating a whole week in August 2016 to HSE training. At the Apiuna Production Site, questions about how to react to workplace incidents and accidents were addressed during their Internal Week for the Prevention of Accidents at Work, locally known as SIPAT week. Employees were trained in various health and safety topics including hazard identification, accident response, and instructions on the use, storage and maintenance of personal protective equipment (PPE) and collective protective equipment. Throughout SIPAT week, participants also learned about the importance of staying fit and were invited to participate in various health-related activities such as medical check-ups.

DyStar believes that happy employees are also more productive employees. We invest in a variety of awareness programs and activities to keep our employees healthy. In 2016, DyStar provided a free ayurvedic health camp, overseen by trained doctors, for DyStar India employees who were interested in the benefits of health and diet consultation. Another session targeted stress management where staff from DyStar India learned to appreciate the finer points of meditation as a way to manage stress. In Brazil, on-site medical check-ups were conducted for staff during a week-long event dedicated to promoting workplace health and safety. These are just a few examples demonstrating DyStar's commitment to boosting employee health and well-being.

HUMAN RIGHTS
[G4-DMA, G4-11]

Respecting the fundamental rights of all people is central to how we conduct business and engage with employees and external parties. In accordance with our commitment to the principles of the United Nations Global Compact (UNGC), DyStar aims to uphold the highest respect for human rights. Without exception, DyStar adheres to all labor laws in the countries where we operate. Whether in our own operations or in our supply chain, we do not support or condone child labor, slave labor, prison labor or any other forms of forced labor. Throughout the reporting period, DyStar received no fines or penalties related to labor practices and human rights abuse; similarly, there were no cases of illegal conduct surrounding the treatment of local communities and indigenous peoples.

The Social Accountability Declaration is a key element of DyStar's Code of Conduct. Accordingly, discrimination based on race, ethnic origin, gender, religion, philosophy, political or union membership, disability, age or sexual orientation is not tolerated. DyStar employees are entitled to freedom of association, the right to form and join trade unions, and the right to bargain collectively. Our policy is to allow trade union representatives unhindered access to their members at DyStar workplaces.

DyStar does not have a formalized procedure for human rights assessments. We depend on our managerial teams to adhere to DyStar's Code of Conduct and the Codes of Business Conduct by actively monitoring activities at their respective locations, and in manner way that is relevant to the local context, in order to address any risks or known breaches in ethics. However, it is imperative that the system be strong enough to withstand any oversights among management. Hence, we enable employees to lodge complaints of known violations directly to the Global Compliance Officer, whose contact details are shared with all new recruits. Further, breaches of ethical principles – whether within or outside our premises – can be brought to the attention of DyStar's Sustainability Committee via Sustainability@DyStar.com

Through our supplier engagement process and regular on-site visits, we are also able to monitor signs of human rights abuses in our supply chain. One of the consequences of today's fast-changing political and economic climate is that risks are also evolving across our value chain. No matter the circumstance, though, DyStar wants to know that basic standards of business conduct are respected by suppliers and – for this reason – we make it a point to reassess our approach to supplier management on a regular and periodic basis.

COMMUNITY ENGAGEMENT
[G4-DMA, G4-SO1]

Communities are the bedrock of society and, at DyStar, we are constantly reminded that they are also the pool from which our talent is drawn. At locations where we operate close to local communities, it is not enough to be responsible about managing environmental risks; we also adopt a mutually beneficial approach by actively providing jobs and training opportunities to residents. In some places, when DyStar invests in local communities, we are also indirectly securing the future of our workforce. By supporting education locally, for example, our team in Indonesia improves the quality of potential candidates that will become available to the company five to ten years down the line.

We do not measure success by the monetary value of our donations. Increasingly, we are interested in the quality of the impact that our contributions can make. Each of our teams is responsible for identifying and executing social initiatives based on the needs of their local community. By actively engaging in regular dialogue with key community stakeholders, we are better able to understand the fundamental needs of our neighbors; this lends both direction and meaning to our philanthropic activities. Through a collaborative model involving interaction with local authorities, non-governmental organizations (NGOs) and research institutions, we provide support in the areas of education, training, drinking water, water conservation, green energy, and more. Altogether, DyStar employees devoted 291 hours to volunteering activities in 2016.

Occasionally, a community leader will voice their concerns to us regarding the impact of our operations. These are important concerns that need to be treated with the seriousness they deserve. By engaging directly with local communities, we can address their grievances and effectively mitigate any substantiated impacts. In the past, we have extended invitations to residents, giving them the opportunity to tour our plants and observe the equipment, safety measures and pollution-control devices that are in place. By opening our doors to members of the community, plant managers are able to successfully dispel anxieties and allay concerns regarding the actual vs. perceived impacts of their operations.

