冠星集團控股有限公司
TST GROUP HOLDING LTD.

SUSTAINABILITY
ENVIRONMENT MANAGEMENT
REPORT 2023

Prepared by CSR TEAM

2024/02/01

01

ABOUT TOP STAR

ABOUT TOP STAR | DEVELOPMENT HISTORY & SUPPLY CHAIN DEPLOYMENT

We have high-quality cooperative factories in China and wholly owned weaving and dyeing integrated factories in Cambodia and Vietnam. We have established a complete and flexible supply chain system, which can provide fast, high-quality, stable supply services according to customer needs.

Timeline	Development history
1995	Hongkong，Top Star Textile Ltd.（HQ）
1995	Guangzhou，Branch Office
2003	Shanghai，Branch Office
2005	Ningbo，Invest Yingxing Textile Ltd.
2006	Shanghai，Chintex Enterprises LTD
2011	Cambodia，Top Sports Textile Ltd.
2019	Vietnam，Top Star Textile Vietnam Company Ltd.
2019	Taiwan，Branch Office
2019	Listed on the Taiwan Stock Exchange
2023	Vietnam, Top Sports Textile Vietnam Co.,Ltd started production

ABOUT TOP STAR | GENERAL SITUATION OF PRODUCTION BASES

CAMBODIA

- Svay Rieng
- Founded in 2011
- ≈ 5 M lbs / M
- The first knitting & dyeing integrated factory in Cambodia

CHINA

- Guangdong
- Founded in 2002
- ≈ 4 M lbs / M
- Guangdong 2020 Specialized, New & High-tech SMEs

VIETNAM

- Tay Ninh
- Start-up in Nov 2023
- ≈ 73,000 m^2
- ≈ 4 M lbs / M (After Phase II)

Top Management Support & Direct

- Sustainable development affairs are supervised by the Group CEO, managed by CSR Deputy General Manager and Corporate Social Responsibility (CSR) Department;

We Evaluate/Advise/Supervise

- Identify, evaluate and manage the impact of the company's operating activities on sustainable development issues, and regularly report the project progress and performance;
- Supervise the sustainable practices of factories, and carry out evaluation and audit.

ABOUT TOP STAR | STAKEHOLDER ENGAGEMENT

Transparent & Credible

We attach importance to communication and dialogue, understand stakeholders' concerns, and show the company's efforts in sustainable production to stakeholders

Stakeholder	Focus	Communication
Employees & Families	• employee-employer relations • Occupational health and safety • Labor rights and interests • Training and Career Development	Staff communication meetings, employee congress, trade union, complaint box
Shareholders & Investors	• corporate governance • business performance	The Board of Directors and the Shareholders' Meeting Legal person presentation Public information
Client	• Product quality & production efficiency • Innovative products & technologies • Customer communication & complaint management	Email, phone calls, offline meetings Visit & inspect the factory regularly Exhibition & promotion activities
Supplier	• Product price, quality, & service • Supplier management	Telephone, email, offline meetings Visit & inspect factories Contract contract
Government	• Local regulations follow • Environmental Management & Assessment • Workplace health and Safety	Telephone, official document, mail traffic Government meetings, government public website Factory visit, supervision and inspection
Community	• Protect the environment against pollution • Support community development	Energy conservation and emission reduction, charitable donations, and participation in volunteer activities
Media & NGO	• Governance transparency • Environmental protection production	Participate in trade association meetings Public platform disclosure
Academy	• Promote industry development • Provide employment opportunities	Industry-university-research, internship, education

ABOUT TOP STAR | CLIMATE-RELATED FINANCIAL RISK CONTROL

Physical Risk

- Climate change and its secondary disasters will cause great damage to factory operation and supply chain circulation.

HOW TST REACT

- Environment Emergency Management
- Coal Phase-out
- Roof Top Solar
- Sustainable Products

Transformation Risk

- The transformation of the industry will pose great challenges to the factory's compliance, technical level, business environment and corporate image.

HOW TST REACT

- Identification & Follow-up of Laws
- Exploration of Green Energy Market
- Energy-saving Equipment
- ESG Disclosure

ABOUT TOP STAR | CLIMATE-RELATED FINANCIAL RISK CONTROL

TYPE	CLIMATE-RELATED RISK	POTENTIAL FINANCIAL IMPACT	CONTROL MEASURES/PLANS
Physical Risk	**Acute Risk**		
	Extreme weather events (Such as typhoon, flood)	Threaten personal and property safety, supply chain and logistics interruption	Incorporate adaptations into business strategies and plant emergency plans; Diversified origin and material sources
	Chronic Risk		
	Frequent extreme heat temperatures	Energy cost, high temperature subsidy cost increases; personnel production enthusiasm decreases	Promote RTS and other carbon reduction projects; heat prevention and cooling measures in the factory
	Sea level rise	Threaten personal and property safety, supply chain and logistics interruption	Include risk considerations into infrastructure planning and supplier management procedures
	Freshwater salinity rises	The cost of fresh water supply is rising	Increase the construction of recycling water facilities, improve the efficient water-saving process; Sustainable raw materials, such as GOTS, GRS, OCS, RCS, etc
	Persistent and severe drought	Supply costs of raw materials and fresh water are rising	

ABOUT TOP STAR | CLIMATE-RELATED FINANCIAL RISK CONTROL

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

TYPE	CLIMATE-RELATED RISK	POTENTIAL FINANCIAL IMPACT	CONTROL MEASURES/PLANS
Transformation Risk	**Policies & Laws**		
	Stricter Policies & Regulation	Compliance costs rise; Risk of stopped production	Following the policy and legal norms, continuous technical update
	Technology		
	Low Carbon Technology	Cost spending increased	Group carbon reduction strategy
	Market House		
	Supply Chain & Logistics Disruptions	Delay in raw material supply and cost logistics	Adopt sustainable raw materials; seek product localization supply chain
	Green Electricity Market	Increase electricity purchase expenses	Seek cooperation with professional green electricity trading institutions; seek other energy markets
	Industry Restructuring	Investment in low-emission production has shifted to on-demand production	Global partnership with customers and institutions, Industry 4.0 and outstanding intelligent manufacturing factory and smart warehouse
	Reputation		
	Customer Requirements for Improvement	Orders fell due to failure to meet customer requirements	Working with customers to promote various sustainability initiatives; Participation of the stakeholders and evaluation of important topics; The Group sustainability Report discloses important ESG information
	Investor Attention Increases, and increasingly stringent ESG ratings	The capital supply is affected	

02

SUSTAINABLE TOP STAR

SUSTAINABLE TOP STAR | ENVIRONMENT STRATEGIES

Sustainable Products | Climate Action | Energy Efficiency | Water Efficiency | Chemical Management | Wastewater Exhaust Gas | Waste Management

For TST, sustainability is not independent from production, but integrated into all development strategies.

We are committed to improving the following 7 fields, making them part of our corporate culture & the responsibilities of each employee and department.

