

Our strategic approach to sustainability and focus on ecological solutions helps us meet emerging regulatory requirements and increasingly stricter product compliance criteria set by customers. Product responsibility therefore is a key piece of our sustainability approach and strategy. 





# From our Group CEO and President

#### Dear Stakeholder,

I am pleased to present DyStar Group's 2nd Annual Sustainability Report which also includes the Group's carbon footprint report.

We are the leading provider of chemicals and colors for the textile and leather industry. Our strength lies in our ability to continuously innovate and bring to the market state-of-the-art products and solutions that maximize value for customers while reducing impact on the environment and complying with stringent quality and safety regulations and standards.

Our vision is to become the world's most sustainable and responsible supplier of colors, chemicals and services to the global textile industry and environment. Our twofold sustainability strategy is designed to deliver value to customers and the stakeholders as well as to shareholders. Our market-leading products and sustainable solutions help customers to reduce their environmental impact. Initiatives to reduce social and environmental impact in our own operations are resulting in improved efficiency and lower costs. We recognize that demand for high quality chemicals and colors will continue to rise as the global fashion brands intensify their efforts to improve sustainability performance of their supply chain. We believe our aggressive portfolio of sustainable products and services puts us in an advantageous position in the marketplace.

2011 was an exciting year for us. We continued to drive growth in revenue in spite of a challenging economic landscape and market uncertainties. On the sustainability front, we voluntarily adopted targets to achieve 20% reduction in water, waste, energy and carbon emissions by 2020. We reinforced our commitment to sustainability by signing up to the United Nations Global Compact principles. This year's report includes our performance on the ten UNGC principles. We have continued to follow the Global Reporting Initiative (GRI) framework to report on our sustainability performance. In fact, we have expanded the number of GRI performance indicators included in the report this year to provide more information to our stakeholders. As in the previous year, our carbon footprint report this year is prepared using the Greenhouse Gas (GHG) Protocol standards.

Responsible Care®, the chemical industry's initiative to improve health, safety and environmental performance, and SA 8000 standards for social responsibility remain key elements of our sustainability program. Going forward, we are keen to align our sustainability approach with the principles of ISO 26000 Guidance Standards for Social Responsibility.

In terms of sustainability performance in 2011, we largely managed to contain increase in impacts in the key performance areas despite an increase in production volume. We maintained carbon emissions intensity per tonne of production at the same level as in the previous year. In 2011, we started implementing measures aimed at reducing the carbon intensity progressively. We further improved the quality of data gathering processes, added new performance indicators and launched a number of initiatives to support our 2020 goals. Our challenge now is to develop internal capabilities to drive these initiatives across the Group effectively.

We are also mindful of the challenging economic environment that the world faces today. It is therefore important for us to implement a prudent financial strategy that reduces operational costs, improves return on investment and enables us to drive a profitable revenue growth. We look forward to working with our customers, partners, employees and other stakeholders to deliver better value to shareholders as well as to the wider stakeholder's community. We believe in an open, transparent and trusted relationship with our stakeholders. This report is one of the many ways we communicate with them. Your feedback on the report is always welcome. Also welcome are your suggestions on what more we can do to maintain DyStar Group's sustainability leadership. Please send your feedback/suggestions to: sustainability@dystar.com

Harry Dobrowolski Group CEO and President

## About this Report

This is DyStar Group's second annual sustainability report. The report covers our operations in calendar year 2011 and has been prepared using the Global Reporting Initiative (GRI) G3.1 Guidelines. Based on the GRI Application Level Criteria, we self-declare this report to be a Level B report.

The report includes social, environmental and economic performance data for all facilities, business units and subsidiaries that are under the operational and financial control of the DyStar Group. It excludes third party warehouses and agents. Internationally accepted measurement units have been used for all data in the report. All financial figures are reported in US dollars unless otherwise noted.

Information presented in the report has been extracted from primary official documents and records to ensure accuracy. In a very few instances where complete data was not available estimations have been used and this has been indicated in the report wherever applicable.

#### Reporting process

The report was prepared under the direction of the DyStar Sustainability Committee, which has representation from the senior executive management. The report encompasses information relating to all DyStar activities that have a material impact on society and the environment. Our Sustainability Committee assessed and determined the sustainability context, scope, boundary, materiality, and prioritization, of the content included in this report. We aim to report annually on our sustainability performance. A cross-functional project team with representation from all production sites and offices was established to gather, verify and report performance data.

This report also serves as our Communication on Progress (COP) as a signatory to the United Nations Global Compact principles.

A summarized GRI Content Index is included at the end of this report to identify the location of the standard disclosures.

#### **Audience**

This report's intended audience includes a broad range of our stakeholders. Stakeholders are individuals or groups who have the ability to influence, may have an interest in, or may be affected by a company's operations. Our main stakeholders include DyStar employees, customers, suppliers and contractors, shareholders, regulatory authorities, academics, industry associations, non-governmental organizations, peers in the industry, media, and local communities.

#### **Assurance**

We currently do not seek external assurance for the sustainability report. However, a sustainability expert from CSRWorks International, the consulting firm that we hired to assist in preparing this report, tested samples of data for quality, accuracy and consistency. An internal check-and-balance system has also been created to validate data being reported.

#### **Availability**

In line with our environmental policy, we have printed a limited number of copies of this report. A PDF version is available online at www.dystar.com

#### Contacts

For any questions, comments, suggestions or feedback on this report please email **sustainability@DyStar.com** 



## About DyStar Group

DyStar Group, a privately held company, is a global market leader in dyes, dye solutions, performance chemicals, new technologies and custom-manufacturer of special dyes and pigments. DyStar has a legacy of over 100 years of both product and application innovation as a coloration specialist for the textile industry. DyStar offers customers a full range of dyes, auxiliaries and services around the world. We provide products and services across the whole value chain in numerous industrial sectors including apparel, hosiery, automotive, carpets, leather, home textiles, and industrial fabrics.

DyStar started as a joint venture in 1995 between two leading textiles dyes companies Bayer AG Textile dyes division and Hoechst AG Textile dyes division. In 2000, BASF AG Textile Dyes merged into DyStar.

The Group then embarked on an impressive expansion by strategic acquisitions that were pivotal in transforming the company into a solution provider, offering Brands, Retailers and their Industry Partners a complete range of colors, chemicals and services.

In 2002, DyStar acquired Color Solutions Inc. followed by the acquisition of Yorkshire America Inc. in 2004. DyStar continued to acquire more companies to grow in strategic market segments. This included the acquisitions of Rotta Group in 2005, Boehme Group in 2006 and Texanlab in 2007. In February 2010, India-based Kiri Dyes and Chemicals Limited and China-based Longsheng Group jointly acquired assets of DyStar Group out of insolvency. With this acquisition, DyStar Group shifted its business focus towards Asia and established itself in Singapore.

DyStar Global Holdings (Singapore) Pte Ltd, a special purpose vehicle company jointly owned by Well Prospering Limited, a subsidiary of Zhejiang Longsheng Co. Ltd., a leading manufacturer of dyes in China, and India's Kiri Industries Limited, now owns DyStar Group.

In 2011, DyStar Group operated 16 production plants in 14 countries including Germany, Turkey, Portugal, USA, Mexico, Brazil, South Africa, Japan, Thailand, Indonesia, China, and India. With 38 offices around the

world, DyStar employs over 2,400 people and has a marketing network in more than 50 countries. In September 2011, we closed down the Leverkusen site in Germany in an ongoing program to improve operational efficiencies and optimise utilization of resources. Products previously manufactured at this plant have been moved to the other DyStar sites.

Today, DyStar's vision is "To become the world's most **sustainable** and **responsible** supplier of colors, chemicals and services to the **global textile industry."** 

#### DyStar Group at a glance



#### DyStar business units

DyStar Group has a strong presence across the textile and leather supply chain. DyStar products, services and expertise cover dyestuff, raw materials sourcing, color development, sustainable textile processing and textile testing. Our products are compliant with Restricted Substance List (RSL) requirements of various brands and retailers and are also compliant with eco-labelling and certification schemes.





DyStar's main business divisions are as follows:

#### 1. Colors

We are the world's leading supplier of textile dyes. We have by far the broadest product range on the market, covering almost all fibers and quality specifications. We offer a wide range of dyes for cellulosic, acrylics, polyamide, wool and silk, polyester, and textile printing.

#### Reactive dyes

DyStar is a global leader in Reactive Dyes and we take our responsibility for people and the environment very seriously. As a member of The Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD®), we apply the same high standards of safety and ecology worldwide and are committed to the chemical industry's Responsible Care® principles.

Our well-known reactive dye brands include Levafix®, Procion® and Remazol®.

Levafix® Dyes are versatile, high performance dyes with excellent reproducibility and fastness properties in pale and very pale shades.

Procion® dyes guarantee maximum reproducibility and level dyeing in difficult dyeing conditions.

Remazol® dyes offer an extensive range of economical dyes for cellulosic fibers with very good buildup in deep shades.

Procion PX dyes are a full range of powder and liquid dyes for reactive printing of cellulosic fibers meeting increasing quality and ecology demands for apparel and home textiles.

#### Direct dyes

The Sirius® L sub range meets the high lightfastness requirements for furnishing fabrics and home textiles.

#### Vat dyes

Indanthren® dyes are high quality vat dyes for cellulosic fibers. The main use of Indanthren® dyes is in the areas where high fastness and technical properties are specifically required.

Retailers and brand requirements for increased fastness in the areas such as leisure and sportswear and home decoration, supports the demand for Indanthren® dyes. We have recently introduced an Indanthren® brand hang tag to promote articles having high fastness and excellent ecological properties.

#### Acid dyes

Telon® and Isolan® dyes are used on wool and polyamide. Our focus on wool is on differentiated products to meet rising demand for high fastness dyes.

For polyamide, we offer a full product range and have an outstanding position in the carpet industry and growing sportswear sector.

#### Disperse dyes

Disperse dyes are used for polyester dyeing in areas including apparel, sportswear, automotive textiles, carpets and upholstery.

Our disperse dyes brands include Dianix® and Palanil® which fulfill the complicated technical requirements for polyester dyeing market. The "Dianix® Green Range" from DyStar is a carefully selected range of products that complies with the strictest Restricted Substances List (RSL) requirements of the market.

#### 2. Chemicals

We offer an extensive range of textile auxiliaries grouped under the following three categories:

- a. SERA® process chemicals which are used in all textile preparation, pretreatment and dyeing processes
- b. EVO® finishing and effects chemicals, consisting of functional effects chemicals, water-based coating products as well as sizing and yarn lubricants for all kinds of fibers
- c. LAVA® denim laundry chemicals & effects products to create today's and tomorrow's denim jeans fashions

#### 3. Services

- a) *Ecology Solutions:* DyStar Ecology Solutions package is designed to help textile producers meet demand for responsible and sustainable production. As part of our econfidence® programme, we advise customers on issues relating to ecology and recommend suitable products to meet ecological specifications.
- b) Testing Solutions: DyStar service centres offer customers eco, physical, chemical and color fastness testing using international test methods. Texanlab, a DyStar subsidiary, is a leading partner in eco testing, certified to ISO 17025 and an accredited partner for leading international brands and retailers. Our service lab in Frankfurt, Germany is also certified to ISO 17025 and offers a wide range of analytical and eco testing.
- c) Color Solutions: Color Solutions International, a division of DyStar, is a market leader in providing a variety of color solutions to Brands and Retailers. CSI's offerings include readymade colors, custom color matching, design tools and certified color standards for textiles, paper, plastics and packaging.
- d) Sustainable Textile Solutions (STS), a division of DyStar, is dedicated

to helping Brands and Retailers, and their industry partners, implement sustainable textile production that makes more efficient use of resources. STS offers four extensive development programs to customers to improve sustainability in the textile supply chain. These are: Restricted substances list (RSL) development, Textile Mill efficiency improvement, chemical management improvement and environmental improvement program. The STS team has guided many textile manufacturing units in optimizing production and cost while delivering the same or better quality of goods with lower environmental impact.



#### 4. Leather

DyStar makes a compact range of dyes and chemicals for a wide variety of applications for the coloration of leather and fur. Our homogeneous dyes can be combined with each other to give level dyeing from pale pastels to deep, brilliant hues.

As one of the world's leading suppliers of processing chemicals and dyes, we also offer our customers advice on how to optimize the ecological profile of leather production and the application of our products.

Our high-quality products and expertise help partners in the industry work without banned substances, and meet the wide range of test specifications and declarations required. Examples include the SG label for leather produced without toxic chemicals, Oeko-Tex® Standard 100 and the restricted substance lists issued by various brands.

# DyStar Worldwide Locations

- Bangladesh
- Brazil
- China/Hong Kong
- China/Shanghai
- Egypt
- Germany
- India

- Indonesia
- Italy
- Japan
- Korea
- Mexico
- Pakistan
- Portugal

- South Africa
- Spain
- Taiwan
- Thailand
- Turkey
- USA

#### **Global Headquarters**

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- dystar.singapore@dysta
- www.DyStar.com



econfidence from bystur°

DyStar is a member, and actively participates, in a number of industry associations and national and international advocacy organizations. Membership to these organizations helps DyStar engage with diverse stakeholders across the globe and stay updated on issues relating to the industry, sustainability, ecology and corporate responsibility.

The organizations that we support as a member include:

#### 1. CSR, sustainability and ecology organizations

- United Nations Global Compact
- Sustainable Apparel Coalition
- · Textile Exchange
- The Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAD®)
- bluesign®
- Global Apparel, Footwear and Textile Initiative (GAFTI)
- Singapore Compact for Corporate Social Responsibility
- National Committee of Responsible Care®, Indonesia

#### 2. Industry associations

- Textile and Fashion Federation, Singapore
- Brazilian Association of Chemistry, Brazil
- Association of International Chemical Manufacturers (AICM), China
- · China Dyestuff Industry Association, China
- · Ankleshwar Industries Association, India
- Anyer Merak Cilegon Chemical Manufacturer Association, Indonesia
- South African Dyers and Finishers Association, South Africa
- German Chemical Industry Association (VCI), Germany
- Society of Dyers and Colourists
- American Association of Textiles Chemists and Colorists (AATCC)
- American Apparel and Footwear Association (AAFA)

#### 3. Awards and recognitions

DyStar Group's sustainability and management practices continue to receive recognition from stakeholders. The plant in Wuxi, China continued to enjoy the Green Level Enterprise status in 2011, the highest level awarded by the Wuxi Environmental Protection Bureau. The plant in Nanjing, China was recognized as a High Technology Enterprise by the Nanjing government and the site was awarded an advance unit certificate in fire protection ability by the Nanjing Fire Bureau. The Nanjing plant also received "Peaceful Unit" certificate from the local police bureau in 2011.

The DyStar site in Gabus, Indonesia received two commendations for plant safety and fire protection measures respectively from Bupati Serang, the head of local regency.

Our site in Cilegon, Indonesia won PROPER Blue Ranking from the Ministry of Environment under a national award scheme which assesses and recognizes environmental performance of factories. The PROPER award scheme has five levels- Black, Red, Blue, Green and Gold, Gold being the highest level.













## **Corporate Governance**

DyStar is a privately held company; however, we believe in transparency and have therefore voluntarily adopted management policies and structures that support good corporate governance.

DyStar has established a Board of Directors to strengthen corporate governance and oversight. The Board of Directors are responsible for setting broad policies and objectives, long-term business strategy and plans and risk management. They are also responsible for ensuring that adequate financial resources are available, appointment and compensation of senior management, and legal and ethical compliance.

Our Board consists of five members including the Chairman. Each board member offers a combination of strong industry expertise, corporate experience and extensive knowledge of corporate governance issues.