Education

- A project to empower youths residing in Rabale gave DyStar India employees the opportunity to donate computing equipment and set up a best-in-class computer lab. The initiative, intended to revive a local community center, was brought to fruition by the Navi Mumbai Police in association with businesses and a local non-profit.
- More children can afford to go to elementary school, thanks to DyStar Colours Indonesia which presented scholarships to 36 students as part of a corporate social responsibility program in the village of Gabus.

Water and Sustenance

- As one of the larger companies in a small community situated on the outskirts of Jakarta, the Gabus Production Site has earned its role as a respected community leader. One of the cornerstones of their program is improving access to drinking water for the three surrounding villages. Since 2011, DyStar has supplied 240,765 m^3 of water to nearby communities, free of charge. More recently, the team started exploring ways to do this in a more sustainable manner and installed faucet valves for parts of the community where water flow could not be turned off.
- The DyStar team at Reidsville Production Plant in North Carolina, USA organizes an annual food collection drive for the local food bank. 150 lbs of food were donated after the 2016 event.

Capacity Building

- In cooperation with the textile department of the Institute of Chemical Technology, DyStar India supplied dyes and auxiliaries to a workshop on dyeing and printing using local tools. Women from the Assam region of India were selected by a partnering non-profit to participate in the workshop. The aspiring handloom weavers gained new skills and techniques during the three-day workshop – skills that will empower the women with the ability to earn respectable livelihoods on their own.
- Four Ethiopian students interned at DyStar India's Rabale laboratory as part of an exchange program between the Ethiopian Textile Industry Development Institute and the Institute of Chemical Technology of India. Under the guidance of DyStar's Dr. Vaishali Rane and other technical services employees, the four students received knowledge and insight from some of the finest experts in the industry.

COMMUNICATING WITH STAKEHOLDERS

COMMUNICATION IS THE CENTRAL BINDING FORCE THAT KEEPS OUR APPROACH RELEVANT. DYSTAR IS COMMITTED TO MAINTAINING ON-GOING, OPEN AND HONEST DIALOGUE WITH INTERNAL AND EXTERNAL PARTIES. WE ACTIVELY ENGAGE WITH OUR STAKEHOLDERS TO LISTEN TO THEIR VIEWS AND CONCERNS, AND ENDEAVOR TO RESPOND AS PROMPTLY AND EFFECTIVELY AS POSSIBLE. IT IS ONLY THROUGH PROACTIVE ENGAGEMENT THAT WE ARE ABLE TO BUILD LONG-LASTING AND MEANINGFUL RELATIONSHIPS, WHICH ADD IMMENSE VALUE TO OUR BUSINESS WHILE SERVING OUR STAKEHOLDERS' INTERESTS AS WELL.

STAYING INVOLVED AND CONNECTED
[G4-15, G4-16]

To stay connected and abreast of the issues that matter most to our stakeholders, DyStar actively participates in joint projects and dialogues with local and international organizations. Through these networks, we have the opportunity to collectively drive responsible practices across the textile and chemical industries.

Chemical Industry Organizations

The Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD®)

China Dyestuff Industry Association

Ankleshwar Industries Association

South African Dyers and Finishers Association

German Chemical Industry Association (VCI)

American Association of Textile Chemists and Colorists (AATCC)

Society of Dyers and Colourists, United Kingdom

Associação Brasileira das Indústrias Químicas (ABIQUIM), Brazilian Association of Chemical Industries

Sindicato das Indústrias de Produtos Químicos (SINPROQUIM), Brazilian Union of Chemical Products Industries

Sustainable Textile Standards and Organizations

bluesign®

Zero Discharge of Hazardous Chemicals (ZDHC)

Cradle to Cradle™

Global Organic Textile Standard (GOTS)

Oeko-Tex®

Sustainable Apparel Coalition (SAC)

Textile Exchange

American Apparel and Footwear Association (AAFA)

Associação Brasileira das Indústrias Têxteis (Abit), Brazilian Textile and Apparel Industry Association

Global Corporate Sustainability Organizations and Local Chapters

United Nations Global Compact (UNGC)

Singapore Compact for Corporate Social Responsibility

Responsible Care®

National Committee of Responsible Care, Indonesia

BUILDING SUSTAINABLE RELATIONSHIPS: ENGAGE, LISTEN AND RESPOND
[G4-24, G4-25, G4-26, G4-27]

Throughout the year, we make conscious efforts to communicate with our key stakeholders – who are selected based on the potential for DyStar to impact their part of the value chain, as well as their potential to impact DyStar's business. As such, we have identified groups that are fundamental to building a sustainable textile industry. These include our employees, customers in textile production, brands and retailers, NGOs, industry groups, our shareholders and suppliers. DyStar takes a tailored approach to stakeholder engagement, employing a combination of formal and informal channels that are available. This year, we surveyed each of our stakeholder groups to understand their views on DyStar's sustainability performance and reporting practices. We also engaged with brands and retailers at a deeper level through one-on-one telephone interviews. The respondents were chosen based on their ability to speak with authority on a range of topics that are relevant to DyStar's sustainability performance and its future priorities.