SUSTAINABLE TOP STAR | ENVIRONMENT ROAD TO 2025

2021

Sustainable Products	Climate Action	Energy Efficiency	Water Efficiency	Chemical Management	Wastewater Exhaust Gas	Waste Management
98% (Recycled PES) (Recycled Cotton) (Organic Cotton) (BCI Yarn)	-30% (2025vs2021)	-18% (2025vs2021)	-10% (2025vs2021)	80% (MRSL Lv.3)	100% (Compliance)	99% (Waste Diversion)

2025

MAKE TEXTILE MAKE GREEN LIFE

- Recycled Polyester
- Recycled Cotton
- Organic Cotton
- BCI Yarn

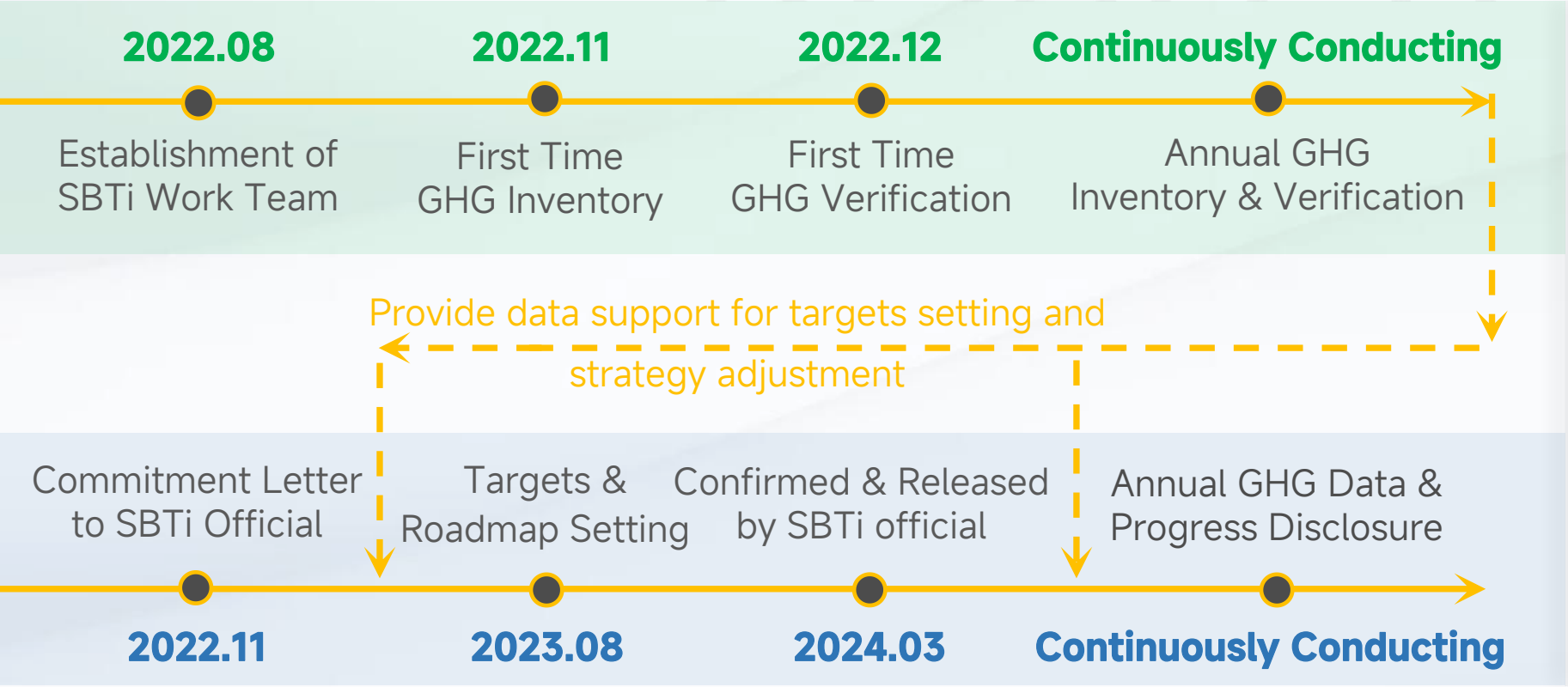
* We infer our sustainable products composition by analysing our yarn procurement

We promise and have the ability to purchase sustainable raw materials and produce sustainable products;
We establish a responsible and comprehensive management system to actively control the environmental footprint of raw materials and products.

TST Eco-friendly Product/Quality Management Certifications

- Global Organic Textile Standard(GOTS)
- Organic Content Standard(OCS)
- Global Recycled Standard(GRS)
- Recycled Claimed Standard(RCS)
- U.S. Cotton Trust Protocol(USCTP)
- OEKO-TEX® Standard 100
- Better Cotton Initiative(BCI)
- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 14064 Greenhouse Gas Emission Verification System

ROAD TO SBT



TST Science-Based Targets

SCOPE 1 + 2

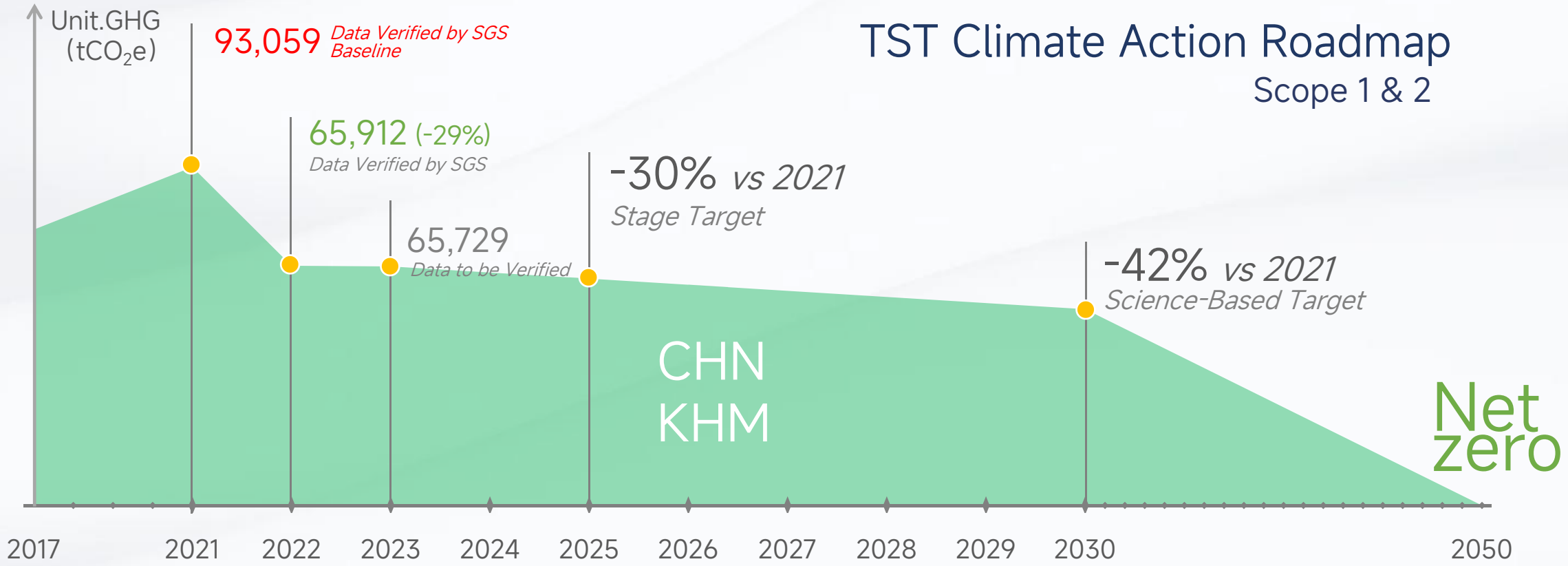
Absolute CO_2e -42%
(2030 vs 2021 Baseline year)

SCOPE 3

By 2028, at least 80% of TST suppliers by spend covering purchased goods & services, will have SBTs.