The Board is supported by a number of committees. The Audit Committee helps the Board by providing an independent review of the effectiveness of the DyStar Group's accounting and financial reporting process and material internal controls.

The company has established an Internal Audit function to assist the Audit Committee to evaluate the internal controls by performing regular audits to ascertain the effectiveness of internal control systems, risk management processes, and control and governance processes of the organization.

The Remuneration Committee assists the Board in the review and recommendation of a remuneration framework and specific packages for each Director and the Group CEO and President. The Remuneration Committee ensures that remuneration and Human Resource policies of the company support the strategic objectives of the business and enable the recruitment, motivation and retention of employees.

The Board meets on a quarterly basis to review business and operational plans and strategic business decisions. They work closely with the Group CEO and President who has the responsibility for the executive

management with the help of a senior management team.

The Group CEO and President is responsible for developing strategic plans and policies for approval by the Board of Directors. Other duties include implementing and monitoring business strategy across business divisions, financial and operational management, ensuring organizational efficiency, legal compliance, internal and external communications, and promoting a corporate culture that facilitates achieving business goals.

The Group CEO and President is also responsible for communicating ethical business practices and expectations to all employees through regular communications and periodic company meetings.

DyStar follows an Open Door Policy that gives employees direct access to senior management to address concerns or make suggestions for improvement. Employees can communicate any ethical issues either through contacts points provided by the global compliance officer or by directly approaching the senior management.

#### **DyStar Board of Directors**

Ruan Weixiang, Chairman Manish Kiri, Director Chang Sheng, Director Xu Yalin, Director Amit Mukherjee, Director

#### **DyStar Senior Management**

Harry Dobrowolski, Group CEO & President

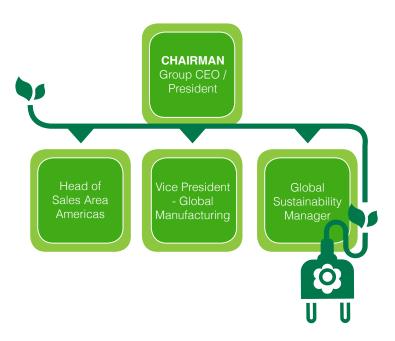
Viktor Leendertz, Group CFO & General Manager DyStar HQ

Eric Hopmann, Sales Area Management – Europe

Klaus Kadletz, Sales Area Management – TAME (Turkey, Africa & Middle East)

Ron Pedemonte, Sales Area Management – Americas

#### DyStar sustainability committee structure:



#### Sustainability structure

Our commitment to sustainability begins at the very top. The Group CEO and President chairs the Sustainability Committee which has the overall responsibility for directing DyStar's sustainability strategy.

The sustainability committee includes Head of Sales Area–Americas, Vice President - Global Manufacturing, and Global Sustainability Manager. The committee works closely with a global sustainability project team to drive the sustainability program at all levels. The project team includes heads of production plants and designated sustainability champions in countries.

The committee is responsible for setting broad sustainability agenda, selecting GRI performance indicators, identifying sustainability goals and objectives, launching initiatives, and reviewing incoming sustainability data and overall performance.

The committee regularly reviews sustainability progress including the principles and performance relating to occupational health and safety, environment management system, Responsible Care®, and ethical code of conduct.

The responsibility for gathering data and information for sustainability reporting, reviewing sustainability performance and implementing sustainability initiatives at the site level lies with the global sustainability project team.

DyStar's Global Sustainability Manager coordinates the work of the sustainability committee and the global sustainability project team.

Each production site continues to have a Health, Safety and Environment (HSE) Committee and an Environmental Management Systems (EMS) committee for ensuring continuous improvement in occupational safety and environmental performance.

## **Ethics and Compliance**

#### **DyStar Code of Conduct**

DyStar Group is committed to conducting business in an ethical manner and in compliance with all applicable regulations. The company has implemented a comprehensive Code of Conduct that is binding for all employees and Group companies. The Code of Conduct sets out our legal and ethical principles.

Our Code of Conduct, approved and signed by the CEO, has been made available to all employees and has been published on the company intranet. All employees are required to regularly consult the Code of Conduct to ensure their conduct is compliant with it.

A Compliance Officer, with direct access to the CEO, is available for employees to consult and support with regard to the application of DyStar Code of Conduct.

Our Code of Conduct includes the following principles:

- 1. **Compliance with laws:** Requires compliance with prevailing country laws, international public laws and international trade laws.
- Intellectual property protection: Sets out rules for protecting intellectual property of the company as well as that of customers and others.
- 3. *Fair competition:* Sets out commitment to responsible competition and compliance with anti-trust regulations.
- 4. **Separation of private and company affairs:** Deals with issues relating to conflict of interest.
- 5. Safety, health and environmental protection: Includes commitment to set clear corporate goals, promotion of open dialogue, product responsibility and environmental protection. It also covers health and safety at work, plant safety and prevention of accidents and using the same safety and environmental standards for technology transfer.

- 6. **Product and service quality:** Includes commitment to high standards of quality in products and services offered,
- 7. *Relationships with employees:* Sets out the company's commitment to respect rights of employees. This includes policies of non-discrimination, no child labor and no forced labor,
- 8. **Cooperation with authorities:** Describes the company's commitment to maintain a cooperative relationship with all competent legal authorities while safeguarding rights of the company and those of DyStar employees.

Detailed DyStar Code of Conduct is available on www.DyStar.com



#### DyStar compliance management

Compliance is an essential element of a good management practice with the aim to reduce risks and increase efficiency. We have a comprehensive structure and mechanism in place to ensure compliance.

Global Compliance & Quality Management (GCQM) is globally responsible for the organization and coordination of compliance tasks. GCQM conducts periodic compliance audits to identify areas for improvement. Audit reports are reviewed by the senior management.

Compliance management includes all measures to support the adherence of processes, rules of actions, laws and standards, social accountability guidelines, code of conduct, company guidelines and management directives by DyStar staff.

We believe that effective compliance can result in positive performance, improvement of processes, a higher motivation and reduced cost for the company.

DyStar compliance management aims to achieve the following objectives;

#### . Minimizing risk;

- Prevention of breaches of regulations
- Avoidance of legal sanctions
- Avoidance of possible claims for damages
- Loss of image for the company
- Avoidance of customer losses
- Avoidance of violation of safety regulations (e. g. products, plants, procedures)
- Improvement of the rating of the company

## II. Raising the awareness of employees for the adherence of regulations through regular training

#### III. Public image;

- Building reputation of the company
- Gaining the trust of customers and authorities in the company
- IV. Control of the applicable regulations and standards in the company

We have adopted a management system approach to managing quality across the Group and all 38 DyStar sites worldwide are ISO 9001 certified.



## Our Stakeholders

DyStar is a truly global company. In 2011, we operated production plants in 12 countries spanning four continents. We have more than 25 offices worldwide and agencies in 50 countries.

Our global operations bring us in direct or indirect contact with a variety of stakeholders. It's important for us to build and nurture relationships based on mutual trust and respect. We believe in having open dialogue with stakeholders and have multiple channels of communication to help facilitate engagement. Engaging with stakeholders helps DyStar make sound business decisions and reduce reputational risks. It has also helped us strengthen our sustainability strategies.

We have employees, customers and suppliers across the globe. We interact with a number of government agencies and regulators in the countries where we do business. We care for the well-being of neighbouring communities where we have operations. We actively work with the chemicals and textile industries on important issues. We also participate in a number of multi-stakeholder initiatives to improve industry performance.

#### Sharing knowledge to promote sustainability

Texanlab, a DyStar subsidiary in India, actively engages with industry partners and stakeholders to share its expertise and knowledge of ecological parameters in textiles testing. In 2011 Texanlab hosted, and participated in, a number of sustainability seminars to promote sustainability practices in the industry.

Some of the events Texanlab participated in are:

- Presentation at Sustainability Seminar organized by DyStar in Singapore, March 2011.
- Presentation about RSLs to Polo Ralph Lauren® HK office, HK, March 2011.



- Presentation on Sustainability and RSLs at SDC Conference in Dhaka, April 2011.
- Conducted Seminar on Ecology and Sustainability for the Textile Industry: Karachi, Pakistan, May 2011.
- Spoke at Seminar on Ecology, Sustainability and Restricted Substances to SEWA (South East Asia Women Entrepreneurs Association) under the aegis of UNEP, June 2011.
- Organized and presented at Control Union's GOTS Seminar, Oct 2011.
- Presented at Seminar on Ecology, Sustainability and Restricted Substances plus EU Flower organized by CUTS and Texanlab, December 2011.
- Was Panel Member and Panel Chairman at the Textile Association of India's Mumbai Annual Conference: Sustainability in Apparel and Home Textiles.
- Attended GAFTI Product Safety meetings and holds membership of the Product Safety Committee of GAFTI.

"Maintaining strong relationships with our suppliers is paramount to our continued success. DyStar's focus on sustainability has helped strengthen our partnerships with the major players in today's supply chain."



Klaus Kadletz Sales Area Manager - Middle East and Turkey

#### Here is an overview of how we approach stakeholder engagement:

St	akeholders	Stakeholder expectations	Our responsibility	How we engage
	Customers	Deliver high quality products that meet various compliance requirements. Provide product integrity information. Provide sustainable products and services that reduce their environmental impacts.	Continuously improve quality of products and services. Invest in research and development facilities to develop more ecological products and services.  Promptly supply information on products' compliance with various standards and regulations.	Organize seminars for customers on ecology and sustainability. Hold regular meetings with customers to exchange information.  Attend industry forums and conferences.  Provide information through various channels such as our website, product brochures and updates.
	Suppliers	Establish long-term relationships. Collaborate on supply quality products and services. Fair selection, and respect for contractual obligations.	Develop a network of reliable suppliers and work closely with them to source high quality products and services.  Influence them to continuously improve their social and environmental performance.	Ongoing dialogue with our key suppliers to better understand and explain issues relating to quality, social, and environmental performance.
	Employees	Safe workplace where employees are valued and respected. Reward for performance. Opportunities for growth and fair treatment of all.	Encourage an open-door policy to provide employees at all levels access to management for sharing views and offering feedback.  Keep the emphasis on workplace health and safety at our production plants. Ensure ethical and fair employment practices.  Reward and recognize performance.	In 2011, DyStar signed the Employers' Pledge for Fair Employment Practices in Singapore. See more in Employees chapter of this report. Continuously review HR policies for fairness and relevance. Interact with employees in a number of ways on daily basis. Send all relevant information to employees through the company's intranet, newsletters, and updates from senior executives including the CEO. Encourage an open climate of trust where employees can feel comfortable to express their views and share ideas for making DyStar a better workplace.
 	Government	Comply with local, state and federal regulations.	Commitment to operate our business in ethical and responsible manner. Provide resources and tools to local management to ensure compliance with labor, environmental, health and safety and business regulations.	Work with government agencies to promote environmental health and safety practices. Respond promptly to government requests for information.

"All of our stakeholders play a key role at
DyStar. We work closely with our customers to
reduce our overall impact to the environment.
Last year, 2011, was an extremely successful
year and we were able to complete a number of
projects which yielded significant environmental
benefits. These efforts continue to be of paramount
importance to us and we will take to this to the
next level in years to come."



Rajesh Balakrishnan Sales Area Manager South Asia and Country Manager India

Stakeholders	Stakeholder expectations	Our responsibility	How we engage
Community and NGOs	Safety from potential hazards of business operations. Prevention of pollution and contamination. Support for community development.	Stringent plant safety procedures to prevent spills and accidents. Contribute to the wellbeing of neighbouring communities.	Establish contacts with local NGOs directly or by attending conferences and seminars. Establish dialogue with the local community. For example, DyStar plant management at Gabus, Indonesia meets quarterly with the community leaders from the neighbour village to discuss any pertinent issues. See chapter on Society for more examples.
Corporate Social Responsibility advocacy groups	Operate business with social and environmental responsibility. Disclose material information.	Communicate our sustainability strategies and programmes. Report on our impacts and actions being taken.	DyStar became a signatory of the UNGC in 2011. DyStar also joined Singapore Compact for Corporate Social Responsibility in 2011. Attend corporate social responsibility seminars and conferences to meet interest groups. This report is a key initiative to report on our social and environmental performance and invite feedback from interested groups.
Industry associations	Contribute to addressing issues facing the industry.	Share necessary information and experiences to help articulate industry response to social, environmental and economic issues.	DyStar is a member of several national and international chemicals and dyestuff industry associations worldwide. Our local managers actively participate in these groups. Signatory of Responsible Care®, a chemical industry-led initiative to drive continuous improvement in health, safety and environmental performance.
Media	Prompt response to questions and enquiries. Information about company performance, new products and services.	Offer information in a timely, efficient and transparent manner.	Provide regular updates to media outlets through press releases. Media briefings.  Media interviews with key executives.
Shareholders	Reasonable return on investment, Sustainable and long-term growth of business.	Create well informed business strategies. Implement Strategies effectively. Build long lasting brand equity.	Periodic meetings with key shareholders to update them on the company performance and sustainability initiatives.

# Sustainability Strategy and Management Approach

Our management approach to sustainability is based on identifying material impacts of business and then managing these impacts to maximize societal, environmental and economic value for stakeholders and shareholders.

To better understand DyStar's operational impacts, our sustainability project team carried out a materiality analysis in 2011. The analysis gave us a useful insight into the key impacts of DyStar business operations. The exercise helped us to assess potential risks and opportunities arising from aspects of sustainability. More importantly, the analysis enabled us to identify and prioritise issues that are most important to our business as well as to our stakeholders.

Our management approach to sustainability has been shaped by feedback from customers, studies of global trends in sustainability, discussions at various corporate responsibility and industry forums, research into emerging issues in the chemicals industry and the textile, apparel and leather supply chain, along with valuable input from external consultants and academics.

We are in the business of manufacturing and supplying dyestuff and other chemicals used by the textile and leather industry. Our business operations involve the transportation, storage, handling and processing of a wide variety of chemicals. We use energy, water, chemicals and other raw material, and generate waste and wastewater. Working with chemicals poses potential health and safety risks. As a constituent of the chemicals industry, DyStar operates in a heavily regulated market requiring compliance with a number of national, regional and international regulations and standards.

Based on the materiality analysis, we have identified energy, greenhouse gas emissions, water, wastewater, and solid waste as the most material environmental issues.

Plant and chemical safety, spills, accidents and occupational health and safety are considered as the main health and safety concerns.

Sustainability at DyStar is not an isolated function. Sustainability is rather deeply embedded in DyStar's business model which is designed to meet the textile and leather industry's growing demand for safer chemicals while reducing the impact of own operations.

DyStar has a legacy of over hundred years of respect for the environment, safety, quality and innovation. In 2011, we adopted a new and more focused approach to drive sustainability through identifying, measuring and managing material impacts and monitoring and reporting on our performance. This approach has helped us gain new insights into the potential impacts that our global operations have and the opportunities for taking our sustainability performance to the next level

The renewed drive for sustainability excellence at DyStar started with the publication of our first carbon footprint report and the first sustainability report in 2011. The reporting exercise helped us to establish base year for key performance indicators and set specific targets for improvement. We have committed to disclosing our carbon footprint and sustainability performance on annual basis.

Now that processes for measuring and reporting material impacts are firmly in place, our challenge is to find creative and viable ways to reduce our key impacts that mainly include energy, carbon dioxide emissions, water, wastewater and waste. A number of initiatives are already underway across the Group in these areas and we look forward to an exciting journey ahead.