Our Stakeholders	How We Engage with Them (Method and Frequency)	What They Have Told Us	How We Responded
Employees	• Internal communication channels (frequently) • Team building days (yearly) • Performance reviews (yearly) • Employee Sustainability Survey (yearly) • Sustainability@DyStar.com	Employees feel that DyStar could do more to integrate sustainability into the various functions through information sharing.	DyStar is working to embed sustainability within more internal functions through a new online resource center STAIRS (Sustainability Toolbox of Applicable Ideas, Recommendations & Solutions). When completed, STAIRS will guide teams across the company to implement sustainable solutions in their areas of work.
		Employees think that DyStar needs to provide more opportunities for innovation as well as recognition for great ideas.	We launched the CEO Sustainability Challenge to give our most innovative employees the recognition they deserve. Each quarter, a winner is allowed the honor of selecting a local charity to receive $500 in donations from DyStar.
		Employees value opportunities for growth, reward for performance and fair treatment.	The CEO Award continues to recognize exceptional performance across the company. DyStar maintains an open-door policy at all levels. Employee feedback is always valued and management takes them into consideration during regular reviews aimed at improving the effectiveness of DyStar's approach.
		Production teams care about maintaining high standards of workplace health and safety.	DyStar launched a centralized reporting tool to monitor health and safety performance around the world. By efficiently documenting all injuries, accidents and near misses, we are better able to understand existing risks and act on them accordingly.

Our Stakeholders	How We Engage with Them (Method and Frequency)	What They Have Told Us	How We Responded
Customers in Textile Production	• Website, product brochures, social media, newsletter • Meetings with sales associate (frequently) • Interaction with DyStar's Ecology team for chemical guidance (frequently) • Forums, seminars and conferences (frequently) • Visits to DyStar production sites (as and when requested) • DyStar's Customers, Brands and Retailers Sustainability Survey (yearly) • Sustainability@DyStar.com	Preference for products that enable textile manufacturers to operate more efficiently.	DyStar offers an extensive collection of products that are designed to reduce costs and resource consumption. In addition to Cadira® Reactive, 2016 saw the roll out of two resource-saving modules: Cadira Polyester and Cadira VAT.
		There is room for improvement in transparency and traceability around the chemicals used in products.	DyStar's econfidence® program monitors over 500 restricted chemicals in the supply chain. Our Ecology team is at hand to address any doubts or questions from DyStar customers.
		It would be helpful for DyStar to initiate a single platform to cover all questions on restricted chemicals. Customers want faster and easier access to product information.	DyStar's free online tool eliot® was launched in 2015 and saw several upgrades in 2016 to incorporate newer features. Customers are more empowered than ever to make informed product choices. In addition, clients are welcome to contact any of DyStar's competence centers and agencies for direct assistance.
		Customers want to be better at chemical management so they can continue to meet the standards of major brands and retailers.	DyStar's STS business unit offers chemical management training to textile manufacturers so they can comply with brand and retailer Restricted Substances Lists (RLSs).
		It would be useful to have an overview of DyStar's progress from year to year.	DyStar's Sustainability Performance reports can be downloaded from our website. We also welcome customer invitations to disclose sustainability performance data via online supplier rating tools.
Suppliers	• Tendering process (as and when needed) • Supplier site audits (yearly) • Supplier Ecological Survey on chemical compliance (yearly) • Supplier Sustainability Performance Questionnaire (yearly) • DyStar's Supplier Sustainability Survey (yearly)	Suppliers would appreciate technical support and technology sharing to help reduce the impact of their own products and activities.	All stakeholders are welcome to reach out via Sustainability@DyStar.com for advice. Our Ecology Group is also at hand to provide feedback on matters related to chemical compliance.
		Suppliers value close communication, feedback and collaboration with DyStar to maintain the quality of their products and services.	DyStar's Procurement Group conducts annual site visits and provides audit feedback to suppliers. We are also open to collaboration with vendors who share our passion for sustainable solutions.
		It is important that the supplier selection process remains fair.	Our new Code of Business Conduct for Suppliers and Third Party Service Providers expressly prohibits the acceptance of gifts by DyStar employees as well as relatives of DyStar employees.