TST Climate Action Roadmap

Scope 1 & 2



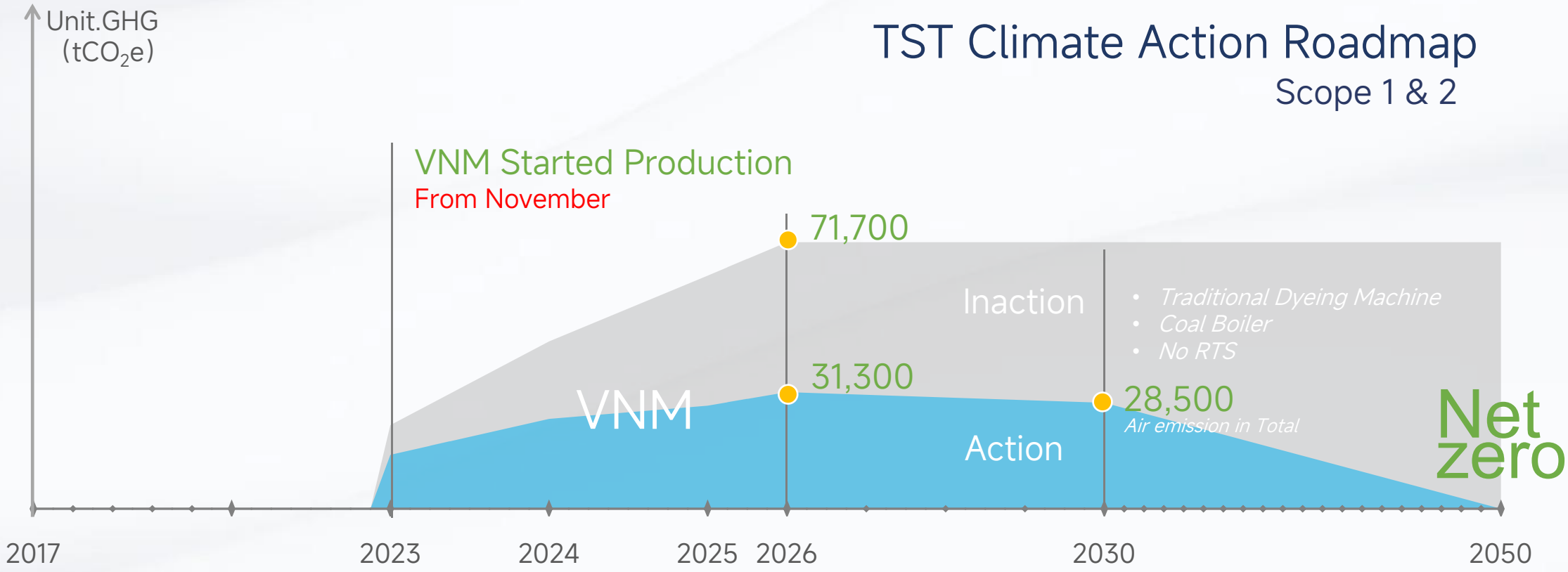
Officially launch SBTi project

100% Achieve Coal Phase-out

Achieve Maximum RTS Installation Capacity

TST Climate Action Roadmap

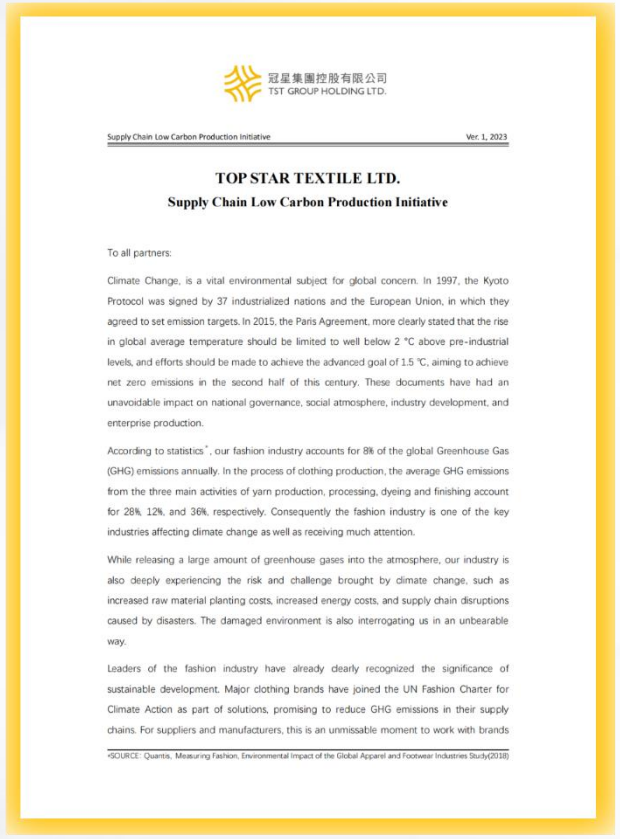
Scope 1 & 2



Officially launch SBTi project

100% Adopt Biomass Boiler at the Beginning

RTS Synchronous Installation with the Facility



冠星集團控股有限公司
TST GROUP HOLDING LTD.

Supply Chain Low Carbon Production Initiative Ver. 1, 2023

TOP STAR TEXTILE LTD.

Supply Chain Low Carbon Production Initiative

To all partners:

Climate Change, is a vital environmental subject for global concern. In 1997, the Kyoto Protocol was signed by 37 industrialized nations and the European Union, in which they agreed to set emission targets. In 2015, the Paris Agreement, more clearly stated that the rise in global average temperature should be limited to well below 2 °C above pre-industrial levels, and efforts should be made to achieve the advanced goal of 1.5 °C, aiming to achieve net zero emissions in the second half of this century. These documents have had an unavoidable impact on national governance, social atmosphere, industry development, and enterprise production.

According to statistics*, our fashion industry accounts for 8% of the global Greenhouse Gas (GHG) emissions annually. In the process of clothing production, the average GHG emissions from the three main activities of yarn production, processing, dyeing and finishing account for 28%, 12%, and 36%, respectively. Consequently the fashion industry is one of the key industries affecting climate change as well as receiving much attention.