Dr. Charu Jain Global Sustainability Manager DyStar Group

"Despite encountering some challenging circumstances in 2011, including a price war and short supply of dyes in the market, we have managed to sustain sales and we expect sales growth in 2012. Our global efforts have ensured we continue to hold market share, product quality, solid organization and outstanding technical service."



Sunarto Djuardi Sales Area Manager - South East Asia

We employ a diverse workforce worldwide. Managing diversity, ability to attract and retain talent, people development, career growth, job satisfaction, reward and recognition and respect are the most relevant employee issues.

Product integrity, appropriate labelling of products, compliance with regulatory requirements on restrictive substances and providing complete product safety information are important to ensure health and safety of the users of DyStar products.

Our customers, who largely belong to the textile industry, expect us to continuously innovate and offer eco-friendly products and services with lower environmental impact.

Our sustainability approach to various sustainability aspects is outlined below.

#### **Economic performance**

We believe that creating societal and environmental value is integral to sustaining long-term shareholder value. For example, reducing consumption of energy and waste lowers costs for the company and minimizes impact on the environment. We therefore place sustainability at the core of our business strategy.

Our approach is to achieve sustained business growth and reasonable return on investments by continuously making our operations efficient, ensuring quality and service excellence, and offering innovative and eco-friendly products.

Encouraging local sourcing, integrity and good corporate governance, paying taxes, generating employment opportunities and investing in the local communities where DyStar operates, are important aspects of our sustainability strategy.



#### **Environment**

As a chemicals company, managing environmental impacts is material to our sustainability strategy. Continuously improving environmental performance is a key sustainability goal. DyStar facilities have adopted an Environmental Management System approach to progressively minimize the impact of business operations on the environment. Three of our plants have obtained ISO14001 certification and plans for other locations are under consideration.

We are at the heart of the global textile, apparel and leather supply chain and the chemicals industry. We produce and market dyes, colors and chemicals needed by the textile, apparel and leather industry for processing. DyStar in turn needs chemicals as raw materials to produce dyes and colors.

Water, a crucial natural resource, and energy, a key source of greenhouse gas emissions, are used to produce dyes and colors. The production processes also generate wastewater and solid waste.





Dr. John Easton Global Ecology Services Manager

As the main consumer of dyes and colors, the textile, apparel and leather industry, also uses significant amount of water and energy while using these products to process fibers and fabrics. We therefore see twin opportunities and motivations to reduce energy and water consumption in our own operations and also in customers' operations. Introducing innovative products and services that help our customers to reduce their water and energy consumption helps us to grow our market share of ecological dyes and colors. It also positions the DyStar brand favourably in a market where apparel and textile brands are continuously looking for ways to make their supply chain more sustainable.

Our strategic approach to sustainability and focus on ecological solutions helps us meet emerging regulatory requirements and increasingly stricter product compliance criteria set by customers. Product responsibility therefore is a key piece of our sustainability approach and strategy.

We have implemented mechanisms for measuring, tracking and reducing environmental footprint with particular emphasis on energy, greenhouse gas emissions, water, waste and wastewater. We have established goals and targets for reducing energy consumption, greenhouse gas emissions, waste and wastewater. At the same time, we continue to invest in developing eco-friendly products and services.

#### **Labor practices**

Our operations involve the handling and processing of chemicals, many of them considered hazardous, so safety at our production plants is of paramount importance. Workplace accidents can not only cause potentially serious injuries but may also result in lost workdays, increased medical and compensation costs, lower employee morale and poor corporate image. Minimizing occupational hazards is therefore crucial for keeping our employees safe and for ensuring uninterrupted production operations. Stringent safety measures are central to our plant management system. All DyStar production sites regularly monitor and review occupational health and safety procedures and adherence to these procedures.

We operate and compete globally with more than 35 offices around the world. Our workforce is equally diverse. We rely on our people to champion our products and services in the marketplace with passion. We depend on our talented scientists to develop innovative products in DyStar laboratories, and we bank on the production and quality staff to ensure high quality products. We rely on a host of other employees to provide critical support to run our business.

Investing in people by providing regular training and development opportunities, promoting diversity, ensuring fair employment practices, fostering a culture of merit and performance-based reward system, and complying with national labor regulations are important aspects of our approach to sustainability.

Nurturing people and promoting a workplace where people feel safe, valued and respected is the foundation of our sustainability approach and strategy. In 2010, DyStar's new management publicly reiterated commitment to the principles of SA8000.

Our company fully supports and endorses Responsible Care® Global Charter, the chemical industry's global initiative that drives continuous improvement in health, safety and environmental (HSE) performance, together with open and transparent communication with stakeholders.

In 2011 we signed up to the United Nations Global Compact principles. Singapore-based headquarters of DyStar signed the Employers' Pledge for fair employment, a tri-partite initiative jointly promoted by the government, business and labor.

#### **Human rights**

Our values, policies and practices are guided by international standards and principles, which include;

- The International Labor Organization's (ILO) core labor standards
- Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (MNE Declaration)
- The Universal Declaration of Human Rights



- The OECD Guidelines for Multinational Enterprises
- The United Nations Global Compact Ten Principles
- SA8000 Standards

DyStar has a strict policy to ban child labor, forced and compulsory labor, and discrimination. Our employment policies respect workers' right to freedom of association and collective bargaining. We are committed to identifying potential human rights risks across business operations and taking necessary measures to prevent violations.

#### Society

DyStar believes in being a good corporate citizen. Collaborating with industry partners, academic institutions, government agencies, community leaders and NGOs to address societal issues is the foundation of our approach to society. Sharing our technical knowledge and expertise to build strong communities is a key area of our interest. For example, we are supporting practical training and skill development of textile graduates in India to improve their employability.

Integrity and ethical conduct in all transactions is part of DyStar's corporate governance policies and ethical code of conduct. We strongly believe in fair competition and are committed to complying with anti-Competition laws of countries where we operate.

All DyStar employees are required to uphold high standards of ethics and integrity in all transactions with all parties. We currently do not formally analyze business units for risks related to corruption. However, we follow a zero-tolerance policy toward any kind of unethical conduct including bribery.

#### **Product and services**

DyStar is committed to ensuring necessary transparency and disclosures in advertising and marketing material and materials for products and services. We support and follow industry guidelines for ethical practices in marketing communications. Product information that we provide is guided by a number of national and international regulations and certification standards including REACH, Responsible Care®, the Global Organic Textile Standard (GOTS), Restricted Substances List requirements, and EU Ecolabel- Flower among others.



## **Our Guiding Principles**

DyStar's business is based on respect for people and the planet. Our core values, code of conduct, policies and practices are guided by international standards and principles and local regulations relating to human rights, workers' rights, workplace health and safety, environment protection and ethics.

Some of the international principles that we are committed to conform to include:

- The International Labor Organization's (ILO) core labor standards and Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (MNE Declaration)
- The Universal Declaration of Human Rights
- The OECD Guidelines for Multinational Enterprises
- The United Nations Global Compact Ten Principles
- SA8000® Standards
- The Responsible Care® Global Charter

#### **DyStar Core Values**

We have adopted a set of seven core values that define our brand and continue to be the cornerstone of our business. DyStar Core Values are our management beliefs that everyone in the company is required to practice in day to day decision making.

The seven core values that guide and inspire every aspect of our business are:

- Knowing the brands and retailers: We are creative in delivering value into the total supply chain from concept to consumer. We anticipate change and capitalise on the many opportunities that arise.
- People excellence: Our success is dependent upon the collective energy and intelligence of our people. We strive to create a work environment where they can flourish and succeed to their highest potential. We appreciate efforts and reward results.
- 3. **Product quality:** We work together to produce a superior product, to provide superior service, and to maximise the mutual growth of our customers and our company.

#### **United Nations Global Compact**

In 2011, we became a signatory of the United Nations Global Compact (UNGC). DyStar Group's approach to business has always been based on respect for employees' rights, human rights, environment protection and integrity. Endorsing UNGC Ten Principles reaffirms DyStar Group's ongoing commitment to conducting business with responsibility.

As a UNGC signatory, we have committed to embrace, support and enact, within our sphere of influence, the following UNGC principles:

#### **Human rights**

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
- Principle 2: make sure that they are not complicit in human rights abuses

#### Labor

- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: the elimination of all forms of forced and compulsory labor;
- Principle 5: the effective abolition of child labor; and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

#### **Environment**

- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

#### Anti-corruption

• Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

To learn more about the UNGC, visit www.unglobalcompact.org

- 4. *Integrity:* We do not compromise on integrity. We do what is ethically and morally correct.
- Expertise in application: We continuously look for new ways to improve our products, services and processes. We strive for flawless execution.
- Leadership in ecology and environment: Dedicated to lead with
  effective ecological and environmental management solutions
  designed to reduce and limit the impact of our operations and our
  customers have on the environment.
- 7. *Innovation:* A learning environment with extraordinary potential for innovation. Constantly challenging conventional ideas to remain at the leading edge of the industry.

#### Responsible Care®

Responsible Care® is the chemical industry's global initiative that drives continuous improvement in health, safety and environmental performance, together with open and transparent communication with stakeholders. DyStar fully supports and endorses the Responsible Care® Global Charter.

We have implemented a detailed programme in line with the principles of Responsible Care®. That involves:

- The safe production, handling, transportation, application and disposal of our products
- A responsible attitude to the environment and natural resources
- Protecting our employees from accidents and health hazards
- Treating employees, customers and suppliers fairly, respecting people and avoiding discrimination

# DyStar guidelines for Responsible Care® in environmental protection and safety

#### Dialogue

Responsible Care® is intended to generate trust. A clear and open dialogue should therefore be initiated with all parties involved, including customers, consumers, employees, neighbours and other members of

society. The concerns and suggestions of all stakeholders should form part of this dialogue. Customers, employees and members of the public must be kept informed about current trends and developments in environmental protection and safety at DyStar.

#### **Product stewardship**

Our products must be safe for humans and the environment during manufacture, transportation, storage, use and disposal.

The products are constantly monitored to identify any hazards they might potentially cause. Preventive measures must be planned to limit or avoid any hazard.

DyStar advises customers, distributors and freight companies on how to handle, transport, store, use and dispose of the products safely.

#### **Environmental protection**

DyStar's management and employees are responsible for ensuring necessary resources, action, information and organization to ensure environmental protection.

Initiatives for environmental protection include:

- Complying with laws and regulations in operating production facilities in a manner that ensures safe handling of products and
- Using environmentally compatible methods for disposal of waste
- Reviewing production processes and reviewing them where possible to reduce raw material and energy input
- · Reducing emissions
- · Reducing and, where possible, recycling waste
- Developing in-process measures to replace end-of-pipe environmental technologies

#### Occupational health and safety

The company must protect its employees from direct and long-term health risks by identifying health hazards and providing information,

training and suitable protection.

With the active assistance of its employees, we have implemented an occupational health and safety policy covering:

- Operating procedures
- Occupational safety
- · Preventive healthcare
- Safe technology
- Hazardous substances
- Production processes



#### Plant safety and hazard prevention

Plants must be designed for safe operation. Hazard potential and risks associated with processes must be identified, assessed and kept to a minimum through the selection of suitable processes.

Subcontractors working on DyStar sites are chosen based on their performance with respect to safety, health and environmental protection. Systematic methods must be used to develop safety concepts including the following:

- Plant safety must be the subject of continual improvement
- Technical standards in plants must be adapted in line with technological advancements
- Technical equipment must be inspected regularly and systematically

- Effective measures must be planned to deal with incidents and limit their impact
- A detailed hazard prevention plan must be drawn up for all plants
- Employees must be trained to handle plant and equipment
- Action to be taken in the event of emergencies and hazardous situations must be practised

#### **Technology transfer**

We apply the same environmental protection and safety principles worldwide. The transfer of technology and knowledge within the Group ensures that all DyStar companies are in a position to implement the same environmental protection and safety principles and standards.



For more information on Responsible Care®, see  ${\bf www.responsiblecare.org}$ 



## **Product Stewardship**

For us, product stewardship means responsibility to continuously reduce our products' safety, health and environmental impacts. Product stewardship is DyStar brand's core strength.

Apart from our own research and development efforts to develop new products that reduce health, safety and environmental impacts for customers, our product stewardship program has included compliance with international legislations and standards such as REACH and GHS (the United Nations Globally Harmonized System of Classification, Labelling and Packaging of Chemicals).

#### **REACH Implementation Update**

#### DyStar is well prepared for the 2013 registrations

REACH (the Registration, Evaluation, Authorization and Restriction of Chemicals) is the European Community Regulation on chemicals and their safe use to protect the environment and health, which came into effect June 1, 2007. REACH continues to be the most demanding international chemicals legislation. REACH implementation has been a top priority at DyStar from the beginning.

We successfully completed the REACH registration Phase-I in 2010. DyStar is now concentrating on Phase-II of REACH, tonnage band 100 – 1000 t/a, a range where the registration of a significantly higher number of dyes will have to be managed before mid-2013. DyStar is well prepared to meet the deadline of May 31, 2013.

The REACH Regulation places greater responsibility on the industry to manage the risks from chemicals and to provide safety information on the substances. The regulation requires manufacturers and importers to gather information on the properties of their chemical substances, to facilitate their safe handling, and to register the information in a central database run by the European Chemicals Agency. Dyes and chemical suppliers face an enormous task in complying with REACH. The legislation requires all suppliers of dyes and chemicals who produce inside the European Economic Area, or import into Europe, to pre-register and then register the substances within the deadlines laid down in

the Regulation for the various tonnage thresholds. In October 2008, the European Chemical Agency published for the first time a Candidate List of Substances of Very High Concern for Consultation under REACH. Since then the list has been updated and amended several times and currently includes 84 chemicals or chemical groups. We are already in a position to declare that DyStar products do not intentionally contain any of the 84 substance groups that have been proposed in the ECHA Candidate List of Substances.

In Phase-III, registration deadline for produced or traded substances in quantities of one tonne or more per year is June 1, 2018.

DyStar's strategic planning of new and on-going activities also consider the REACH impact. We proactively contact the European Chemical Agency to submit all relevant information ensuring REACH compliance. We intend to register all individual substances contained in its products within the respective deadlines. DyStar has successfully completed many registrations of new chemical substances according to chemical regulations worldwide. We are proud to be the owners of a comprehensive archive of toxicological testing reports on a large number of dyes.

#### **REACH and DyStar customers**

REACH has placed greater responsibility on textile producers for all stages in their supply chain. Non-European manufacturers and their importers who export to the EU are required to comply with REACH. In the course of implementation, supply chain communication is one of the major challenges of REACH. DyStar has taken steps to strengthen communication with customers and offer necessary support. DyStar has launched an online service portal for customers where they can inform the company of their intended uses and to enable them to report on applications currently not covered. By using our products, customers can have confidence that textiles imported into Europe are REACH-compliant.

#### DyStar R&D

Research and Development (R&D) is one of the core values at DyStar and is part of the corporate DNA. We have an active Research & Development





Dr. Clemens Grund Vice President, Technology

Department tasked with inventing new dyestuffs and processes for synthesis and application to support our leading position in the textile dyes and auxiliaries industry. We have a rich heritage of more than 150 years of R&D including intellectual property inheritance from BASF, Hoechst, Bayer, Mitsui, Mitsubishi and Zeneca. The R&D results, new products and technologies designed and developed in R&D and multidisciplinary teams are protected in more than 1,700 patents and patent applications.

Through focused R&D efforts including strategic collaborations with customers, industry partners, and institutes and universities, we continue to meet, and successfully anticipate, customers' needs. We offer innovative solutions for contemporary, complex issues in the textile value chain. These primarily refer to high performance textile dyes and auxiliaries of improved ecological profile and consistently high quality that enable optimized coloration technologies of superior technical, environmental and economic performance. One of the key innovation goals for DyStar's R&D is to help customers to achieve new milestones in terms of product and process excellence, including shorter or more economical dyeing procedures, reduced water and energy consumption and lower waste water and polluting effects.