Our Stakeholders	How We Engage with Them (Method and Frequency)	What They Have Told Us	How We Responded
Brands and Retailers	• Meetings with sales associates (frequently) • Color design process (frequently) • Forums, seminars and conferences (frequently) • DyStar's Customers, Brands and Retailers Sustainability Survey (yearly) • Visits to DyStar production sites (as and when requested) • Sustainability@DyStar.com	Responsible brands and retailers want to be certain that Tier 2 vendors, including DyStar, operate their businesses responsibly.	DyStar hosts site visits for interested brands and retailers. Visitors are welcome to inspect our offices, laboratories and production sites.
		More needs to be done to ensure that waste and wastewater contractors act in compliance with laws and regulations.	We introduced a new standard vendor auditing procedure to assess all hazardous waste and wastewater contractors that cater to DyStar production sites globally.
		New ways could be found to create viable circular economy models.	In 2016, DyStar became the first textile dyes company to earn a GOLD-level Material Health Certificate from Cradle to Cradle™. That certificate means that no substances present in the formulation of C2C listed products, at a concentration of 100 ppm or above, poses risks to humans or the environment during textile dying, use or end-of-use.
		The industry needs many more chemical alternatives to be made available on the market.	DyStar delivered a new metal-free navy dye for wool as well as an organic halogen-free disperse red dye in 2016. We also continue to offer PFC-free alternatives for DWR fabrics. When DyStar's Global Innovation Center (GIC) is completed in 2017, it will host a range of R&D activities focused on delivering more alternatives to the industry.
		Brands and Retailers would like DyStar to play an active role in driving and shaping the sustainability agenda across the industry.	DyStar's leaders are exploring ways to actively and effectively engage in some of the conversations that are happening around the textile and apparel sector.
Shareholders	• Shareholder meetings (quarterly) • Long-term planning with senior management and key committees (quarterly) • DyStar's Shareholder Sustainability Survey (yearly)	Employees should be involved in the development of innovative ideas. A proper innovation platform could facilitate this change.	An online platform is in the works. STAIRS (Sustainability Toolbox of Applicable Ideas, Recommendations & Solutions) will allow staff to share their ideas and successes, as well as learn from each others' experiences.
NGOs and Industry Groups	• Forums, seminars and conferences (as and when opportunities arise) • Working groups (quarterly or yearly) • Collaborative projects (as and when opportunities arise) • DyStar's NGO and Industry Group Sustainability Survey (yearly)	As a known player in the textile and apparel industry, DyStar could be better at sharing its experiences in implementing a sustainability program.	This sustainability report features new in-depth interviews with four senior level DyStar managers and the Executive Director to give readers insight into some of the successes and limitations that we have encountered.
		DyStar should keep innovating and develop greener alternatives that will allow the industry to discontinue the sale of older products.	DyStar's Global Innovation Center (GIC) in Nanjing will be completed before the end of 2017. GIC chemists will work to deliver safer and more efficient technologies to the market.

ABOUT THIS REPORT

ABOUT THIS REPORT
[G4-29, G4-30, G4-31]

This is the DyStar Group's seventh annual Sustainability Performance Report. It aims to provide details of our commitments, and performance to date on the environmental and social issues that matter most to our stakeholders. The content of this report also communicates DyStar's vision and our plans to further the sustainability agenda throughout the industry.

With this report, we hope to reach as many of our stakeholders as possible and provide a transparent account of DyStar's progress toward driving sustainable practices across the value chain. From DyStar's perspective, our success in this endeavor is going to be one of the best predictors of our ability to succeed as a business in the long-term.

We value the opinions of both our internal and external stakeholders on how we can perform better. Do write in with feedback and suggestions by emailing: Sustainability@DyStar.com.

SCOPE OF REPORT
[G4-6, G4-17, G4-23, G4-28]

This report covers DyStar's global operations for the financial year January 2016 to December 2016. It contains performance data for all production sites, warehouses, offices and laboratories that are either owned or operated by DyStar. Unless otherwise stated, this report does not incorporate data from our three newly acquired businesses: DyStar Carolina Chemical, DyStar Hilton Davis and DyStar Foam Control.

DATA AND EXTERNAL ASSURANCE
[G4-33]

DyStar applies a standardized approach to data collection and data analysis across all operations. We employ a centralized data management system to collect and assess sustainability performance data from each of our entities. All information keyed into the system undergoes a two-step verification process to ensure the integrity of our report's data. The procedure also lends accuracy to the year-on-year performance results. Wherever relevant, applied methods and assumptions are detailed within the body of the report.

The data disclosed in this report is not externally assured. DyStar is currently exploring options to externally assure highly material sections in subsequent sustainability reports.

REPORTING FRAMEWORK
[G4-32]

This report is prepared in accordance with the GRI G4 – Core option. The G4 framework sets out the principles and disclosures that organizations can use to report their economic, environmental, and social performance and impacts. DyStar applies the GRI's principles in defining report content and quality, as set out by the G4 guidelines. Readers may refer to the full GRI Index at the end of this report for an overview of DyStar's reporting against the GRI G4 guidelines.