While releasing a large amount of greenhouse gases into the atmosphere, our industry is also deeply experiencing the risk and challenge brought by climate change, such as increased raw material planting costs, increased energy costs, and supply chain disruptions caused by disasters. The damaged environment is also interrogating us in an unbearable way.

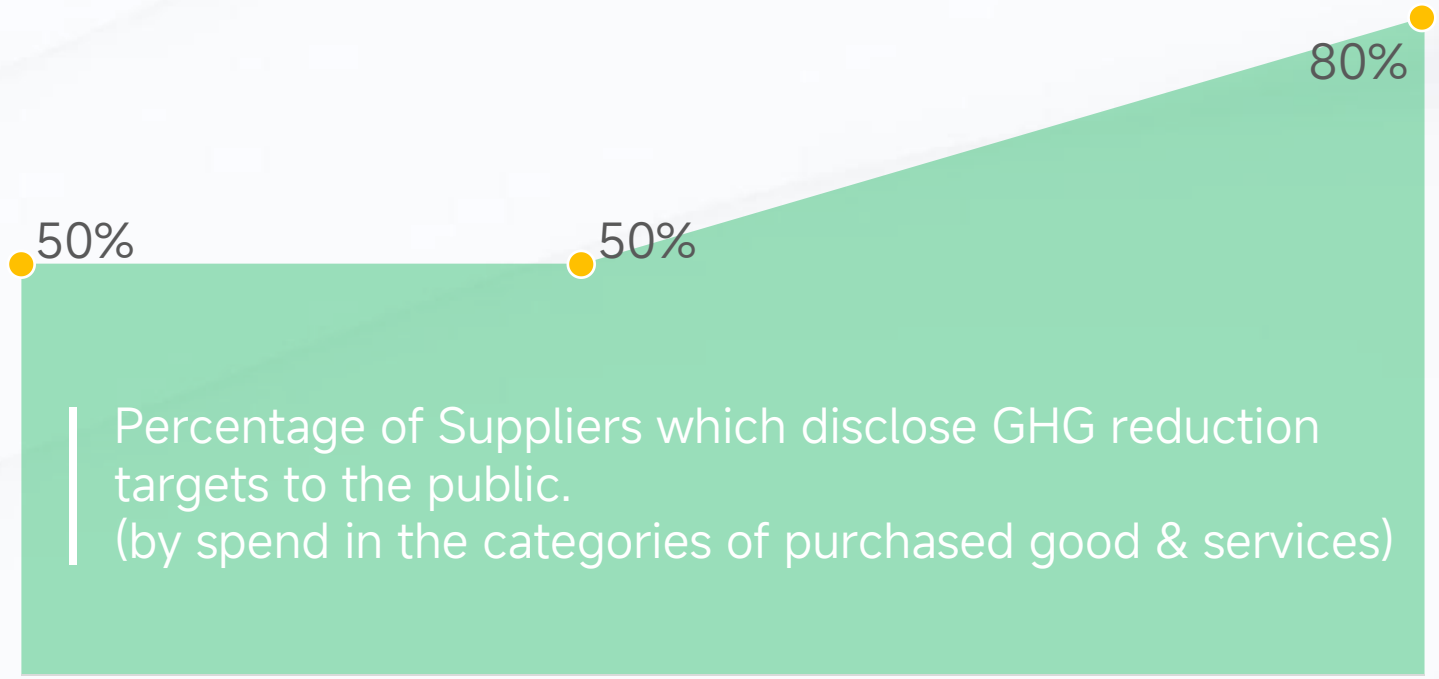
Leaders of the fashion industry have already clearly recognized the significance of sustainable development. Major clothing brands have joined the UN Fashion Charter for Climate Action as part of solutions, promising to reduce GHG emissions in their supply chains. For suppliers and manufacturers, this is an unmissable moment to work with brands

*SOURCE: Quantis, Measuring Fashion, Environmental Impact of the Global Apparel and Footwear Industries Study(2018)

Supply Chain Low Carbon Production Initiative

TST Climate Action Roadmap

Scope 3



Percentage of Suppliers which disclose GHG reduction targets to the public.
(by spend in the categories of purchased good & services)