We have also globalized our R&D footprint to gain market proximity and insight, and to be closer to our customers in Asia-Pacific, and have opened a new R&D centre in Singapore. Here scientists graduated from top universities around the world are working together with internal and external experts to invent new sustainable solutions for all the major textile fibers (conventional and new developed fibers), as well as to develop customized solutions to solve existing technical problems of major customers.

#### **DyStar and GHS**

Besides REACH, the United Nations' Globally Harmonized System of Classification, Labelling and Packaging of Chemicals (GHS) is one of the most important issues for the chemicals industry. GHS is an internationally accepted system and is designed to replace different

classification and labelling systems in different countries by one global system. GHS sets rules for classification and labelling of chemicals so that hazardous chemicals will be labelled according to the same rules using the same pictograms, hazard phrases and precautionary phrases world-wide. Safety Data Sheets will have to be harmonized as well.

Almost all major countries have already implemented the GHS. Our experts have successfully implemented GHS in those countries where already required and will be able to supply in time GHS labels and Material Safety Data Sheets (MSDS) for those countries which are still in the transition phase. For more information on DyStar's REACH compliance, visit www.DyStar.com For more information on the REACH regulation, visit www.echa.europa.eu

#### **Product safety**

The marketing of textile dyes and auxiliaries is influenced not only by our customers' requirements, but also by the need to conform to the requirements of national and international chemicals legislation and environmental regulations. DyStar has implemented a comprehensive control system to ensure that only the products that meet the applicable safety and environmental regulations are supplied to the market. The system monitors products before as well as during marketing for safety and environmental compliance. This control system has been in place for many years and is now an integral part of our approach to the market and carries the brand name econfidence® which is a worldwide registered trademark of DyStar.

Our product safety system enables the effective marketability of our products by taking into account hazard warning labels, shipping classification, generation of material safety data sheets, codification of products and regulatory requirements. Our technical specialists work closely with customers on the use of our products and advise them on compliance with safety and environmental regulations relating to these products.

A robust product safety and ecology policy framework and system ensure uninterrupted marketability of our products and protect DyStar's environmental reputation.



## Sustainable Products and Services

DyStar's commitment to inventing and delivering sustainable products and services to Brands, Retailers and their Industry Partners has become part of our daily work culture and is unrivaled in the industry.

To deliver this commitment, each new product and service that we develop must eliminate or minimize the three common failures that we recognize in today's supply chain.

#### 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 inspiration. It's the wrong color. How does this happen? It's caused by a failure to communicate the color properly from designer to vendor and textile mill. Color failures cost time and money, which result in compromised time-lines and delays that produce costly late charges for everyone in the supply chain. Consumers expect to buy that perfect color at the best price. To meet these demands, there is no room for color failures.

#### Damage to Brand Integrity leads to value loss of the Brand

Identifying and protecting your Brand Integrity in the 21st century has become a daunting task. The manufacturing and sourcing of fabrics and garments is dynamic and multi-national. The supply chain is lengthy, fragmented and not transparent. NGOs and public groups are voicing concern regarding corporate social responsibility, environmental issues and chemicals in consumer products. The communication of these issues spreads rapidly through social media platforms. As a result, Brand Integrity is under siege and the potential for damage and value loss to investors and shareholders is paramount.

#### **Unhappy Customers lead to lost business**

consumer demands for higher quality at lower prices are pressuring Brands & Retailers. Customers are seeking functional garments that are designed to be low impact on the environment and long-lasting. Even one unhappy customer can have a significant impact through Facebook®, Twitter®, and other social media avenues. The lengthy, multi-national and fragmented supply chains challenge the ability of Brands & Retailers to meet these quality demand and price points. Returns are common and can be attributed to light-fastness, perspiration light-fastness, wet rubbing fastness and color loss after multiple washes. Even more alarming is the presence of restricted substances on the fabrics and garments. If these failures reach the consumer, confidence and value is lost in the Brand.



Ron Pedemonte Sales Area Management <u>Ameri</u>cas

"Our products are of high quality and sustainable . Our product portfolios are continuously screened for eco-compliance and we never compromise in this respect. We strive to offer the best products, for tomorrow's requirements."



Fanny Vermandel Marketing Director, DyStar Coloration Business

We believe our commitment to sustainability has played an important role in making DyStar a dominant player in the market. We are pioneers in offering eco-friendly dyes and services for the textile and leather industry ahead of competition. Eco-friendly products and ecology services continue to be a key growth driver for DyStar.

To us, sustainability means being able to continuously innovate and introduce eco-friendly dyes, services and solutions in the market. This translates into working closely with brands, retailers and their suppliers to develop solutions that help them reduce their environmental impact. Creating awareness about eco-friendly products and solutions and educating the supply chain in the use of such products is also an important part of our shared responsibility. We do so by organizing seminars, regular meetings with customers and by offering information through a variety of communication channels.

#### Sustainable products

We offer a range of sustainable products for the textile industry, which help promote sustainability across the supply chain.

#### **GOTS approved dyes & chemicals for Organic Textiles**

DyStar offers a wide range of colorants and auxiliaries that have been specifically approved for use on organic textiles by certification organizations such as Control Union Certifications (CU) and the Institute for Marketecology (IMO), the first approved body to offer certification under the Global Organic Textile Standard (GOTS).

We were one of the first companies to have its dyestuffs approved by GOTS for organic textiles. DyStar now offers an extensive range of dyes and auxiliaries, which are approved under GOTS version 3.0.

DyStar experts in cotton processing have defined how to use GOTS-approved products to achieve sustainable and optimized results in organic cotton processing using Best Available Technology in pretreatment, dyeing and finishing.

#### Low impact dyes

Reactive dyes are one of the most important dye classes for coloration of textiles. The requirements for these dyes are challenging and diverse. High color fastness performance, very high rates of Right First Time (RFT) dyeing, high fixation levels, low salt requirement, and easy wash off behaviour are frequently demanded by dyehouses. Additionally, requests from Brands & Retailers regarding compliance with their Restricted Substance Lists (RSL's) and generally for more sustainable coloration processes are increasing. DyStar developed three new reactive dyes in the range of Levafix® CA dyes in 2011 which support greater sustainability and have improved product performance.

#### Levafix® CA reactive dyes

Like diamonds, almost all Levafix® CA dyes are characterised by their 'single molecule' structure. Using multiple reactive groups they have been designed to deliver superior fastness qualities, outstanding dyeing behaviour and a fixation level above 80%.

In most cases reactive dyes within the Levafix® CA range represent the Best Available Technology regarding challenging fastness requirements. Because of their impressive ecological profile, (e.g. all are free of AOX), Levafix® CA dyes are also in compliance with important Brand & Retailer RSL's and most of them are approved for bluesign® and GOTS.

Two years ago, DyStar launched a new Levafix® Brilliant Red CA with good light and excellent oxidative detergent fastness properties. Levafix® Dark Blue CA was launched in 2011 closing the techno-commercial gap between common (low light fast / low cost) navies and expensive (but high light fast) copper formazan based blues. The launch of the DyStar Levafix® CA range created a milestone on the journey towards economic dyeing of cellulosic fibers combined with improved ecological performance. All Levafix® CA dyes are characterised by their homogeneous dyeing behaviour. Their outstanding combinability and their low sensitivity to small changes in the dyeing parameter leads to high RFT rates.



"DyStar Japan continues to receive a number of requests to release the ecological certification of our products. These requests are increasingly coming from our customers who are becoming more concerned with our approach to ecological issues. Our contact Testing Solution continues to be a reliable partner to our ecological mission and adds value and integrity to our brands, as well as the traders of finished garments."



Takase Koji Sales Area Manager - North East Asia

DyStar's newly launched Levafix® Amber, Scarlet and Red CA-N dyes demonstrates our continuing commitment to supporting ecological and economical wet processing of textiles.

#### Sustainability services

DyStar Textile Services (DTS), a DyStar division, offers a number of services that are aimed at improving sustainability performance of customers across the supply chain. DTS helps brands, retailers and their partners – textile mills, dye-houses, laundries, printers and tanneries to improve environmental performance. DTS has four business units - Color Solutions, Ecology Solutions, Testing Solutions, and Sustainable Textile Solutions. Each business unit has its own sustainable solutions to deal with the three most common failures in the textile and apparel industry.



#### **Ecology Solutions**

DyStar Ecology Solutions package is designed to help textile producers meet the demand for responsible and sustainable production. As part of its econfidence® program, DyStar advises customers on issues relating to ecology and recommends suitable products to meet ecological specifications.

The econfidence® program is designed to provide assurance to our textile customers that the dyes and chemicals we supply comply with legal and retailer RSL (Restrictive Substance List) requirements. It is an assurance that our products are in full compliance with chemical and environmental legislation in every market in which they are sold.

The econfidence® program allows us to build partnerships with the textile supply chain to foster more sustainable textile production.

#### **Color Solutions**

Color Solutions International (CSI) is the leading provider of color standards and color communication tools for sustainable color communication services.

As a constituent of the DyStar group, CSI supports brands and retailers by providing color tools, building color palettes, engineering colors and standards, and distribution to brands, retailers or industry partners. The following sustainable solutions from CSI facilitate making the right chemical decisions at color design stage. The benefits include reduction in paper used, and reduction in the number of shipments of samples.

#### Color inspiration

Inspiration for color comes from many sources. CSI produces trend inspirations in the form of regular updates to its customers. These trend inspirations are the result of our own evaluation of color trends in the market based on the professional trend services and the input of our customer's needs.

With the CSI color inspirations the designer can simply specify the color required by referencing the desired seasonal trend inspiration and CSI can immediately send the color and color standards for use. This helps reduce the costly and wasteful process of lab dipping and color approval for each new color.

#### Color palette

During the design process, there is often the need to reproduce palettes or display groups of colors. To assist in the visual use of color, CSI provides fabric based design tools. These design tools can be used in creating the color palette during the design process. The CSI design tools are reusable and therefore a sustainable option to printing on paper.

CSI also offers its customers a website in which they can search for CSI colors that they want to display in their virtual color palette, providing for an additional option to be more sustainable and reducing their



footprint at the color palette stage.

#### Certified color standards

Once the colors are chosen and the color palettes created, CSI offers certified color standards that can be used in communicating the color to all involved. Many leading brands and retailers use ready-made CSI ColorWall™ or customized, dye-to-match or tailor-made, certified color standards as these meet the both the quality and environmental specifications.

All CSI certified color standards use sustainable products of DyStar. The DyStar dyes carry the econfidence® logo which assures customers of the highest possible levels of product quality and environmental responsibility and is backed up by the most extensive eco testing program of any textile chemical supplier.

The commitment of DyStar and the use of CSI certified color standards give brands, retailers and their industry partners a head-start in being more sustainable and in reducing footprint in design, development and production stage.

#### Color management

Working with color could result in a lot of waste. To eliminate waste in color management, CSI has developed two commercial web-based infrastructures.

CSI PaletteBuilder™ allows for searching and display of customized colors, and supports design in creation of virtual color palettes. CSI ColorFlow™ is a system that tracks color from inspiration to garment by distribution of color information, communication of color decisions and management of color process. Moreover it allows for all color activity information to sit in one place, facilitating transparency.

For more information on Color Solutions International please visit **www.csicolors.com** 

#### **Sustainable Textile Solutions**

Sustainable Textile Solutions (STS) is dedicated to helping brands and retailers, and their industry partners, implement sustainable textile production that makes more efficient use of resources.

The STS team has guided a number of textile manufacturing units in optimizing production and cost while delivering the same or better quality of goods with lower environmental impact.

#### Restricted substances list (RSL) development

DyStar's deep insight into global chemical legislations and the requirements of the textile and apparel industry enables the company to assist in the development of RSLs for brands and retailers, and to provide advice and guidance on suitability of dyes and chemicals. In addition, advice is offered on test methods and procedures in order to help brands, retailers and industry partners effectively monitor chemicals along the textile and apparel supply chain.

#### Mill efficiency improvement

STS's mill efficiency program's objective is to support textile mills, dye-houses, printers and laundries in eliminating waste by reducing the use of energy, water and chemicals used. This STS program assesses the current textile processing practices and offers suggestions to improve productivity and efficiency levels.

#### Chemical management improvement

The STS chemical management improvement program is designed to assess compliance of identified suppliers to a brand and retailer RSL by communicating, creating awareness, evaluating and monitoring the recommendations and improvements over multiple visits.

#### Environmental improvement

The STS team measures textile mills' current processes using a set of key performance indicators, such as ecology load and water consumption, and compares them with an ideal process to discover the possibilities for reduction of the environmental footprint.



"Texanlab has been engaged in assisting Brands and Retailers achieve their goals of sustainability through testing of restricted chemical substances on the products they buy as well as helping them and their supply chains understand the maze of current requirements through education and awareness."



Rahul Bhajekar Managing Director - Texanlab Laboratories Pvt. Ltd.

#### **Testing Solutions**

DyStar has always taken the environmental impacts of its products very seriously and understands the requirements of testing the restricted substances in textiles and their raw materials before they reach the end consumer. The acquisition of Texanlab Laboratories Pvt Ltd in India demonstrates our commitment towards environmental compliance through testing for eco parameters in textiles.

Texanlab, a fully owned, but independently run DyStar subsidiary in India, is an example of how sustainability is at the centre of our business strategy. Texanlab plays an important role in promoting ecology and sustainability in the textile industry by offering cutting-edge testing services for the presence of restricted chemicals. Texanlab is ISO 17025 certified and has built an immense expertise in the areas of routine and eco testing for textiles.

Set up in April 1984, Texanlab was the first laboratory in India to offer testing service for the detection of banned amines as specified in the German regulation. Texanlab worked closely with leading institutes in Germany during the development of the test method for banned amines, which was subsequently standardized and published. Texanlab now has the experience of over 100,000 samples tested for eco parameters.

Texanlab has conducted numerous seminars for customers to educate their staff, their dyers, printers and processors on eco-parameters. The seminars help them to implement definitive strategies to conform to new regulations and requirements of ecology and sustainability. Using internationally accepted testing procedures and those recommended by buyers, Texanlab now offers tests for a number of eco-parameters required by eco-textile regulations and standards.

Texanlab's main testing services include the following:

#### a) Testing for GOTS – organic textiles

Texanlab is one of the few laboratories that has capabilities of testing Dyes, Chemicals and Auxiliaries for the Textile Chemicals, Auxiliary and

Dyes industry as well as for the Processing Industry to GOTS Standards. Since 2007, Texanlab has tested over 2800 samples for compliance to GOTS standards. Texanlab works closely with leading certification agencies to organize seminars to build awareness about GOTS standards and organic cotton.

#### b) RSL (Restricted Substances List) testing

RSL testing is probably one of the most complex fields of analytical chemistry because of the need for isolation and determination of substances at parts per million levels.

#### c) REACH testing

Our fully equipped Texanlab testing laboratory understands the testing requirements arising from textile manufacturers and exporters to fulfil the REACH requirements as per EU legislations and offers testing facilities for the relevant SVHC's considered restricted as per REACH legislations. Texanlab is continuously working on increasing their capability and facility to test other SVHC'S mentioned in REACH.

#### d) CPSIA (Consumer Product Safety Improvement Act)

Texanlab is a CPSC approved laboratory for the testing of Lead and Phthalates as per the CPSIA 2008. Texanlab helps the textile industry to comply with US legislations by providing complete testing solutions.