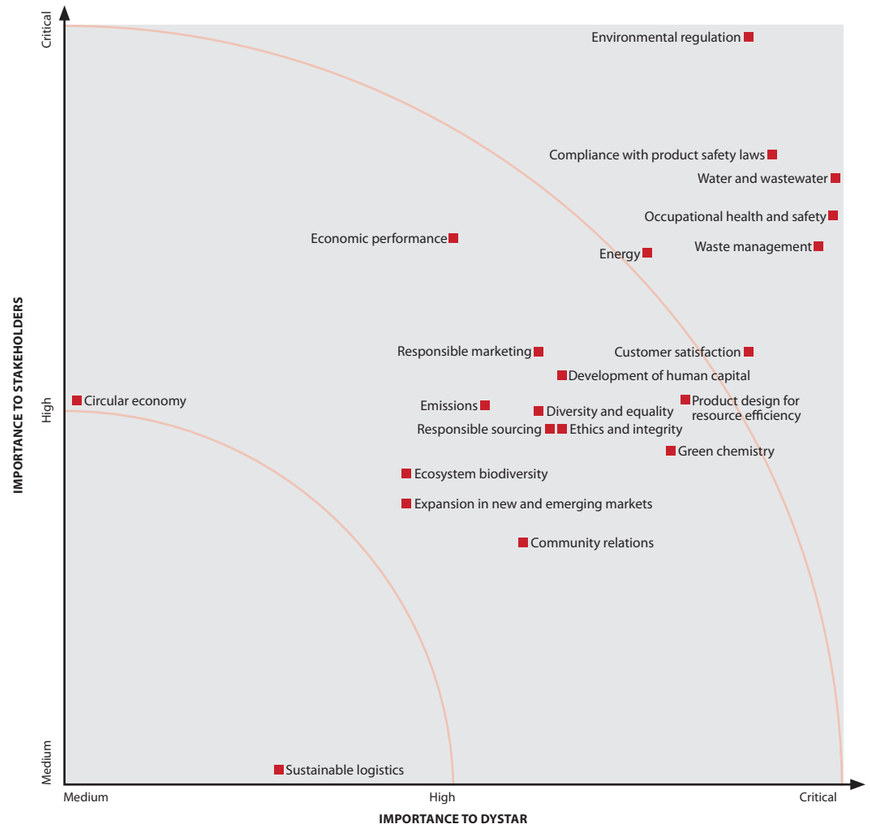
OUR APPROACH TO MATERIALITY
[G4-18]

To identify the issues that matter most to our business and our stakeholders, we carried out a materiality assessment exercise in 2015. The process involved identifying relevant issues based on industry mega trends and stakeholder feedback. DyStar surveyed internal as well as external stakeholders to rank the issues based on how significantly each affected their decision-making process. Similarly, a survey was conducted where members of upper management at DyStar were asked to rank the same topics based on the potential for each issue to impact our business. Participant responses were assessed to create a materiality matrix that reasonably reflects the sustainability issues most relevant to DyStar.

Following a recent re-assessment of the 2015 materiality matrix, some of the topics have been regrouped and renamed. We present here a new matrix that is more closely aligned with the GRI framework and better communicates the issues that concern our stakeholders.

Material Issue	Description	Boundaries
Water and wastewater	Maximizing water efficiency in the production process, and ensuring adequate treatment and safe disposal of wastewater.	●
Occupational health and safety	Preventing work-related injuries, illnesses and accidents in the workplace.	●
Waste management	Minimizing waste through reduced material consumption and increased recycling. Safe disposal of hazardous and non-hazardous waste.	●
Compliance with product safety laws	Setting and maintaining high standards for product safety and quality to prevent health risks arising from handling, using and disposing products throughout the value chain. Eco-testing of finished goods to mitigate product contamination risks.	●
Environmental regulations	Complying with all applicable laws and regulations.	●
Customer satisfaction	Meeting or surpassing customer expectations in the provision of products and services.	▲
Product design for resource efficiency	Investing in research and development to create less resource-demanding products for our customers.	●
Green chemistry	Applying green chemistry principles as early as the product design phase.	●
Energy	Reducing energy intensity by promoting more energy efficient choices throughout the production process.	●
Responsible sourcing	Ensuring the selection, management and payment of suppliers remains responsible, fair and transparent. Targeted eco-testing of inventory to mitigate product contamination risks.	▲

MATERIALITY MATRIX 2017
[G4-19, G4-20, G4-21]