KHM

Due to uncertain factors in the local RTS policy, the project is suspended

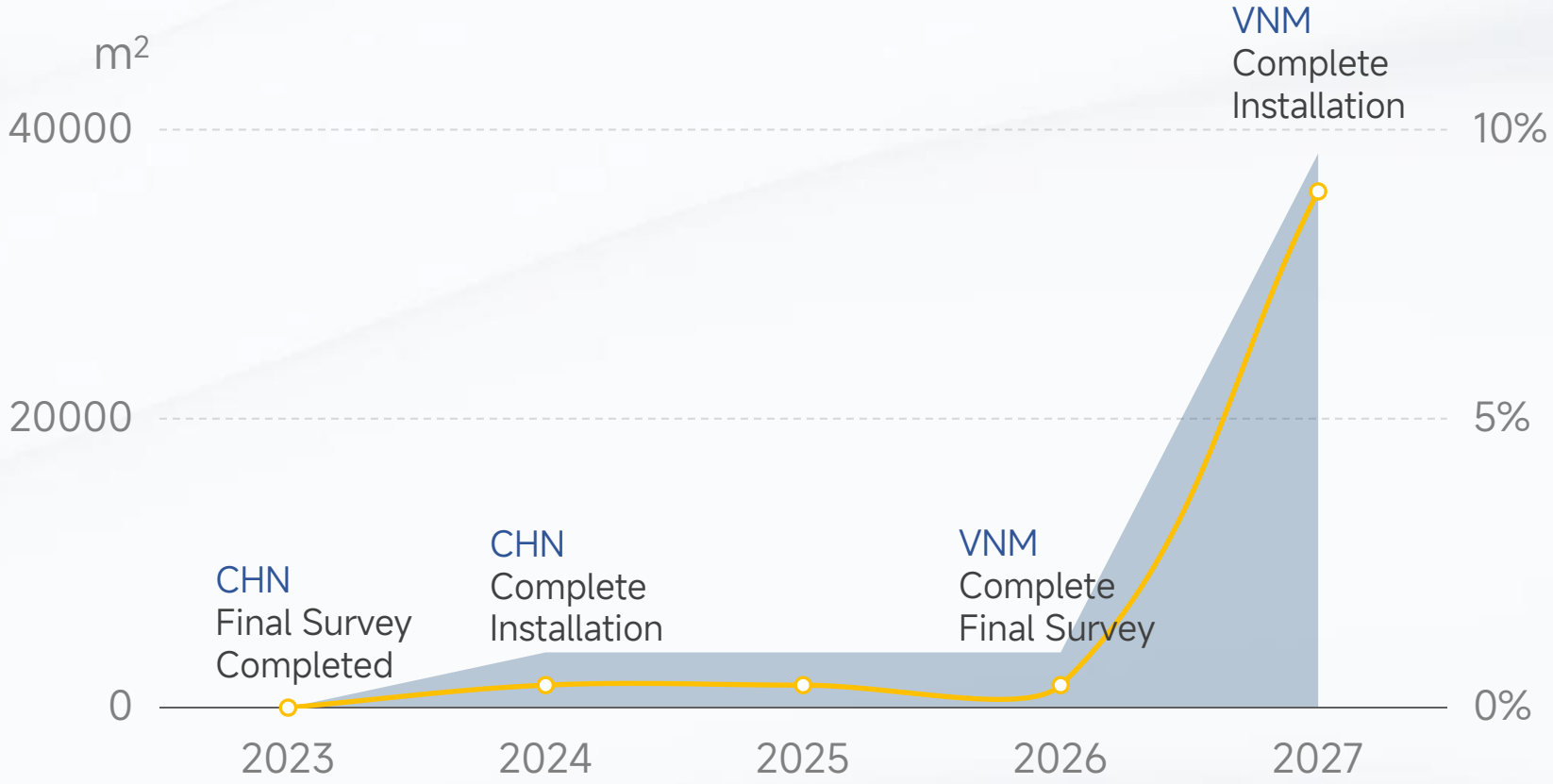
CHN

Construction has started and is expected to be put into operation within 2024

VNM

Installation will begin after the completion of Phase II

Roof Top Solar System



KHM

I-REC Purchased 2023

2,700 MWH

Covering 9.2% of total electricity consumption

CHN

I-REC Purchased 2023

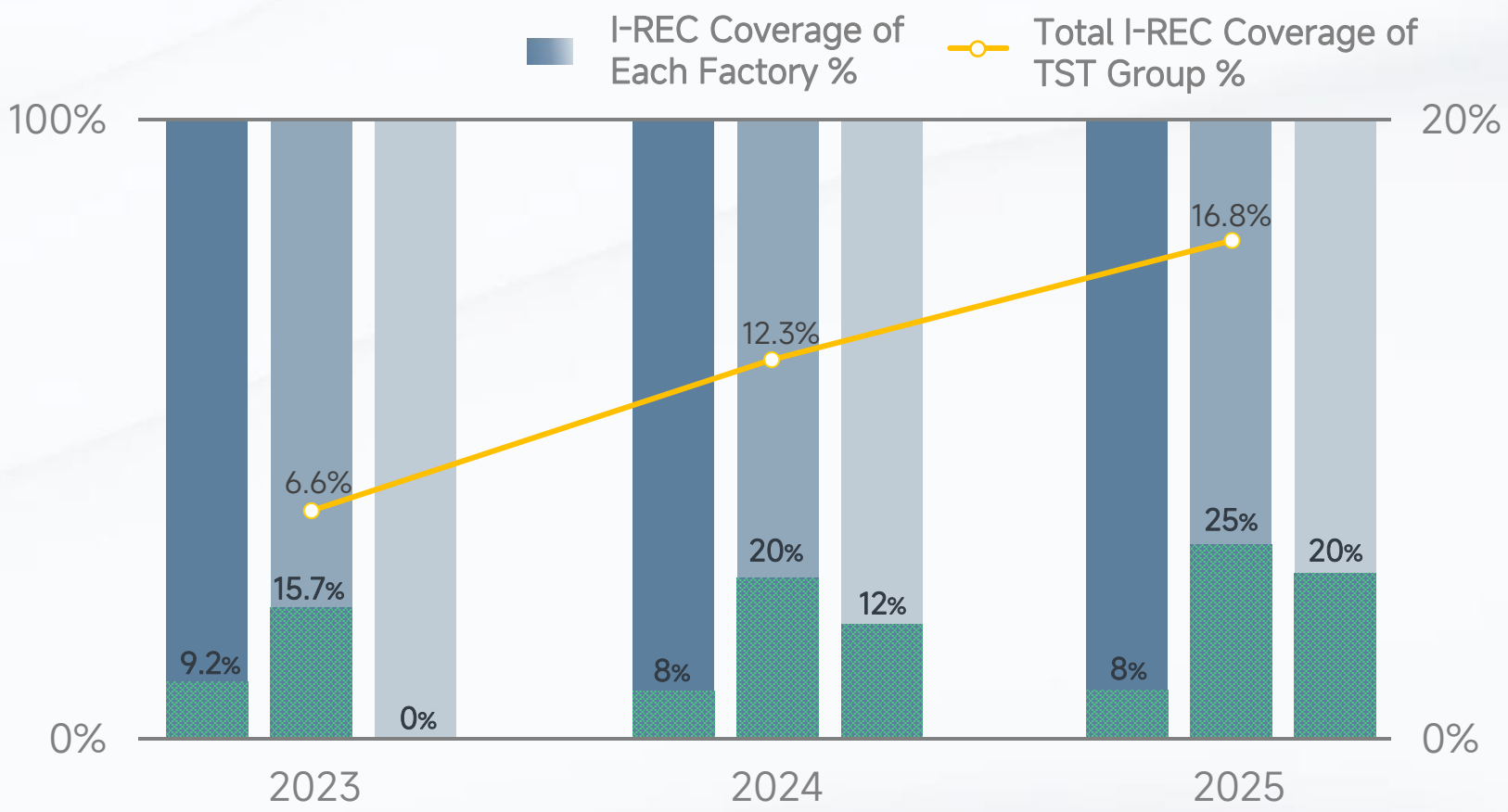
2,800 MWH

Covering 15.7% of total electricity consumption

VNM

Starting from 2024, we plan to purchase I-REC or Green Electricity based on actual production conditions