#### e) EU Eco label - Flower

The voluntary EU Eco label is applicable to all textile products including textile clothing and accessories fibers, yarns and fabrics and interior textiles except wall and floor coverings. The EU Flower has detailed criteria for all the textile products to be tested at various stages of the textile manufacturing. Texanlab is one of the few laboratories with the capability to test for requirements of this label. In addition to testing, Texanlab offers customers advice and guidance on the application procedures and detailed requirements for the Flower.

For more information on Texanlab, see www.Texanlab.com

## Sustainable Production

Our approach to production is to deliver products that exceed customers' expectations in terms of quality, safety, reliability and delivery while minimizing the operational impact on the environment and ensuring the safety of our employees and the neighboring communities.

Our plants are located in 12 countries across Asia, Europe and the Americas where we produce a wide variety of chemicals and colors for the textile and leather industry. Production plants employ 57% of our total workforce

Most of our environmental impact comes from the production operations For example, production plants accounted for 96% of the total carbon emissions and 99% for the total water use in 2011. Production operations also generate waste and wastewater.

We store and process a large number of chemicals as raw materials and finished products. Many of them are potentially hazardous and require careful handling to prevent accidents and spills. The equipment and manufacturing processes that we use in our plants require strict safety procedures to be followed by our personnel. Ensuring employee safety therefore is a top priority for us. We recognize that our production plants have to play the key role in reducing the company's social and environmental impact. In 2011, we launched several initiatives aimed at reducing energy consumption, water use, wastewater and waste. We are also working towards finding ways to increase the amount of recycling energy and material wherever possible.

Reductions in energy, water, wastewater and waste and recycling not only lower the impact on the environment, but also result in savings making the operations more cost effective and competitive. The chapters ahead present an account of our performance in the areas of occupational health, safety and environment and what we are doing to make our production operations more sustainable



Gerald Talhoff Vice President, Global Manufacturing DyStar Group



## Occupational Health and Safety

Workplace safety is a core value at DyStar. The production of dyes involves handling a variety of chemicals, including hazardous substances with potential health and safety hazards. Employee safety therefore is a top priority for us.

Potential health and safety risks in a chemical plant may emerge from handling of hazardous materials, hazards of pressure vessels, hazardous chemical reactions, flammable gases, vapours and dust hazards. Other potential hazards include heat stress, accidental escapes or spills of hazardous material, hazards due to corrosion, work in confined spaces, slips, trips and falls, working with pipelines, plant repair, instrument failures, exposure to harmful substances and disposal of waste.

Common injuries include chemical burns, skin irritation, respiratory irritation, back ache and other musculoskeletal injuries, eye injury and slip, trip and fall.

We have integrated the Responsible Care program into our occupational health and safety policies. This includes a commitment to protecting company employees from direct and long-term health risks by identifying health hazards and providing information, training and suitable protection.

Occupational health and safety policies that DyStar has implemented

- · Operating procedures
- Occupational safety
- Preventive healthcare
- · Safe technology
- Hazardous substances
- Production processes

We are continuously improving our approach to plant safety. Technical standards in plants are adapted in line with technological advancements. Production and other equipment is inspected regularly and systematically for safety. Detailed procedures have been implemented in plants to deal with incidents and to limit their impact. Each DyStar plant has

developed and implemented a detailed hazard prevention plan. Regular training is provided to employees to enable them to handle plant and equipment in a safe manner. A thorough emergency response plan has been put in place at each plant to effectively handle accidents and hazardous situations

Employees participate in safety committees set up at the plant level to regularly review, discuss and take measures for continues improvement in safety performance. Safety committees meet at least once a month to review safety matters. Monthly safety inspections are also carried out at each plant.

We regularly track occupational health and safety performance. In 2011, there were only eight recordable incidents of workplace injuries across 16 DyStar plants worldwide as compared to 13 incidents in 2010. All the eight incidents involved male employees. There were no recordable incidents of injury in 14 plants, an improvement from 2010 when only 10 plants reported no recordable injuries. In total, 34 workdays were lost on account of workplace injuries as against 490 days in 2010.

One of the unfortunate incidents of injury which took place in the Pietermaritzburg plant in South Africa in November 2011 was reported in the local media. An employee involved in the incident sustained chemical burns when he was in the process of making a new trial product for a customer. A sudden chemical reaction occurred before he could secure the lid of the vessel, this resulted in splashing of chemicals on his body. He was immediately rushed to hospital to receive treatment. He has since fully recovered and has resumed work.

The plant management has introduced new measures after a thorough investigation of the incident to prevent recurrence. The plant management also partnered with the customer to provide Hazard & Operability Analysis (HAZOP) training for the manufacturing of new products to all operators.

There were no incidents involving fatality in 2011 as was the case in





Dr. Andreas-Johann Schmidt Production Plant Head - Ludwigshafen Germany

2010. There were no reported incidents of occupational diseases in 2011 as against three cases in 2010.

DyStar's recordable occupational injury and illness incidence rate in 2011 was 0.57, lower than 0.67 in 2010. This is not only an improvement on own performance, it also compares well with the 0.85 rate reported by Responsible Care companies in the US in 2011 and significantly lower than the rate of 4.4 for the US manufacturing sector as a whole in 2010.<sup>1</sup>

Our lost workday rate in 2011 was 0.57, compared with 0.52 in 2010. This is significantly lower than 4.57 reported by the global chemical industry through International Council of Chemical Associations (ICCA) in 2008, the latest available benchmark data at the time of writing this report.<sup>2</sup>

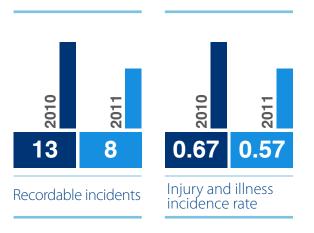
Our zero fatality rate, based on the number of cases per 100,000 employees, in 2010 compares favorably with 1.74 reported by The European Chemical Industry Council for the year 2008 based on data from 21 countries, the latest available data at the time of writing this report.<sup>3</sup>

Each incident of occupational injuries and diseases is carefully analyzed by our health and safety personnel to identify root causes for the incidents. This helps DyStar production plants to take effective measures to reduce the rate of incidence.

Plant personnel are provided with all necessary personal protective equipment (PPE) such as safety shoes, gloves, safety eye glasses, respiratory masks and hard-top hats to ensure safety of our employees at work. We enforce a strict policy for mandatory use of appropriate PPE by employees at work. Lifting equipment has been installed to prevent musculoskeletal disorders on account of lifting weights in DyStar plants.

Ongoing training in safe work practices, use of PPE, handling of chemicals, regular health campaigns, periodic employee check up and building

awareness and cultivating a safety culture are all part of our efforts to improve safety in DyStar plants.





Severity rate



## **Environmental Performance**

Environmental responsibility is one of the most important pillars of DyStar Group's sustainability strategy. We believe that ability to manage environmental impacts effectively is crucial for maintaining our competitiveness.

We are a leading producer and supplier of dyes and specialty chemicals for the global textile and leather industry. Dyes and chemicals are crucial to producing clothing and textile that meet consumers' needs for comfort, colors and fashion. However, the production and use of dyes and chemicals and the disposal of waste products pose potential environmental risks. It's important to manage these risks responsibly at each stage of the product's life cycle. Manufacturing of dyes and chemicals uses energy, water and input chemicals and other resources, and generates carbon emissions, wastewater and waste. Reducing these impacts can lower our costs and make our operations cleaner and greener.

The application of dyes and chemicals by the textile and leather processing industry also has potential to impact the environment. Textile and leather processing consumes energy and generates wastewater and waste. In recent years, pressure has increased on the textile industry to reduce its environmental impact and switch to more eco-friendly and safe dyes and chemicals. DyStar's stringent environmental approach makes the company's products attractive for the textile and leather manufacturing industry and fashion brands.

Our environmental commitment is to reduce own impact and help our customers to reduce their impact. To learn more about how our products can reduce customers' environmental impact, please read the Product Stewardship section of this report.

Most of DyStar's environmental impact results from manufacturing operations. We have therefore implemented a rigorous environmental management system at each DyStar plant aimed at continuous improvement. Our facilities in Nanjing and Wuxi (China) and in Pietermaritzburg (South Africa) continue to be certified to ISO 14001. Other facilities

follow DyStar's strict environmental management system framework.

Our Environmental Management System requires identifying, evaluating, prioritizing and managing environmental aspects in the following areas:

- Design and development
- Manufacturing
- Storage, packaging and transportation
- Environmental performance, practices of contractors and suppliers
- · Waste management
- Use and distribution of raw materials and natural resources
- Distribution, use and end-of-life of products
- Biodiversity

Major environmental impacts that DyStar plants actively monitor and manage include:

- Emission to air
- · Release to water
- Land contamination
- Energy and resource consumption
- Noise and vibration
- · Dust and odour
- Waste, disposal, by-products
- Heat and radiation
- Transportation
- Direct or indirect impacts at the customer end

Our environmental management system enables each plant to take a systematic approach to managing environmental impacts. Main steps include:

- Identify and assess environmental impacts and risks
- Establish objectives and, wherever possible, quantitative targets to for continual improvement in environmental performance.
   Provide necessary training to employees
- Review the objectives and the progress periodically
- Ensure all sub-contractors operate in line with the principles of our environmental policy



- Comply with all applicable regulatory requirements and, wherever possible, go beyond these requirements
- · Co-operate and communicate with our neighbours, the public, government, regulatory authorities and other stakeholders towards the shared goal of improving the environment
- Conduct regular monitoring and auditing programs to ensure compliance with continual environmental improvement
- Communicate environmental performance to employees and stakeholders

DyStar's key environmental goals are:

- Reduce greenhouse gas emissions
- Reduce energy consumption
- Reduce water use, reuse or recycle water
- Reduce waste, reuse or recycle waste
- Design all new products / processes to minimize their environmental impact in use
- Modify existing products and processes wherever possible to reduce their environmental impact in use
- Provide advice/information to all its customers on its products to ensure safe use and disposal

In 2011, DyStar voluntarily established aggressive reduction targets. The Group plans to reduce greenhouse gas emissions, energy, waste and wastewater by 20% by 2020 from the base year 2010.

This report contains DyStar Group's performance in the following environmental areas: energy, greenhouse gas emissions, spills, water, wastewater and waste.

#### **Environmental expenses**

#### How much we spent on environment protection

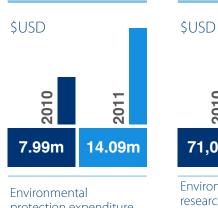
DyStar Group spends a substantial sum on efforts aimed at minimizing the environmental impact that includes meeting reduction targets and complying with local environmental regulations.

In 2011, DyStar Group spent USD14.09 million on environment protection measures. In last year's report, we had reported USD7.99 million environmental expenditure for the year 2010. The 2011 amount is higher partially because DyStar facilities improved their systems to identify and collect relevant data. We continue to refine our data systems and improve data coverage that will enable us to gather environmental expenses more comprehensively.

Treatment of waste and wastewater accounted for 86.2% of the environmental expenses. Other expenses included maintenance of environmental equipment, equipment depreciation, environmental research and development, environment management personnel, environmental services, certifications, and employee training.

Spill cleanup and remediation expenses accounted for only 0.1%, against 0.25% in 2010, of environmental expenses as good environment management practices ensured there were no major spills.

The amount spent on environmental research and development by plants for improving their performance was USD 84,000 in 2011, up from USD 71,000 in 2010.





protection expenditure

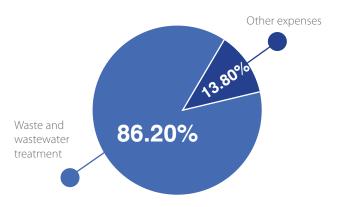
research & development spend

"Our technological innovations have helped us reduce our emission intensity in 2011. Our environmental integrity is integrated through the whole of our supply chain and our production colleagues are also increasing their environmental consciousness. As a result of these efforts our production costs are reducing and we are able to manage our production more effectively."



Mr. Chen KeKe Deputy Manager, Process Technology Development - Wuxi China

#### Environmental expenditure break up 2011



#### **Environmental fines and sanctions**

We are committed to complying with all applicable environmental laws and regulations wherever we operate.

In 2011, there were no identified incidents of significant environmental fines or non-monetary sanctions. There was however one unfortunate incident of a third-party truck accident in Brazil that resulted in chemical products spilling onto the road. The truck was carrying chemical products from at least two other companies in addition to the products from DyStar.

Pursuant to a standard procedure, the local authorities have asked DyStar to pay 24,000 Euros in fine. However, DyStar has appealed against the fine and is still awaiting a final decision from the authorities at the time of writing this report. DyStar's position is that the company's products classified as hazardous met the legal packaging requirements and did not spill during the accident. Some of the DyStar products that leaked in the accident were not classified products.

#### **Environmental Initiatives in 2011**

Our facilities worldwide launched a number of initiatives in 2011 aimed at improving environmental performance by reducing energy consumption, water use, waste and other resource.

Key initiatives included:

- Implement a direct heating process for the spray driers at our
   Gabus plant, Indonesia, to reduce heat losses and to save energy
- Build a new waste water treatment plant at our Reidsville plant,
   USA, to reduce waste water pollutants.
- Continuously improve cleaning procedures for product change at all production sites to reduce the amount of waste water and pollutants generated.
- Continuously work on yield improvement with regard to physical and chemical production processes to reduce waste, waste water and energy consumption per unit of product
- Apply a wastewater recycling process wherever possible to increase the rate of water reuse at all production sites.
- Increase employee awareness and change employee behaviour at all manufacturing sites to save energy and water and to reduce waste water generation.
- Re-use waste material whenever possible inside the plants and to identify other industries which can safely re-use DyStar's waste material rather than disposing it through land fill or incineration. Develop systems for ensuring controlled, safe and sustainable re-use of waste material.
- Work on low energy waste gas treatment processing instead of thermal oxidization to reduce the consumption of natural gas and thus, the emission of carbon dioxide.
- Review the car policy at major production sites to reduce the consumption of fuel and the emission of carbon dioxide



#### Energy

Energy consumption has a direct bearing on the level of greenhouse gas emissions and the cost of manufacturing goods in our plants. Therefore, energy efficiency is a crucial area of focus within DyStar. Reducing energy consumption would not only lower our greenhouse gas emissions, it would also save costs on energy bills.

Energy is also consumed when our customers use our products such as dyestuff for textile processing. We see this as an opportunity to develop products that save energy for our customers as well.

Our approach is to continuously improve energy efficiency in own plants as well as invest in developing products and services that lower our customers' energy consumption. Our customers, for example, have benefitted from DyStar's Sera® Eco Wash process that helps them save water and energy.

Improving overall energy consumption in our plants presents challenges unique to the dyestuff industry. Challenges arise from a complex product mix that we are required to produce to meet our customers' needs. The amount of energy required to produce different dyes varies significantly from product to product.

Since demand for textile and apparel products is influenced by fashion trends, the product mix that we may be required to produce to meet market demand varies from year to year. This in turn may affect the overall amount of energy consumed by DyStar plants.

At DyStar, production plants account for the bulk of the total energy use. Energy is needed to run processing equipment in our plants such as mixers, reactors, pumps, dispersers, spray dryers, milling lines, blenders, boilers, incinerators and wastewater treatment plants. Energy is also used for general lighting and air-conditioning in production plants, laboratories, the corporate headquarters and our offices around the world, as well as for running the vehicles owned or leased by the company.

Our plants use both direct and indirect energy. Purchased electricity and steam are the main forms of indirect energy used at DyStar plants and offices. Direct energy used in our operations mainly includes natural gas, Liquified Petroleum Gas (LPG), Liquified Natural Gas (LNG), Compressed Natural Gas (CNG), diesel and petrol.