Material Issue	Description	Boundaries
Development of human capital	Managing human capital needs through the attraction, retention and development of a talented workforce.	●
Ethics and integrity	Conducting all business activities in accordance with the highest ethical and legal standards.	▲
Diversity and equality	Hiring and promoting staff based on merit. Zero tolerance for discriminatory practices in the workplace.	●
Responsible marketing	Adhering to all applicable regulatory and voluntary codes governing marketing communication practices.	▲
Community relations	Actively engaging with nearby communities to understand and address real or perceived grievances. Improving people's lives by providing jobs, and investing in local education and infrastructure.	▲
Emissions	Reducing GHG emissions intensity by improving energy utilization efficiency in the production process, as well as optimizing product distribution.	●
Circular economy	Enabling and facilitating a sustainable circular economy through our products and services.	▲
Economic performance	Creating and distributing economic value for our stakeholders.	▲
Ecosystem biodiversity	Ensuring that production sites are not situated in proximity to (or indirectly impact) high biodiversity ecosystems.	▲
Expansion in new and emerging markets	Growing the business in emerging markets responsibly, without undertaking any harmful actions.	▲
Sustainable logistics	Preventing environmental, health and safety risks related to the transportation and handling of products.	●

Boundaries:
● Within the organization ▲ Within and outside the organization

GRI CONTENT INDEX

Our GRI Index has been checked by Corporate Citizenship. Corporate Citizenship confirms that in their view, the Index meets the requirement of 'In accordance – Core option', as set out in the GRI G4 Guidelines.

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G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken	p.25
SUB-CATEGORY: HUMAN RIGHTS		
	ASPECT: SUPPLIER HUMAN RIGHTS ASSESSMENT	
G4-DMA	Generic Disclosures on Management Approach	p.25
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G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	p.52
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G4-DMA	Generic Disclosures on Management Approach	p.25
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society	p.25
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken	p.25
SUB-CATEGORY: PRODUCT RESPONSIBILITY		
	ASPECT: CUSTOMER HEALTH AND SAFETY	
G4-DMA	Generic Disclosures on Management Approach	p.23
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	p.23
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	p.23
	ASPECT: PRODUCT AND SERVICE LABELLING	
G4-DMA	Generic Disclosures on Management Approach	p.23
G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	p.23
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	p.23
G4-PR5	Results of surveys measuring customer satisfaction	p.56
	ASPECT: PRODUCT AND SERVICE LABELLING	
G4-DMA	Generic Disclosures on Management Approach	p.23-24
G4-PR6	Sale of banned or disputed products	p.23-24
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	p.23
	ASPECT: COMPLIANCE	
G4-DMA	Generic Disclosures on Management Approach	p.23
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	p.23

UNGC INDEX

UNITED NATIONS GLOBAL COMPACT

The United Nations Global Compact (UNGC) is a voluntary initiative through which companies that are committed to exercising responsible leadership act to help in the creation of global frameworks for realizing sustainable growth. The UNGC details 10 universally accepted principles for corporate social responsibility in the areas of human rights, labor, environment and anti-corruption. As a signatory member, DyStar is committed to incorporating the 10 principles in the way we conduct our business and disclose how we do so through this report which serves as our formal Communication on Progress (COP).

The Ten Principles of the UNGC	Page(s)
Principle 1: Supporting and respecting the protection of internationally proclaimed human rights	p.52
Principle 2. Making sure that business is not complicit in human rights abuses	p.52
Principle 3. Upholding the freedom of association and the effective recognition of the right to collective bargaining	p.52
Principle 4. Supporting the elimination of all forms of forced and compulsory labor	p.52
Principle 5. Supporting the effective abolition of child labor	p.52
Principle 6. Eliminating discrimination in employment and occupation	p.50, 52
Principle 7. Supporting a precautionary approach to environmental challenges	p.18, 23-47
Principle 8. Undertaking initiatives to promote greater environmental responsibility	p.23-47
Principle 9. Encouraging the development and diffusion of environmentally friendly technologies	p.23-47
Principle 10. Working against all forms of corruption, including extortion and bribery	p.14-15

THE UN SUSTAINABLE DEVELOPMENT GOALS

UN SDG INDEX

HOW DYSTAR SUPPORTS THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)

At DyStar, we believe businesses play an important role in helping achieve the SDGs. We reviewed how our sustainability activities through DyStar's Four C's (Creating, Conserving, Caring and Communicating) support the 17 Goals. As a global corporation, we acknowledge our ability to have an impact on all the goals but there are eight where we believe DyStar is able contribute in meaningful ways.