I-REC



KHM

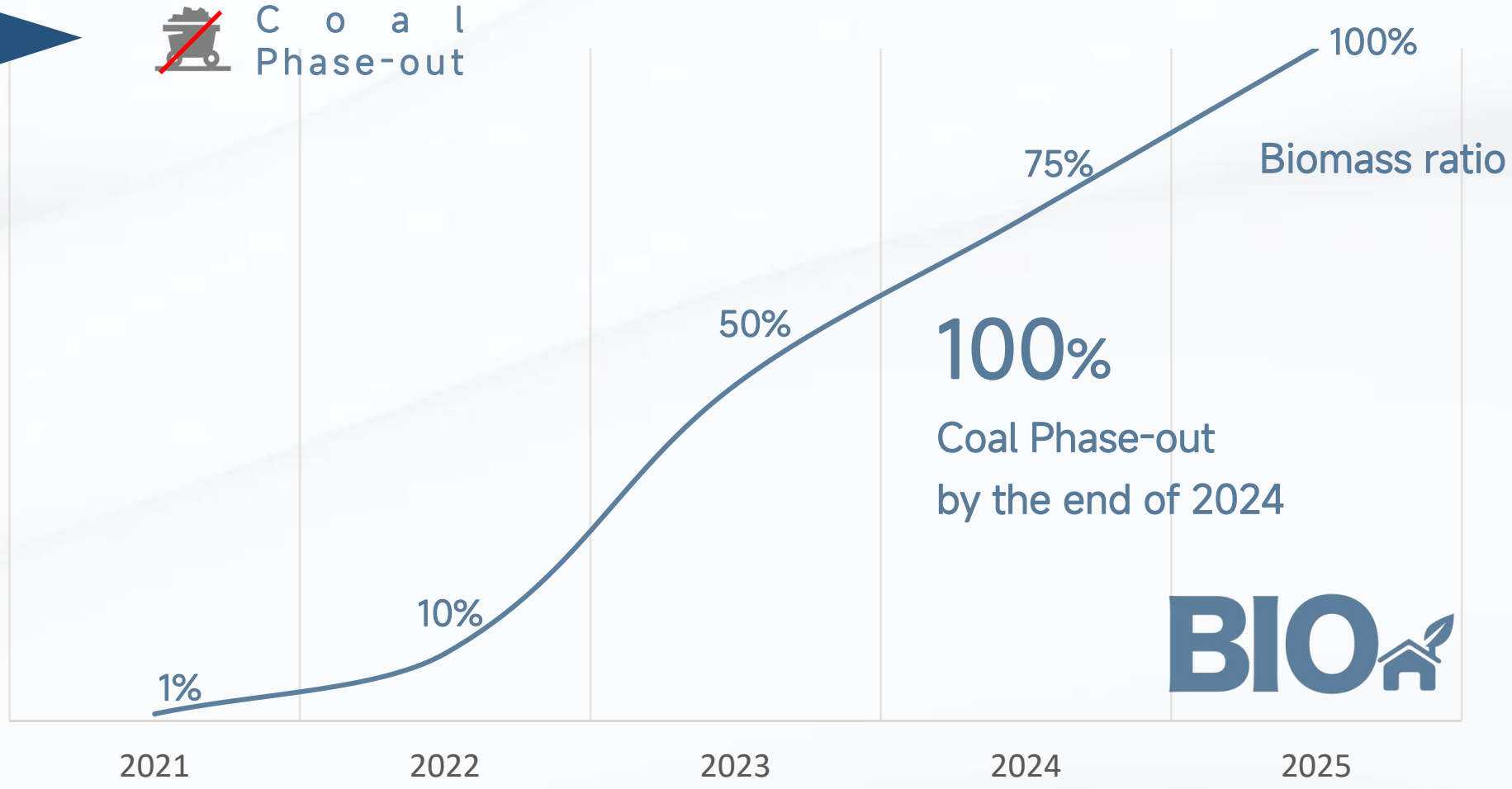
Gradually invest in replacing and reforming biomass boilers

CHN

Purchase steam
No coal use

VNM

Incorporated into the construction plan and 100% Biomass boiler



High Efficiency Air Compressor

-45% Energy Saving VS Conventional Air Compressor

- Permanent magnet variable frequency fan;
- Patented motor cooling structure design;
- Expanded and customized oil and gas separation systems;
- Centrifugal fan with relatively low noise.

Conventional Dyeing Process

Pre-treatment + Dyeing + After-treatment

All in ONE

- Low mechanical efficiency
- High consumption of energy/water/chemicals

123L/kg
Water Consumption

TST Low Carbon Coloration Technology – Separate Processes

CHN Mode I

-70% Water Consumption

-60% CO_2 Footprint

Continuous Pre-treatment

Continuous Pre-treatment Machine

Low LR Dyeing

Multi-flow Dyeing Machine

1 : 4 Liquor Ratio

Continuous After-treatment

Flat Pad Continuous After-treatment Machine

TST Low Carbon Coloration Technology – Separate Processes

CHN
Mode II

-75%
Water Consumption

-55%
CO_2 Footprint

-90%
Chemical Consumption

Continuous Pre-treatment

Continuous Pre-treatment Machine

CPB Dyeing

Cold Pad Batch Dyeing Machine

1 : 1
Liquor Ratio

Continuous After-treatment

Flat Pad Continuous After-treatment Machine

TST Low Carbon Coloration Technology – Separate Processes

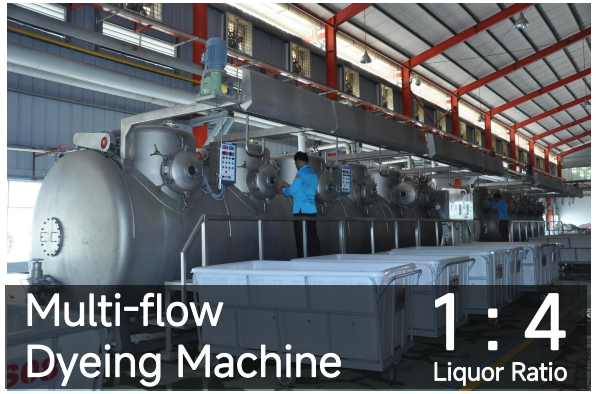
KHM

-40% Water Consumption

-45% CO_2 Footprint

CPB Pre-treatment

Low LR Dyeing



Continuous After-treatment

Conventional Dyeing Process

Pre-treatment + Dyeing（1:8） + After-treatment **123** L/kg

TST Low Carbon Coloration Technology – Separate Processes

	Step 1	Step 2	Step 3
CHN	Continuous Pre-treatment	Dyeing (1:4)	Continuous After-treatment
CHN	Continuous Pre-treatment	Dyeing (CPB1:1)	Continuous After-treatment
KHM	Pre-treatment (CPB)	Dyeing (1:4)	Continuous After-treatment

Estimated Savings

	Water Consumption	CO_2 Footprint	Chemical Consumption
CHN	-70%	-60%	
CHN	-75%	-55%	-90%
KHM	-40%	-45%	