In 2011, DyStar consumed 265 million kilowatt hours (kWh) indirect energy. Production plants accounted for 96% of the total indirect energy consumption. In absolute terms, the indirect energy consumption in 2011 was slightly higher than the 252 million in 2010. This was largely due to three factors. Firstly, our Leverkusen-based plant operated for nine months in 2011 as against six months in 2011. Second, our production volume was a little higher in 2011 than in 2010. Finally, the product mix was different in 2011 compared to the previous year.

Indirect energy intensity per tonne of product was 2,722 kWh in 2011 as against 2605 kWh in 2010.

CNG remained the main source of direct energy, primarily used in our production plants. Other sources of indirect energy included natural gas, LPG, LNG, petrol, diesel and ethanol. Overall consumption of direct energy in 2011 was 14.6 million gigajoules, down from 15 million gigajoules in 2010.

We first started collecting global energy data in 2011 for the year 2010. Now with 2011 data available, we have a better view of our energy use and complexities involved. 2011 was also the year when we started launching more focused energy efficiency programs that are likely to start producing results from 2012.

Some of our plants have already started seeing results of these initiatives. For example, the DyStar site in Wuxi, China managed to reduce electricity consumption per tonne of product in 2011 by 11% from the 2010 level. The facility achieved this by restructuring the manufacturing process in the dry mixing section by reducing the number of process steps involved, and by further optimizing the wet milling process towards a

"We are firmly committed to reduce utilities consumption in the Apiúna Site. We are aware this needs to be a team effort and all employees are called upon to promote environmental protection. Staff have the skills and knowledge to operate production facilities in a manner that ensures energy input reduction such as Process Water, Liquefied Petroleum Gas and Electricity."



Dimas Teixeira Production Plant Head - Apuina Brazil

more efficient grinding effect while reducing the process time.

Our goal is to continue to drive down energy intensity to maintain cost efficiency and establish sustainability leadership in the dyestuff industry.

#### **Industry Energy Efficiency Improvement Project**

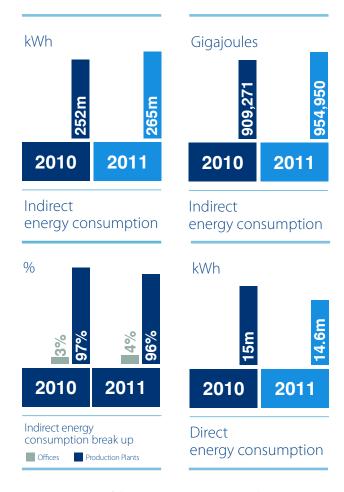
The DyStar plant in South Africa is participating in an Industry Energy Efficiency Improvement (IEE) Project, a collaborative initiative launched by National Cleaner Production center of South Africa (NCPC-SA), the United Nations Industrial Development Organization (UNIDO), South Africa government's Department of Trade and Industry and the Department of Energy, the Swiss Secretariat for Economic Affairs (SECO), the UK Department for International Development (DFID), and

The IEE project focuses on the following

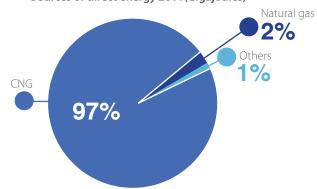
- Promoting energy management systems and standards to provide companies with a platform to sustain energy-efficient practices
- Promoting energy systems optimization in order to unlock the energy savings potential of priority industrial sectors in South Africa
- · Training energy experts and practitioners to transfer skills to industr
- Running projects to demonstrate the impact of energy efficiency practices on local industries

Last year, the DyStar plant in Pietermaritzburg, South Africa participated in an extensive energy audit under the project. The audit report will pave the way for further action plan to improve energy efficiency in the plant.

The Project currently focuses on five key industry sectors that have the potential to bring about significant reductions in the overall energy consumption of the country. These include Agro-processing; Chemicals and Liquid Fuels; Metals Processing and Engineering; Automotives; and Mining. The project aims to contribute to the national energy efficiency target of 15% for industry, and 12% for the entire economy by 2015.









#### Greenhouse gas emissions

Setting an industry leadership example DyStar published its first annual Carbon Footprint Report in 2011. Our first report was based on data for 2010, when the company began an extensive, company-wide global exercise to identify the main sources of greenhouse gas emissions and started gathering activity data. DyStar has since committed to disclosing the Group's carbon footprint annually.

This report presents DyStar Group's carbon dioxide inventory for the reporting year of 1st January 2011 to 31st December 2011.

In 2011, our data gathering mechanism was further strengthened and a monthly monitoring of emissions was introduced to gain greater insight into the sources of emissions. Our efforts during the year helped us grow our understanding of the sources of emissions and challenges involved in reducing these emissions. We are in the midst of implementing measures aimed at making DyStar Group more carbon efficient.

As in the previous year, DyStar Group continued to focus on scope 1 and scope 2 emissions in 2011.

Based on the activity data collected, DyStar Group's global carbon footprint for 2011 was calculated to be 168,133 metric tonnes of  $\rm CO_2e$ . This was slightly more than 160,993 metric tonnes of  $\rm CO_2e$  in 2010 largely due to higher production volume, and improved coverage of activity data as we further streamlined the data collection processes and methods. However, our emission intensity per tonne of production remained unchanged at 1.7. Emission intensity per million dollars of turnover was 216 in 2011, down from 235 in 2010.

This report is based on the Greenhouse Gas Protocol (GHG Protocol), a global reporting framework jointly developed by the World Resource Institute and the World Business Council for Sustainable Development.

Emissions data presented in this report were collected from DyStar production sites, laboratories, and offices worldwide including our headquarters in Singapore.

A key purpose of tracking organizational carbon emissions is to identify opportunities to reduce emissions by deploying reduction strategies. DyStar Group remains committed to collecting relevant data across the company to be able to annually report on greenhouse gas emissions. This is in line with our overall sustainability strategy to continuously reduce operational impact on the environment.

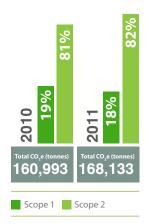
DyStar Group's carbon emissions can be mainly attributed to the use of purchased electricity and steam, natural gas, CNG, LPG, diesel and petrol.

Most of DyStar's direct emissions (scope 1 emissions) come from emission sources at production facilities. DyStar's indirect emissions (scope 2 emissions) are based on purchased electricity and steam. In 2011, DyStar production facilities accounted for 96% of the total emissions, a small improvement over the 97% figure in 2010.

Key emissions figures are presented in the tables below.

## **Overall summary of emissions**

Em	nissions summary			
			CO <sub>2</sub> e to	onnes
Emission sources	2010	%	2011	%
Scope 1	30,548	19%	31,019	18%
Scope 2	130,445	81%	137,114	82%
Total CO, emissions	160,993	•	168,133	



## Summary of emissions from production and non-production activities

#### Table 2

Emissions summary				
			CO <sub>2</sub> e to	onnes
Emission sources	2010	%	2011	%
Total emissions from production sites	155,795	97%	161,265	96%
Total emissions from offices and laboratories	5,198	3%	6,868	4%
Total CO <sub>2</sub> emissions 160,993		168,133		







Detailed summary of sources of emissions

#### Table 3 Break up of emissions CO<sub>2</sub>e tonnes **Emission sources** 2010 % 2011 Scope 1 Stationary combustion 28,591 94% 29,095 94% **Total Scope 1 emissions** 30,548 31,019



## CO<sub>2</sub> emissions intensity

Purchased electricity

Total CO, emissions

Total Scope 2 emissions

Carbon intensity is a measure of carbon usage by a company in relation to business performance during the same year. Based on the emissions and production figures and sales turnover during the same period, we calculated carbon intensity of our operations.

137,114

168,133

130,445

130,445

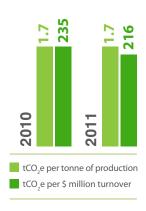
160,993

Emissions intensity in terms of production remained unchanged in 2011 at 1.7 as compared with 2010.

Carbon emissions intensity figures are presented in Table 4.

#### CO<sub>2</sub> emissions intensity per tonne of production and per \$million turnover

CO <sub>2</sub> emissions inte	nsity statement	
	2010	2011
tCO <sub>2</sub> e per tonne of production	1.7	1.7
tCO₂e per \$ million turnover	235	216



# **Notes**

#### 1. Greenhouse gases

All greenhouse gas (GHG) emissions figures are in metric tonnes of carbon dioxide equivalents ( $CO_2$ e) and include all six greenhouse gases covered by the Kyoto protocol – carbon dioxide ( $CO_2$ ), methane ( $CH_2$ ), nitrous oxide ( $N_2O$ ), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride ( $SF_e$ ) emissions.

**2.** In view of gathering consistent and reliable data for previous years owing to several changes in the organization in recent years, 2010 has been determined to be our base year for reporting GHG emissions.

#### 3. Reporting Principles

Our carbon footprint report is based on the below-mentioned Reporting Principles advocated by the GHG Protocol Initiative.

The GHG accounting and reporting shall be based on the following principles:

#### Relevance

Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users — both internal and external to the company.

#### · Completeness:

Account for and report all GHG emissions sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusion.

#### · Consistency:

Use consistent methodologies to allow meaningful comparison of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.

#### Transparency:

Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.

#### · Accuracy:

Ensure that the quantification of GHG emissions is systematically neither over nor under true emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information. (Source: GHG Protocol)

#### 4. Organizational boundary

GHG Protocol allows a company to define the organizational boundaries for carbon reporting according to definitions of 'equity share', 'financial control' or 'operational control'.

To give the most representative footprint, DyStar group defines its organizational boundaries using the operational control approach as defined in the GHG Protocol. The emissions of all operations over which the company has operational control and all owned and leased facilities and vehicles that the company occupies or operates are included in the report. Emissions are based on measurements or on estimations or extrapolations where no measured data is available.

We have reported on the emissions associated with energy that we buy or generate worldwide.

We have not reported for offices with less than 20 employees as emissions from these offices is estimated to be insignificant while data gathering would have required significant administrative and financial resources.

#### 5. Operational boundary

Our report this year includes direct emissions under scope 1 and indirect emissions under scope 2.

Direct emissions under scope 1 include:

- Emissions from combustion of fuel in stationary sources
- Emissions from combustion of fuel in company-owned and leased mobile combustion sources

Fugitive emissions from refrigeration and air-conditioning are currently not reported as such emissions have been determined to be less than 5% of our overall emissions and considered not significant.

Indirect emissions under scope 2 include:

· All purchased electricity, heat and steam at grid average carbon intensity

#### 6. Geographic scope

CO<sub>2</sub> emissions that fall within the organizational and operational boundaries have been reported for all worldwide operations.

#### 7. Conversion factors

As electricity fuel mix and associated carbon intensity differs from one country to another we have used the Greenhouse Gas Protocol and International Energy Agency (IEA) conversion factors. National or plant specific emissions factors have been used wherever available.

For fuel use, we have used the most recent conversion factors published by the UK Department for Environment Food and Rural Affairs.

#### 8. Emissions adjustments

We may develop improved calculation methodologies and tools as our knowledge, understanding and experience in carbon dioxide inventory development grows. In such an event, previous years reported emissions may be adjusted in line with the new methodology.

Adjustments to previous years' emissions may also be made when more updated emission factors or more accurate activity data become available to more accurately and consistently reflect actual emissions from year to year. Readjustments will also be made when there are significant structural changes in the organization. Emissions, including the base year emissions may also be adjusted upon discovery of significant errors, or a number of cumulative errors, that are collectively significant in line with the guidance provided by the GHG Protocol.

However, if adjustments are relatively insignificant or do not reflect a change in calculation methodology, recalculations will not be performed for previous years' emissions.

This year's report includes adjusted figures for 2010. The adjustment was felt necessary as more updated emission factors became available a well as improvements in our internal data collection methods made it possible to obtain more accurate activity data in some instances. On account of the readjustment, our emissions for 2010 have been revised to 160,993 tonnes, slightly lower than the originally reported 164,035 tonnes.

We have also changed the currency from Euro to US dollar for the purpose of reporting emissions intensity per \$ million turnover as we converted our accounting system from German GAAP to IFRS and changed the Group representation currency from EUR to USD. Our previous carbon emissions report calculated emissions intensity per million dollars of turnover based on 12 months emissions data and 11 months revenue data. This year, we have readjusted this figure by calculating the intensity based on 11 months figures for emissions and turnover to make the figures comparable year on year.

#### 9. Verification

Our carbon emissions report is a voluntary initiative and as such we currently do not seek third party verification of emissions data reported. However, carbon emissions experts from CSRWorks International, the sustainability consulting firm we hired to assist in preparing the carbon emissions report, evaluated the data gathering methods and carried out quality checks for the sampled data. In addition, we have implemented an internal check and balance mechanism to improve quality and accuracy of data collected and reported.



#### Water

According to the United Nations Water program, water scarcity has become one of the biggest challenges the world faces. It is estimated that nearly two billion people could face water shortages in less than twenty years.

UN agencies estimate that by 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, and two-thirds of the world's population could be living under water stressed conditions.

It is estimated that almost half the world's population will be living in areas of high water stress by 2030. At the same time, demand for water is projected to outstrip supply by a staggering 40 percent by 2030.

At DyStar, water responsibility is an integral part of our sustainability program. Water is an important input resource for producing chemicals, dyestuffs and pigments. A significant amount of water is also used by the textile, apparel and leather industry and the end users of our products.

For us, water responsibility means continuously looking for ways to optimize use of water in our operations and investing in research to develop products that reduce water use for our customers. Our plants also recycle water where possible to reduce demand for fresh water.

Water is mainly used at our plants to produce dyestuffs. Common uses of water include adding water directly to product for dissolution, dilution of concentrate materials, washing of product at various stages of production, washing of vessels, cooling systems and for directly controlling the temperature to enable safe reactions.

Managing water in our industry is not without complexities. For example, water use can significantly vary with products. A change in product mix in a given year can potentially decrease or increase water use.

We started measuring our global water footprint in 2011 covering consumption data for 2010. In 2011, we continued to gather data to

monitor water use and gain a deeper insight into water use patterns. This year's our data has been gathered from all 16 production plants and 25 office or laboratory locations worldwide.

Our direct water footprint in 2011 was calculated to be 9.27 million cubic meters, slightly higher than the figure of 9 million in 2010 on account of increased production volumes and changed product mix. Production plants accounted for 99% of the total water use.

Main sources of water included surface water (62.8%) and water purchased from utilities (35%). Ground water accounted for just 2.1%. The bulk of the water we used was for cooling (73%) and production processes (20%). Domestic use of water such as general washing was at 6%. The volume of water drawn from various sources and consumption patterns were about the same as in 2010.

Water intensity or water use per tonne of production was 95 cubic meters, slightly up from 93 cubic meters in 2010.

Our production plants recycled 1.78 million cubic meters of water in 2011, up from 1.72 million cubic meters in 2010. This mainly included water recovered from steam condensate, evaporation of wastewater, and vessel washings. Recycled water was used for cooling, equipment washing, production processes and gardening.

The actual volume of fresh water avoided due to recycling of water is estimated to be much more than 1.78 million cubic meters if the amount of demand satisfied is taken into account. However, we currently do not calculate the demand satisfied.

DyStar production plants continue to look for ways to increase water reuse or recycling. However, making wastewater recyclable or reusable is an energy intensive process that can potentially push up an entity's carbon footprint as well as cost of operations. Our challenge therefore is to achieve a balance between energy use and water treatment for recycling.

"Through proper and effective production planning, in 2011 we increased the plant capacity and performance, reducing manufacturing costs and doing more efficient use of water and energy in our processes".