Sustainable Development Goal	How our Principles and Activities Support the Goals	Page(s)
SDG 1: End poverty in all its forms everywhere	• Providing stable jobs that pay fair wages	p.52, 49-50, 68
	• Enhancing livelihoods through youth capacity building	p.52
SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	• Organizing annual food donation drives in North Carolina	p.03
SDG 3: Ensure healthy lives and promote well-being for all at all ages	• **Promoting good occupational health and safety practices among employees**	**p.51-52**
	• **Introducing safer dyes and chemicals to the market**	**p.23-27**
	• **Facilitating occupational health and safety for textile production workers**	**p.23-27**
	• **Mitigating impact to consumer health through product testing**	**p.23-27, 30-31**
SDG 4: Ensure inclusive and quality education for all and promote lifelong learning	• Supporting employees through knowledge, skills or technical training	p.49-50
	• Providing scholarships to students from rural communities	p.53
	• Donating IT equipment to community centers and educational institutions	p.53
SDG 5: Achieve gender equality and empower all women and girls	• Ensuring a fair and equitable workplace, free from discrimination	p.50, 52
	• Empowering underprivileged women through skills training	p.53
SDG 6: Ensure access to water and sanitation for all	• **Providing water to nearby rural communities**	**p.53**
	• **Responsible withdrawal and consumption of water for manufacturing**	**p.44**
	• **Ensuring effective treatment and proper discharge of wastewater**	**p.45**
	• **Developing less water-intensive dyes and chemicals for application processes**	**p.23-24, 26-29**
SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all	• Adopting more energy-efficient technologies at production plants	p.40
	• Purchasing energy derived from renewable sources	p.40
SDG 8: Promote inclusive and sustainable economic growth, employment and decent work for all	• **Protecting labor rights and ensuring safe working environments**	**p.50-52**
	• **Decent work for employees, with fair opportunities for career progression**	**p.49-50**
	• **Hiring and training employees drawn from nearby communities**	**p.52-53**
SDG 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation	• Establishing industry and fostering innovation in the places we operate	p.04, 57
	• Investing in state-of-the-art research facilities and scientific know-how	p.36-37
	• Upgrading technology and infrastructure for resource-efficient processes	p.39-47
SDG 10: Reduce inequality within and among countries	• **Actively providing jobs and training opportunities to nearby residents**	**p.52-53**
	• **Supporting rural communities through education and capacity building**	**p.52-53**
	• **Zero tolerance for discrimination enforced through the Code of Conduct**	**p.50**
SDG 11: Make cities inclusive, safe, resilient and sustainable	• Supplying concrete binding agents for social infrastructure projects	p.24, 26,
	• Quality clothing dyes reduce the burden on city water treatment systems	p.28-29, 44-45
SDG 12: Ensure sustainable consumption and production patterns	• **Actively reducing intensity of resource consumption in manufacturing**	**p.46**
	• **Designing products and modules for resource-efficiency in application**	**p.23-24, 26-29**
	• **Developing lasting colors to mitigate consumer consumption**	**p.19, 27**
SDG 13: Take urgent action to combat climate change and its impacts	• **Adopting newer technologies in manufacturing to mitigate GHG emissions**	**p.41**
	• **Optimizing transport and logistics to reduce Scope 3 GHG emissions**	**p.42-43, 47**
	• **Awareness raising through training courses organized by STS division**	**p.11, 56**
	• **Developing products that enable customers to be more energy-efficient**	**p.23-24, 26-29**
SDG 14: Conserve and sustainably use the oceans, seas and marine resources	• Ensuring effective treatment and proper discharge of wastewater	p.45
	• Incorporating end-of-life considerations in product design	p.23-24
	• STS customer training on management of water and effluent treatment	p.11, 56
	• Assessing wastewater treatment capabilities during supplier audits	p.25
SDG 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	• Opting not to develop on virgin greenfield land	p.47
	• Completing Environmental Impact Assessments before projects go live	p.47
	• Printing sustainability reports on Forest Stewardship Council (FSC) paper	Backcover
	• Printing CSI Color Analysis magazine on 100% recycled paper	p.11, 34-37
	• Virtual color management tools made available via CSI Design Tools	p.11, 34-37
SDG 16: Promote just, peaceful and inclusive societies	• **Maintaining a robust governance structure**	**p.12-13**
	• **Conducting business in keeping with highest ethical and legal standards**	**p.14-15**
	• **Effectively implementing the DyStar Code of Conduct**	**p.14-15**
	• **New Code of Business Conduct for Suppliers and Third Party Service Providers**	**p.14-15**
	• **New Code of Business Conduct for Sales Related Service Partners**	**p.14-15, 25**
	• **Auditing all business units for corruption-related risks**	**p.03, 14**
SDG 17: Revitalize the global partnership for sustainable development	• **Collaborating with responsible textile producers, brands and retailers**	**p.54, 56**
	• **Encouraging and facilitating sustainable practices among suppliers**	**p.25, 57**
	• **Supporting NGO and non-profit initiatives that help further the Goals**	**p.52-53, 57**
	• **Youth capacity building through partnerships with academic institutions**	**p.52-53**
	• **Active engagement with authorities, residents and community leaders**	**p.52-53**

DATA AT A GLANCE

[G4-63, G4-EC1, G4-EN1, G4-EN3, G4-EN5, G4-EN8, G4-EN10, G4-EN15, G4-EN16, G4-EN18, G4-EN22, G4-EN23, G4-EN24, G4-EN31, G4-LA12, G4-LA1]