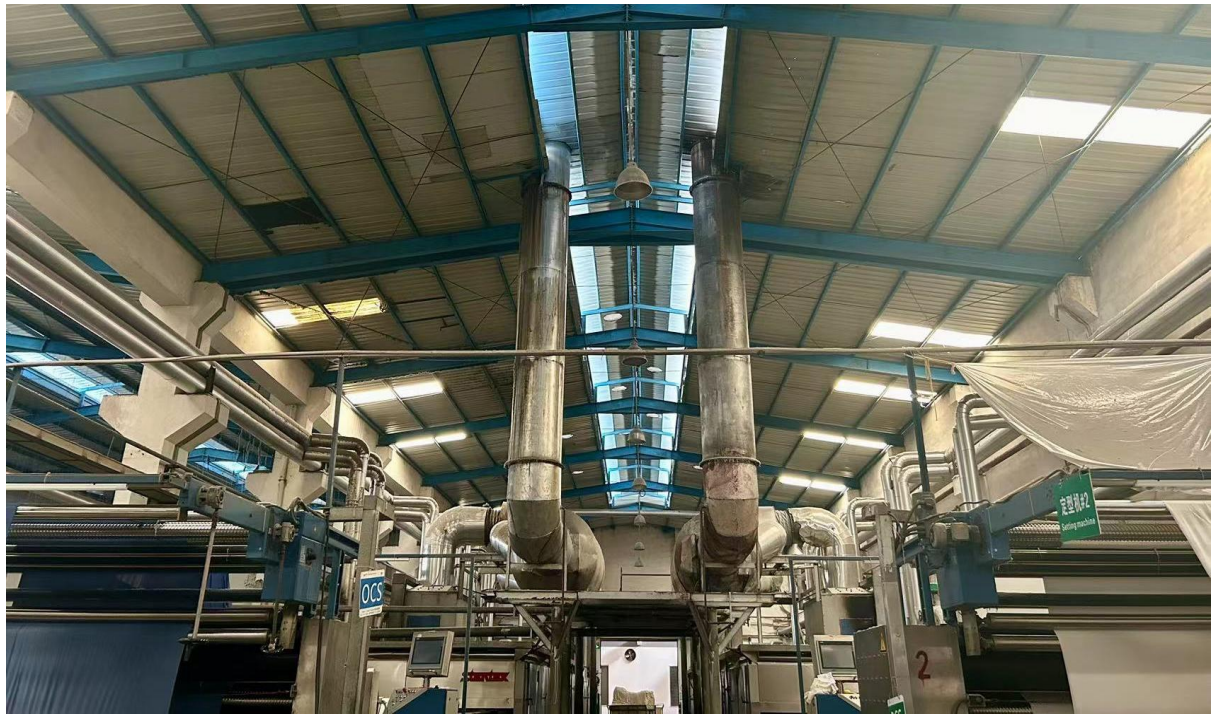
High Efficiency Setting Machine

-20% Energy Saving

VS

Conventional Setting Machine

- Equipped with 10 ovens;
- Energy-saving electrical motors;
- Patented Sprinkler Hot Air Circulation System;
- Independently controlled motor/fan.



Setting Machine Waste Heat Recovery

-10%
Energy Saving

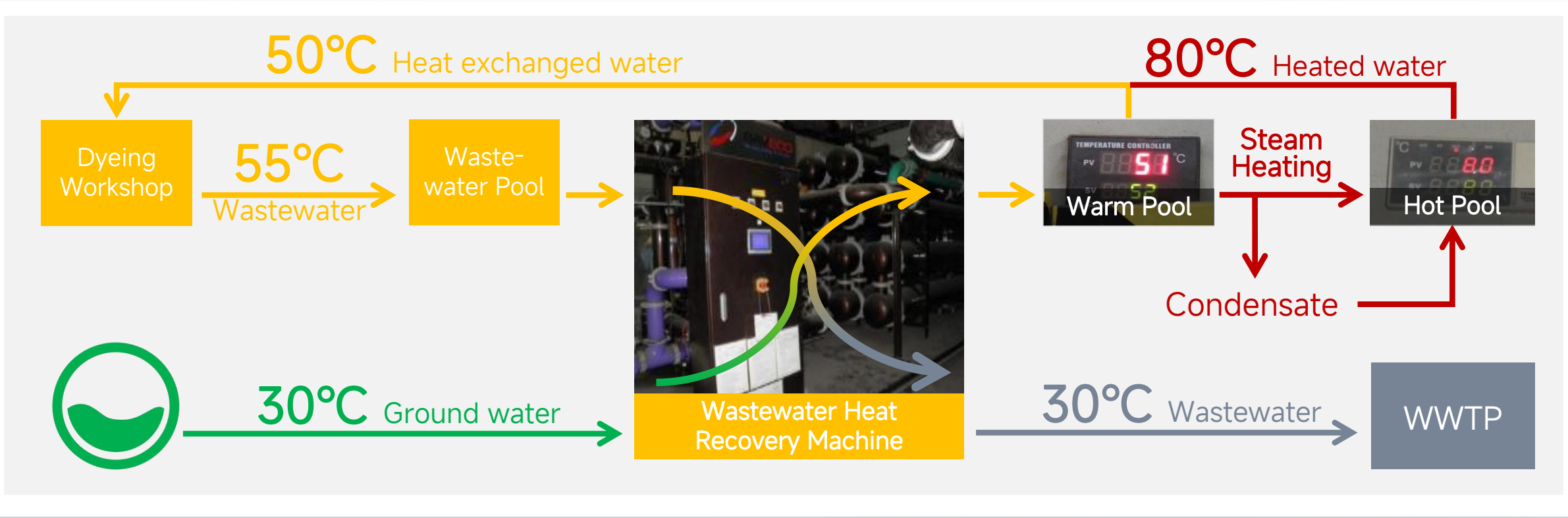
-40%
Organic waste gas emissions

- Ensure emissions meet standards;
- Cool the exhaust gas;
- Reduce the radiation of exhaust gas on workshop air and temperature, and improve the working environment.

Wastewater Heat Recovery

- Heat exchange between the waste heat of the dyeing wastewater and the cold fresh surface water to be supplied to the dyeing mill.
- Heating time of the cold water and Energy consumption can be saved.

-10%
Steam Consumption



Integrated Management

We systematically control chemicals from the input, process management & output to mitigate the environmental impact of chemicals throughout the process.

Chemical Input

MRSL Level 3

≈75%

Process Management

CIL BVe3 CMA

BVe3: Environmental Emission Evaluator

Output

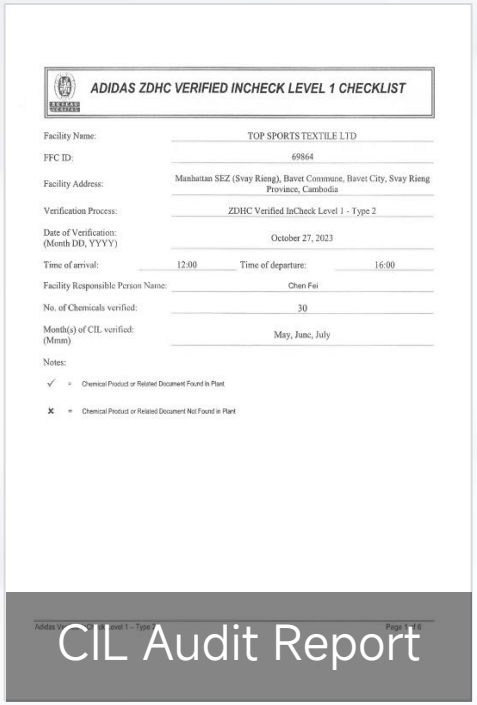
Products RSL Compliance

OEKO-TEX® CONFIDENCE IN TEXTILES STANDARD 100

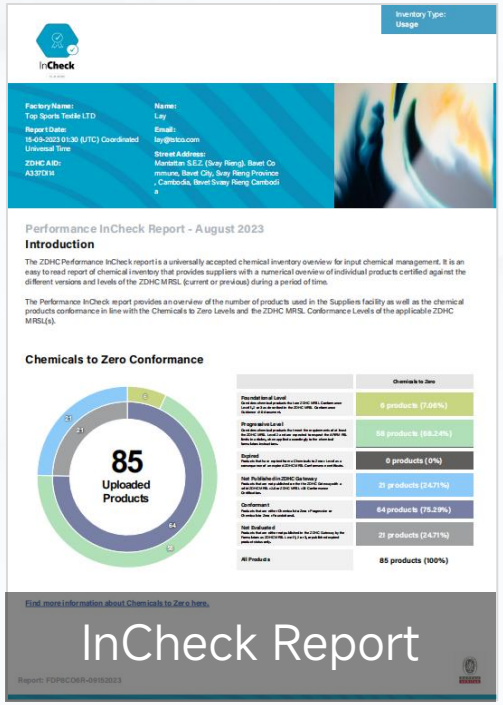
Wastewater Compliance

Compliance & Disclosure

We fully adopt the ZDHC platform, Wastewater Guidelines, and join the Supplier to Zero project. We publicly disclose relevant information on IPE DETOX and ZDHC Gateway.