Antonio Huerta Production & Plant Manager - Naucalpan Mexico

Improving production processes to make them more water efficient, reducing the amount of input water by creative solutions, preventing leakage and wastage, and employee training and awareness remain key areas that we are focussed on.

To learn more about how our products help our customers to reduce their water use, please read the Product Stewardship section of this report.

#### **DyStar Water Initiatives**

Our production site in Apiuna, Brazil has been harvesting rainwater successfully since 2009. This has helped the site to reduce use of freshwater from 1.08 cubic meters per tonne of production in 2009 to 0.76 cubic meters in 2011

The DyStar plant in Corlu, Turkey found creative uses of steam condensate that reduced consumption of fresh water. Steam condensate is high temperature water left after steam has been supplied to a process application. The plant developed a system to collect the condensate and use it for washing and boiling of vessels and in certain production processes. The plant not only saves costs otherwise needed for cooling of condensate before safe disposal, it requires less water from fresh water sources. Using steam condensate to boil vessels also lowers energy consumption and the cost as lower energy is required to bring the water in the vessel to boiling point. In 2011, the plant managed to reuse 2,860 tonnes of steam condensate, reducing consumption of fresh water by the same volume.

The DyStar facility in Naucalpan, Mexico reduced water consumption per tonne of production from an earlier 1.83 cubic meters to 1.62 cubic meters in 2011

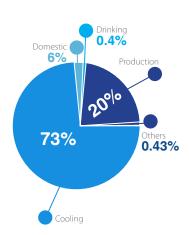
Water consumption			
	2010	2011	
Volume of water used (cubic meters)	9,007,209	9,269,530	

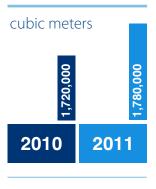
Water intensity per tonne of production		
	2010	2011
Water consumption per tonne of production	93	95

#### Water drawn from sources 2011

# 0.1% Utilities 62.8% 35.0% Ground water

#### Water use in 2011





Water recycled



#### Wastewater

The issue of polluted wastewater in the textile industry has received global attention in the past couple of years. Influential activist NGOs such as Greenpeace®, have launched campaigns against the polluters in China and elsewhere. Law enforcement to contain toxic discharge from textile factories has intensified notably in China and India.

DyStar's wastewater strategy places the company favorably in a toughening regulatory regime and with increasing awareness of the issue due to activists' campaigns. While we manage our own wastewater responsibly, we also continue to invest in developing products and processes that reduce wastewater emissions in our customers' operations.

Wastewater discharge from dyestuff production may contain significant amounts of chemical compounds, intermediate products and in some cases dyes, presenting an opportunity to recover these materials from the wastewater for reuse and thereby reduce the pollutant load of the final discharge.

We have a strict policy to comply with applicable national regulations governing wastewater discharge. Whilst we do some pre-treatment of wastewater at a number of our sites, most of our wastewater is channelled into licensed third party wastewater treatment plants for further treatment.

The composition of wastewater from the production of dyes can vary depending on the product mix. In other words, wastewater discharge volume may differ from year to year if the proportion of products changes.

Wastewater is generated during the production of dyes in our plants, and as a result of washing of vessels and other equipment. In 2011, production processes accounted for 20% of the overall water consumption.

A significant portion of our total water use is for cooling purpose where water does not come into direct contact with chemicals and hence does not get contaminated. In 2011, cooling systems accounted

for 73% of the total water use in DyStar.

In 2011, our plants discharged 1.79 million cubic meters of wastewater compared with 1.75 million cubic meters in 2010. Discharge per tonne of production was at 18.4 in 2011 against 18.05 in 2010.

In 2011, emissions of organic substances to water measured as the chemical oxygen demand (COD) were 3,735 tonnes or 0.0363 tonnes of COD per tonne of production, a minor increase over 2010.

The slight increase in wastewater and COD in 2011 is attributed to higher production volume and a change in product-mix that included higher proportion of synthesized intermediates and final product stages. Another reason for increase is that DyStar plant in Leverkusen, Germany operated for nine months in 2011 against six months in 2010.

#### **DyStar Wastewater Initiatives**

Our production plants continuously look for creative solutions to reduce wastewater discharge or the toxicity levels. For example, the DyStar plant in Apiuna, Brazil has been improving the process for washing vessels and production area and has managed to reduce wastewater from 255 litres per tonne of production in 2009 to 204 litres in 2010 and 133 litres in 2011.

The plant in Hangzhou, China recycles water from washing of vessels to reduce wastewater. The plant in Nanjing recycles high concentration mother liquor for the next batch of production.

At the plant in Wuxi, China, improvements made in the method for cleaning filter bags, reuse of water from equipment washings, and better production planning to reduce equipment cleaning has resulted in huge reductions in wastewater. The plant managed to reduce wastewater per tonne of production from 5.77 cubic meters in 2008 to 3.57 cubic meters at the end of 2011.

"In 2011 the Reidsville plant successfully evaluated all aspects of production. This detailed analysis and evaluation of our technology was done to help improve cycle times and reduce cost. We are committed to maintaining these successes and I look forward to how our initiatives help to improve production in 2012 and beyond."



Marc Bumberger Production Plant Head - Reidsville USA

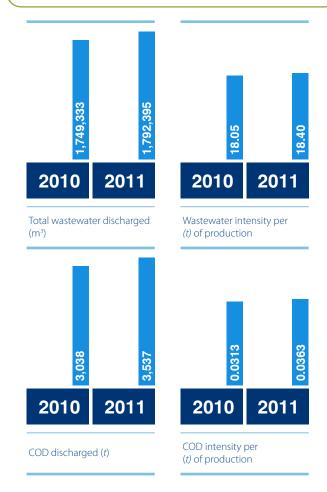
DyStar plants in Ankleshwar, India and Gabus, Indonesia are zero-wastewater discharge facilities. At our Ankleshwar facility, the entire volume of wastewater is treated by a Reverse Osmosis plant for reuse resulting in zero discharge to the environment. Treated water is reused within the facility further reducing demand for fresh water. Remaining concentrate is disposed through licensed contractors. In 2011, the plant treated 510 cubic meters of wastewater that yielded 460 cubic meters clean water for reuse.

In Gabus we try to minimize, collect and recycle as much as possible of the cleaning water from the finishing plant. Synthesis related waste water and the remaining washing water from the finishing section is concentrated via internal evaporation and the concentrate is spray dried. At the end, all water is evaporated and the solid material is collected and sent to a licensed waste management contractor for final disposal

In 2011, the Gabus plant generated over 55,000 cubic meters of wastewater, all of which was evaporated resulting in zero liquid

Our facility in Reidsville, USA is adding a Dissolved Air Floatation (DAF) unit which will reduce the oil and grease concentration in the wastewater and enable the plant to reuse some of the wastewater. The unit is expected to be operational by early 2012.

Wastewater				
	2010	2011		
Total wastewater discharged (m³)	1,749,333	1,792,395		
Wastewater intensity per t of production	18.05	18.40		
COD discharged ( <i>t</i> )	3,038	3,537		
COD intensity per <i>t</i> of production	0.0313	0.0363		





#### Waste

DyStar's environmental management system includes extensive policies and procedures for managing waste effectively.

Our approach to managing waste is simple: reduce, reuse and recycle as much as possible to minimize the impact on the environment. Reduction in waste directly translates into cost savings on account of reduced input. Reusing or recycling waste has obvious financial incentives as it reduces consumption of fresh material and maximizes value for the organization.

Waste that cannot be reused or recycled is safely disposed of through licensed waste management contractors in compliance with local regulations. Hazardous waste is incinerated by licensed contractors to reduce the volume of waste sent to landfill. Non-hazardous waste is sent to designated landfills through licensed contractors.

Major sources of hazardous wastes at our production plants include sludge from filtration, evaporation, and wastewater treatment, process residues, rejected batches, and packaging residues.

Some of the common approaches used by our production plants to reduce waste include reusing by-products in other processes, reusing wastewater from equipment washing for subsequent batches of production and reducing the amount of off-specification products by stricter quality control. Common approaches also involves the reworking off-specification products wherever possible, reducing the amount of wastewater to reduce sludge, and proper labelling and storage of hazardous substances in an isolated and secure area.

In 2011, DyStar plants generated 9,161 tonnes of waste or 0.094 tonnes per tonne of production. Hazardous waste accounted for 63% of the total waste or 0.059 tonnes per tonne of production. Non-hazardous waste was at 3,378 tonnes or 0.035 tonnes per tonne of production.

Waste generated in 2011 was slightly higher than in 2010 because a major production plant in Leverkusen, Germany operated for nine months in 2011 as against six months in 2010. Overall production was also slightly higher in 2011 than in 2010. More significantly, the product mix was different in 2011 involving higher proportion of synthesized intermediates and final product stages resulting in increased amount of wastewater.

Our plants currently do not have hazardous waste treatment facility. Therefore, hazardous waste needs to be transported to the third-party treatment plants. In 2011, hazardous waste amounting to 5,783 tonnes was transported out of DyStar sites worldwide for treatment and disposal.

DyStar plants worldwide recycled or reused 2,263 tonnes of waste in 2011, up from 565 tonnes in 2010. Recycling or reusing waste continues to be a focus area for our production plants in managing waste to minimize impact on the environment.

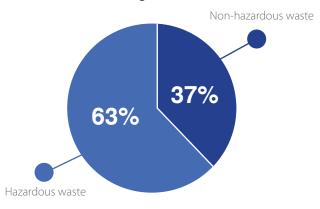
#### Reusing waste

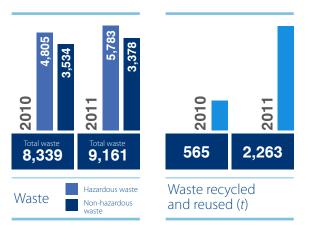
While DyStar production plants recycle waste whenever possible, some of our waste is reused by other industries as input. For example, the plant in Ludwigshafen, Germany has been selling ammonia water from waste gas system to an external organization which produces ammonia gas from that waste. In this way, 11,647 tonnes and 11,052 tonnes ammonia water in 2010 and 2011 respectively was reused.

The DyStar facility in Gabus, Indonesia sends its waste to cement manufacturers who reuse the waste. In 2011, the facility sent 1924 tonnes of waste in this way, up from 1320 tonnes in 2010.

Waste				
	2010	2011		
Hazardous waste	4,805	5,783		
Non-hazardous waste	3,534	3,378		
Total waste	8,339	9,161		
Hazardous waste per t of production	0.050	0.059		
Non-hazardous waste per t of production	0.036	0.035		
Overall waste per t of production	0.068	0.094		
Hazardous waste transported out	4,805	5,783		
Waste recycled and reused	565	2,263		

#### Total waste generated in 2011





## Significant spills

There were no significant spills recorded in 2011. However, there were 26 minor incidents of accidental escapes from primary containment. On 11 out of 16 production facilities where we operate, there were no incidents of any spills in 2011.

Except in one case, all spills took place within the plant premises. The only incident that occurred outside a DyStar plant was in Brazil when a truck carrying finished goods met with an accident spilling nine tonnes of chemicals on the road. The spill was immediately cleaned up and remediated with no significant impact.

All other spills were thoroughly investigated to identify the root cause and to assess the impact. Clean up and remediation steps were taken immediately in all cases. The spills in most cases caused some loss of raw materials or finished product other than clean up costs.

Measures were taken to prevent recurrence. Steps included re-training of operators, changes in standard operating procedures, more rigorous plant maintenance, and installing monitoring devices to prevent overflow of material.





# **Employees**

Our employees are one of our greatest assets. Our people drive innovation, quality and service excellence – attributes that give DyStar a competitive edge in the global market.

Research and development has been one of our key strengths for many years. Our chemists and scientists ensure DyStar enjoys a continuous pipeline of innovative products and stays a strong player in the industry.

Our employees in production plants not only ensure stringent quality and timely deliveries of products to meet customers' requirements, they also play a crucial role in our quest for continuously improving cost-efficiency and making operations cleaner and greener.

The sales teams develop business, build relationships with customers and solve their problems. Administrative, technical and support staff members in DyStar offices laboratories and offices worldwide ensure operations run in a smooth and efficient manner.

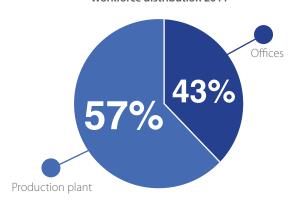
We value each employee's contribution and recognize their role in making DyStar a strong and successful company.

Keeping employees engaged, respecting diversity, recognizing their contributions, treating each one of them fairly, ensuring a safe and secure workplace, creating opportunities for growth and learning and facilitating their career aspirations are all integral parts of DyStar's work culture.

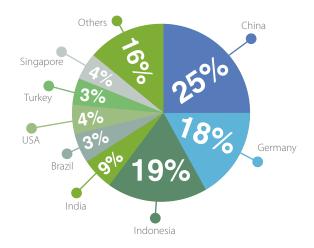
We were one of the first chemical manufacturing companies to adopt SA8000 standards for social responsibility, and have recently become a signatory to the United Nations Global Compact Principles. DyStar human resources policies are aligned with both SA8000 standards and the UNGC Principles.

As the employer of more than 2,400 people around the world, DyStar has a responsibility for their health and safety in the workplace, in providing good and equal opportunities, and in acting responsibly and constructively

#### Workforce distribution 2011



#### **Employees by country 2011**



towards their communities.

Responsibility toward employees is one of the important aspects of DyStar's sustainability framework. We closely monitor, and disclose, company performance on employee related indicators.

DyStar had 2,419 employees as of end of December 2011. Of these, 57% were employed in our production plants. The head office in Singapore, country offices and laboratories worldwide accounted for the remaining

43% employees. The number of managers and supervisors was at 536.

Permanent employees accounted for 91% of job positions. Contract workers, temporary and part-time employees constituted the rest. Major jobs locations included China, Germany, Indonesia and India.

Admin, technical and support staff formed 55% of the total workforce followed by supervised production workers (25%), mid-level management (15%) and senior management (5%).

#### Age, gender and diversity

Men accounted for 70% of DyStar employees while women held 30% of the jobs. Men formed the bulk of the workforce (83%) in production plants, a common trend in chemicals manufacturing industry. However, we had a better gender balance in offices, including headquarters, where women were 46% of the workforce.

Employees in the age group of 30-50 years accounted for 71% of the workforce followed by employees in the 'less than 30 years' age group (16%) and those more than 50 years age (13%).

Female representation in the three age groups we tracked was as follows: 41% in 'less than 30 years', 30% in the age group of 30-50 years, and 26% in the group consisting employees above 50 years of age. Women held 49% of admin, technical and support jobs. Their share in senior management and mid-level management was 13% and 28% respectively.

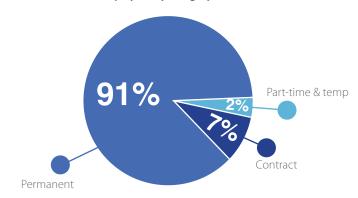
#### **Ethnic diversity**

We respect the diversity of all cultures and values. DyStar's policy is to offer equal opportunities for employment and growth to people based on merit. Globally we employed more than 35 nationalities indicating a rich diversity of our workforce.

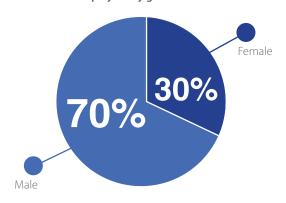
#### Disability

We employed 15 persons with some form of physical disability in 2011. Three of these were women.