		2014	2015	2016
ECONOMIC (MILLION USD)				
G4-EC1	Global Revenue	937.99	898.05	871.35
	Asia	419.18	416.23	414.61
	Europe	266.10	236.35	230.23
	Americas	252.71	245.57	226.51
	Global Operating Costs	683.48	670.57	652.34
	Asia	413.92	420.06	429.61
	Europe	146.09	138.64	124.06
	Americas	123.47	111.87	98.67
	Global Employee Wages and Benefits	118.03	100.51	108.93
	Asia	50.01	43.26	46.09
	Europe	42.68	35.58	38.39
	Americas	25.34	21.67	24.45
	Payments to Providers of Capital	11.34	3.98	7.47
	Payments to Government	25.01	26.32	26.48
	Economic Value Retained	100.09	96.67	76.13
ENVIRONMENT[1]				
G4-EN1	Raw Material (thousand tons)	114.75	108.53	132.66
	Raw Material Usage Intensity (tons per ton production)	0.82	0.77	0.79
	Packaging Material (thousand tons)	4.97	5.71	5.53
	Associate Material (thousand tons)	1.94	1.42	1.74
G4-EN3	Direct Energy Consumed (TJ)[2]	353.00	362.38	495.07
	Indirect Energy Consumed (TJ)	897.10	878.29	924.47
G4-EN5	Energy Consumption Intensity (GJ per ton production)	8.59	8.52	8.22
G4-EN8	Water Withdrawal (million m^3)	7.52	6.91	7.60
	Water Withdrawal Intensity (m^3 per ton production)	53.27	48.97	45.05
G4-EN10	Water Reused (million m^3)	1.84	1.73	1.80
G4-EN15	Direct GHG Emissions – Scope 1 (thousand tCO_2e)	20.49	21.06	29.48
G4-EN16	Indirect GHG Emissions – Scope 2 (thousand tCO_2e)	107.17	105.38	117.44
G4-EN18	GHG Emissions Intensity (tCO_2e per ton production)	0.872	0.865	0.847
G4-EN22	Wastewater Discharged[3] (million m^3)	1.86	1.67	2.17
	Wastewater Intensity (m^3 per ton of production)	15.07	13.40	14.29
G4-EN23	Hazardous Waste (thousand tons)	6.42	5.95	6.84
	Non-hazardous Waste (thousand tons)	3.73	3.64	3.85
	Overall Waste Intensity (kg per ton production)	81.23	75.32	71.43
G4-EN24	Number of Spills, Total Amount Spilled[4]	0, 0 tons	2, 22 tons	0, 0 tons
G4-EN31	Environmental Protection Expenditure (million USD)	7.19	6.81	10.31
EMPLOYEES[5]				
G4-LA12	Percent of Total Workforce Aged 18-29	–	–	11.2% (3.7%)
	Percent of Total Workforce Aged 30-49	–	–	69.0% (19.9%)
	Percent of Total Workforce Aged 50-64	–	–	18.3% (4.1%)
	Percent of Total Workforce Aged 65 and Above	–	–	1.5% (0.9%)
G4-LA1	Rate of New Employee Hires (Ages 18-29)	–	–	3.3% (1.4%)
	Rate of New Employee Hires (Ages 30-49)	–	–	5.7% (2.3%)
	Rate of New Employee Hires (Ages 50-64)	–	–	0.8% (0.3%)
	Rate of New Employee Hires (Ages 65 and Above)	–	–	0.0% (0.0%)
	Overall Rate of New Employee Hires	–	–	9.7% (4.0%)
	Employee Attrition Rate (Ages 18-29)	–	–	2.9% (1.5%)
	Employee Attrition Rate (Ages 30-49)	–	–	5.8% (1.9%)
	Employee Attrition Rate (Ages 50-64)	–	–	2.0% (0.7%)
	Employee Attrition Rate (Ages 65 and Above)	–	–	0.1% (0.0%)
	Overall Employee Attrition Rate	–	–	10.8% (4.1%)

[1] Production sites newly acquired in 2016 are included in the environmental data only. New locations do not comprise more than 10% of DyStar's overall energy profile. Hence figures from 2011 to 2015 have not been retrospectively revised to accommodate sites acquired in 2016.
[2] Two production sites have shifted away from purchasing steam externally (indirect energy) to generating it on-site (direct energy)
[3] Depending on the physical and chemical nature of wastewater produced, the various stages of treatment are completed on-site and/or externally by an authorized third-party
[4] Significant spills occurring between 2011 and 2015 have been adjusted to reflect only spills that affected soil or water surfaces.
[5] Non-bracketed figures under Employees are statistics that cover both men and women at DyStar. Where information is available, statistics for women employees are displayed in red brackets ( ).

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At DyStar, our products and services help customers worldwide reduce costs, shorten lead times and meet stringent quality and ecological specifications.

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