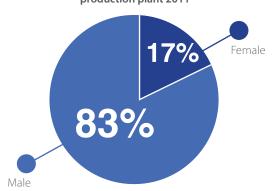
#### **Employees by category 2011**



Employees by gender 2011



Employees by gender in production plant 2011



#### **Employee training**

DyStar believes in ongoing training. Training opportunities are provided to enable our employees to do their job more effectively and facilitate their career growth. In 2011, DyStar employees collectively received more than 7,000 hours of training, which equates to 2.9 hours per employee. Training topics included Hazardous Chemicals management, Protection from occupational disease, Operating pressure vessels, team building, Occupational safety, Compliance, REACH, Sales management, Problem solving and Decision making, Apply workplace safety and health practices, English language and Sustainability.

There is ongoing informal on-the-job training, briefings and mentoring across DyStar, data for which is currently not maintained.

#### **Employee performance management**

All permanent DyStar employees are covered by an extensive performance management system. We have implemented a global performance appraisal system that takes into account employee performance, career development and professional progress. Performance appraisal is used for determining promotion, training and learning needs and potential career growth opportunities.

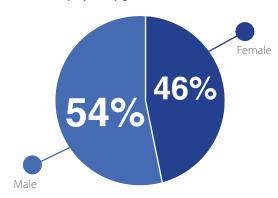
DyStar global HR policy also includes a reward and recognition scheme aimed at rewarding exceptional performance.

#### **Human rights**

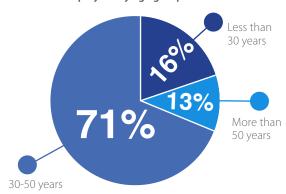
DyStar conducts business in conformance with internationally accepted human rights norms. We were one of the first chemical sector companies to endorse SA8000 standards that include standards relating to human rights. The company is also a signatory to the United Nations Global Compact principles for corporate social responsibility which includes respecting human rights.

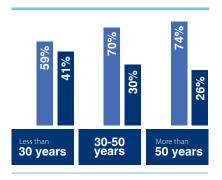
We apply the following human rights principles to our operations worldwide:

#### Employees by gender in offices 2011



Employees by age group 2011





Employees by age group and gender

Male Female

#### Child labor

We do not support or tolerate child labor within our area of responsibility. DyStar does not expose children or young workers to situations in or outside of the workplace that are hazardous, unsafe or unhealthy. However, we do not currently evaluate suppliers for identifying potential risks of child labor in their operations.

#### Forced labor

DyStar does not engage in or support the use of forced labor. Personnel are not required to lodge deposits or identity papers upon commencing employment with the company. We do not evaluate suppliers for identifying potential risks of forced labor in their operations.

#### Freedom of Association, Right to Collective Bargaining

We respect the right of all personnel to form and join trade unions and to bargain collectively.

We ensure that the representatives of trade unions are not the subject of discrimination and that they have access to their members in the workplace. However, we do not evaluate suppliers for identifying potential risks of violation of freedom of association in their operations.

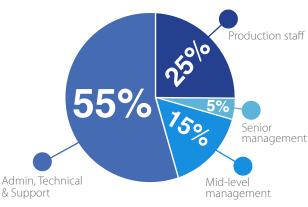
#### Discrimination

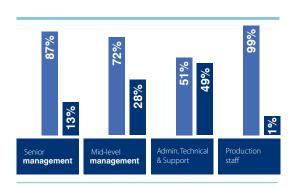
DyStar does not tolerate discrimination based on race, ethnic origin, gender, religion, philosophy, political affiliation or union membership, disability, age or sexual orientation. We do not tolerate behaviour that is sexually coercive or threatening. There were no reported incidents of discrimination in 2011.

#### **Disciplinary Practices**

We do not engage in or support the use of corporal punishment, mental or physical coercion and verbal abuse of its employees.

## Employees by category 2011





Employees by category and gender 2011

Male Female

## $Dy Star\, signs\, Employers\, Pledge\, for\, Fair\, Employment\, Practices$

DyStar signed the Employers' Pledge with the Tripartite Alliance for Fair Employment Practices (TAFEP) in Singapore in 2011. TAFEP's shared vision is for Singapore to be one of the best places in the world to work; a place where every worker is given an equal opportunity for employment, rewarded according to his or her merit, treated fairly and with respect, and given the opportunity to optimize his or her unique talents; a place where businesses are able to attract, develop and retain valued employees, and create a harmonious and inclusive work environment, where employees are highly motivated and contribute to their fullest to their organizations and the economy.

With a view to achieving this vision, the tripartite partners – the Singapore National Employers Federation, Singapore Business Federation, the National Trades Union Congress and the Ministry of Manpower - have unanimously endorsed the 5 key principles of fair employment practices for implementation:

- Recruit and select employees on the basis of merit, such as skills, experience and ability, regardless of age, race, gender, religion or family status.
- Treat employees fairly and with respect and implement progressive human resource management systems
- Provide employees with equal opportunities for training and development based on their strengths and needs, to help them achieve their full potential.
- Reward employees fairly based on their ability, performance, contribution and experience.
- Abide by labor laws and adopt Tripartite Guidelines which promote fair employment practices.





# Society

DyStar is committed to being a good corporate citizen by contributing to community development in a meaningful way. Technical knowledge and expertise in the area of textile chemicals is our key strength. We believe we can use our core strength to make a difference in society. This is why DyStar has identified technical education as a key area of community investment.

Investing in promoting technical education enables the beneficiaries to gain knowledge and skills that are in demand. The textile industry on the other hand gains from availability of trained manpower.

One of the first initiatives we started was in India where we collaborated with industry partners to open an academy in 2010.



#### Academy for developing textile technologists in India

In India, the industry faces shortage of textile technologists with the right skills. A key reason is that curriculum in several textile technology schools has not been able to keep pace with rapid development of new technology in the textile sector.

To address the issue, DyStar and India's largest fully integrated textile company Alok Industries Limited have joined hands to set up a not-

for-profit academy in India to identify, train and retain talent within the industry.

The Advanced Academy for Development of Textile Technologists (AADTT), as the institute is called, has been established as a charitable trust.

AADTT has signed memorandum of understanding (MOU) with more than ten premium institutes across the country, the Society of Dyers and Colorists (SDC), American Association of Textile Chemist and Colorist (AATCC), ASTM and others to back the initiative.

AADTT's vision is to create a unique knowledge and technologically advanced platform for identification, skill enhancement and career development of resources especially for the textile industry.

AADTT recruits B.Tech and M.Tech students from across the country, offers them accommodation, transport, stipend and trains them for a period of one year in DyStar and Alok facilities by carefully selected internal and external faculty members. The academy provides quality training, practical knowledge, innovative technology, skills of entrepreneurship and leadership.

Interested textile industry companies can hire these students after they complete the training. Equipped with the latest practical knowledge and skills, the academy's students can look forward to relatively higher remuneration package.

Collaboration with the American Association of Textile Chemists and Colorists (AATCC) has enabled the academy to include AATCC's internationally accepted standards of textile testing in the syllabus. Students get to learn standard methods of testing dyed and chemically treated fibers and fabrics to measure and evaluate such performance characteristics as color fastness to light and washing, durable press, soil release, shrinkage, water resistance and the many other conditions to which textiles may be subjected.

AADTT is also a Student Chapter member of AATCC. Students of 2011-12 batch of AADTT have presented papers in AATCC Conference held in the U.S.

During 2010 and 2011, a total of 32 students were enrolled under the scheme.



#### Community work

We support philanthropic activities around the globe and in 2011 DyStar offices worldwide supported a number of community projects.

For example, DyStar Turkey joined other companies in the Corlu region to send aid to Van earthquake victims.

DyStar Brazil has been donating money to Associação de Pais e Amigos dos Excepcionais (Association of Fathers and Friends of Special people), a special school for people with physical disability.

DyStar Mexico donated two computers and one overhead projector to a public school in Mexico suburban area. In another initiative, DyStar donated food to orphanage in an impoverished urban area of Mexico City. DyStar Indonesia offers scholarships to needy students from local elementary schools. In 2011, 36 students were given the scholarship.

DyStar Indonesia helped members of local community in Gabus, where we operate a plant, to establish a cooperative to run a cleaning service business. Then, DyStar plant hired their cleaning services for the plant.

DyStar plant management in Gabus, Indonesia arranges a quarterly liaison meeting with local community leaders.

DyStar Singapore contributed to Singapore Children Society by purchasing their merchandise to be given away as gifts during one of the employee engagement events.





# **Economic Performance**

DyStar is a privately held company and hence is not required to disclose financial performance reports publicly. Our senior management is accountable directly to the company's owners.

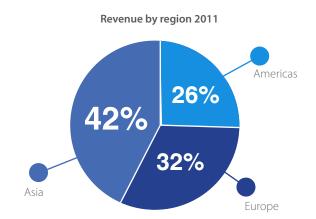
However, we are pleased to share our financial performance during 2010 and 2011 as follows. DyStar Group revenue for the calendar year 2011 was at USD777.2 million, up from USD613.2 million in 2010. In 2011, Asia accounted for 42% of the revenue generated followed by Europe (32%) and the Americas (26%). Employee wages and benefits in 2011 amounted to USD131 million. DyStar paid USD6.7 million in government taxes worldwide.

#### Supporting local suppliers

DyStar is committed to contributing to the development of local economies where the company has operations. For example, we buy from local suppliers as much as possible. Suppliers are selected based on a number of criteria that include quality, price, reliability, timely delivery, service and environmental performance. Within these parameters we prefer sourcing from local suppliers.

In terms of value, purchase of raw material and packaging constitute the bulk of our purchases. Raw materials mainly include chemicals. In some countries it is difficult to find locally produced quality chemicals. In such cases we have no choice but to import materials from foreign suppliers.

DyStar production plants account for the significant portion of all the purchases made. In 2011, we started collecting supplier data for locations where we have significant operations to track purchases from local suppliers. In China where we have three production plants, local suppliers accounted for 92% of the total purchase. In India, Germany and Brazil, the share of local suppliers was 92%, 83% and 74%. We are committed to continue to improve and expand collection of purchase data to better report our performance in coming years.





Revenue

# Global Reporting Initiative Index G3.1 GRI Application Level B

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	re-statement (e.g., mergers/acquisitions, change of base years/periods, nature of business, measurement methods).	43
3.11	$Significant\ changes\ from\ previous\ reporting\ periods\ in\ the\ scope, boundary, or\ measurement\ methods\ applied\ in\ the\ report.$	5
3.12	Table identifying the location of the Standard Disclosures in the report.	58-62
3.13	Policy and current practice with regard to seeking external assurance for the report.	5
4. Governance	e, Commitments, and Engagement	Page
Profile Disclosure	Description	
4.1	Governance structure of the organization, including committees under the highest governance body responsible	
	for specific tasks, such as setting strategy or organizational oversight.	11, 12
4.2	Indicate whether the Chair of the highest governance body is also an executive officer.	11

Profile Disclosure	Description	
4.3	For organizations that have a unitary board structure, state the number and gender of members of the highest	
	governance body that are independent and/or non-executive members.	11
4.4	Me chanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	11
4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives (including	
	departure arrangements), and the organization's performance (including social and environmental performance).	11
4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided.	11, 13
4.7	Process for determining the composition, qualifications, and expertise of the members of the highest governance body	
	and its committees, including any consideration of gender and other indicators of diversity.	11
4.8	Internally developed statements of mission or values, codes of conduct, and principles relevant to economic,	
	environmental, and social performance and the status of their implementation.	13, 14, 22, 23
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of	
	economic, environmental, and social performance, including relevant risks and opportunities, and adherence or	
	compliance with internationally agreed standards, codes of conduct, and principles.	11, 12
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic,	
	environmental, and social performance.	11
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization.	11, 13, 22, 23
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the	22, 23, 24, 25, 26,
	organization subscribes or endorses.	40, 50, 54
4.13	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in	
	which the organization: * Has positions in governance bodies; * Participates in projects or committees; * Provides	
	substantive funding beyond routine membership dues; or * Views membership as strategic.	10
4.14	List of stakeholder groups engaged by the organization.	15-17
4.15	Basis for identification and selection of stakeholders with whom to engage.	15-17
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group.	15-17
4.17	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has	
	responded to those key topics and concerns, including through its reporting.	15-17, 18-21

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#### STANDARD DISCLOSURES PART II: Disclosures on Management Approach (DMAs)

Economic		Page
Performance Indicator	Description	
Economic perform	nance	
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations	
	and other community investments, retained earnings, and payments to capital providers and governments.	57
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change.	4, 19-20
Market presence		
EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.	57
Environmental		Page
Energy		
EN3	Direct energy consumption by primary energy source.	38, 39
EN4	Indirect energy consumption by primary source.	38,39
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy	
	requirements as a result of these initiatives.	30
Water		
EN8	Total water withdrawal by source.	44-45
EN10	Percentage and total volume of water recycled and reused.	44
Emissions, efflue	nts and waste	
EN16	Total direct and indirect greenhouse gas emissions by weight.	40-43
EN21	Total water discharge by quality and destination.	46, 47
EN22	Total weight of waste by type and disposal method.	48, 49
EN23	Total number and volume of significant spills.	49
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel	
	Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.	48
Products and ser	vices	
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	28, 29

Compliance		
EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws	
	and regulations.	37
Overall		
EN30	Total environmental protection expenditures and investments by type.	36, 37
Social: Labor P	ractices and Decent Work	Page
erformance Indicator	Description	
Employment		
LA1	Total workforce by employment type, employment contract, and region, broken down by gender.	50
Occupational he	alth and safety	
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region	
	and by gender.	33, 34
Training and edu	ication	
LA10	Average hours of training per year per employee by gender, and by employee category.	52
LA12	Percentage of employees receiving regular performance and career development reviews, by gender.	52
Diversity and eq	ual opportunity	
LA13	Composition of governance bodies and breakdown of employees per employee category according to gender,	
	age group, minority group membership, and other indicators of diversity.	51, 52
Social: Human	Rights	Page
rformance Indicator	Description	
Non-discriminat	ion	
HR4	Total number of incidents of discrimination and actions taken.	53
Freedom of asso	ciation and collective bargaining	
HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective	
	bargaining may be violated or at significant risk, and actions taken to support these rights.	53
Child labor		
HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures	
	taken to contribute to the effective abolition of child labor.	53
Forced and comp	pulsory labor	
HR7	$Operations \ and \ significant \ suppliers \ identified \ as \ having \ significant \ risk for incidents \ of forced \ or \ compulsory \ labor,$	
	and measures to contribute to the elimination of all forms of forced or compulsory labor.	53
Social: Society		Page
rformance Indicator	Description	
Corruption		
SO2	Percentage and total number of business units analyzed for risks related to corruption.	11, 13, 14, 2
Anti-competitive	behavior	
SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes.	21
Compliance		
SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws	

Social: Product Responsibility		Page
Performance Indicator	Description	
Product and service labelling		
PR3	Type of product and service information required by procedures, and percentage of significant products and	
	services subject to such information requirements.	21, 25, 26

# **UN Global Compact Index**

DyStar committed to the principles of the United Nations Global Compact in 2011. This report includes our first Communication on Progress, a public disclosure to stakeholders on progress made in implementing the ten principles of the UN Global Compact which the signatory companies are required to issue annually. Our reporting against the ten UNGC principles is part of the content of this report. The below index indicates the location of the relevant content within our Sustainability Report 2011.



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3	Uphold freedom of association and the effective recognition of the right to collective bargaining	20-21, 53
4	Support elimination of all forms of forced and compulsory labor	13, 20-21, 53
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10	Work against all forms of corruption, including extortion and bribery	21, 22

Sustainability is our responsibility. 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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