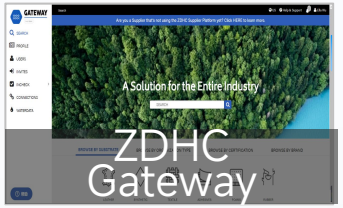
CIL Audit Report



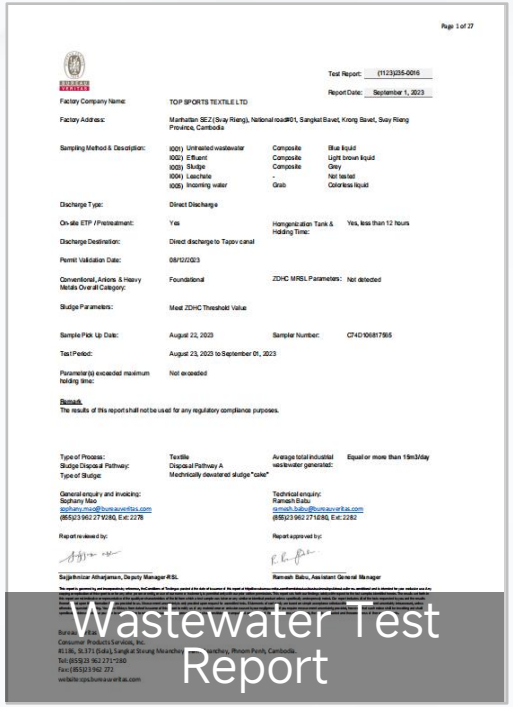
InCheck Report

Supplier to Zero

IPE DETOX



ZDHC Gateway



Wastewater

- Build wastewater treatment plant
- Conduct wastewater test as per regulations and ZDHC Guidelines

Waste

- Build classification & storage facilities
- Third-party units recycling

Exhaust Gas

- Invest gas cleaning Machines
- Conduct air emission test as per regulations

Wastewater


Treatment Facilities

Real Time Monitoring

Water reaching Discharge Standards

Final Sedimentation

Biochemical & Physicochemical Treatment

Real time monitoring

Flocculation & Sedimentation

Acidification

Aerobic

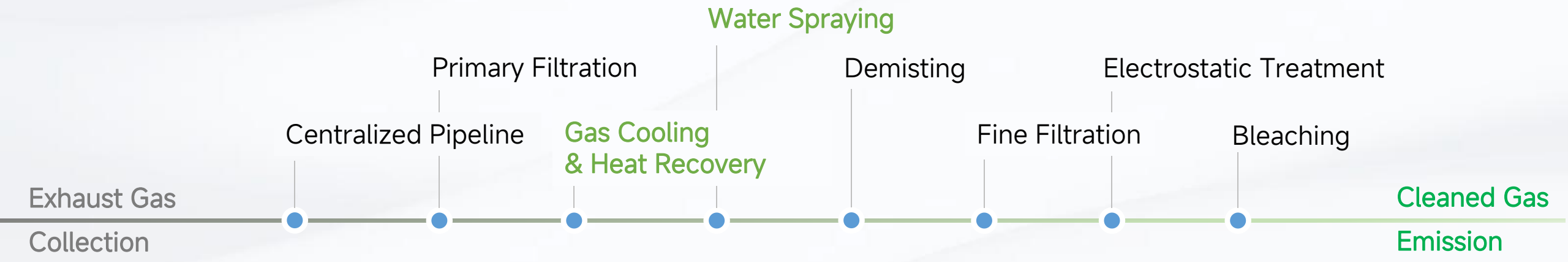
Pre-treatment

Flocculation & Sedimentation

Press Filter — Dry Sludge Transportation

Adjusting

Wastewater Heat Energy Recovery



KHM

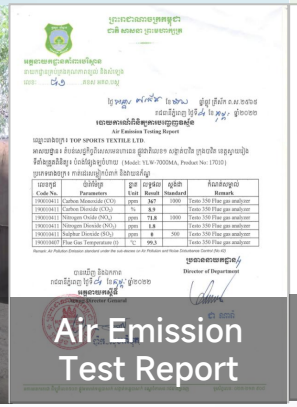
- Air emissions are tested every 1 years as per regulations

CHN

- Different objects are tested once a quarter ~ once a year as per regulations

Air purification & Heat Recovery for Setting Machine


Water-film Desulfurization Deduster for Boiler


Air Emission Test Report

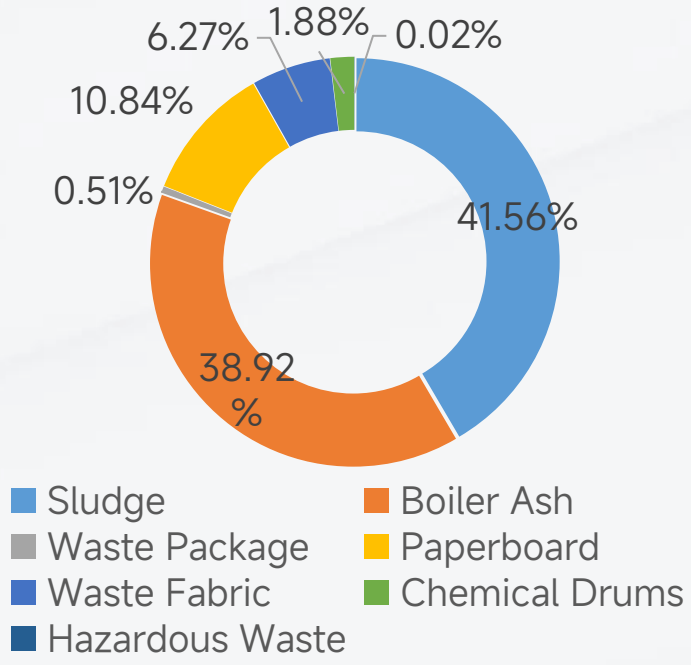
Pollution Discharge Permit


Air Purificator for Oil Boiler & Setting Machine


WWTP Air Emission Purificator

Classify & Store

We adhere to the principle of "Reducing, Recycling & Detoxificating", we reduce waste from the source, classify and store waste according to its characteristics.

2023 Waste Output	Waste Category
7,371t Weight in Total	
0.32t/t Weight per Unit	


Advanced Equipments to Improve RFT


Hazardous Waste Storage


Waste Classification & Storage


Press Filter to Reduce Sludge Weight


Waste Classification & Storage

Recycle & Reuse

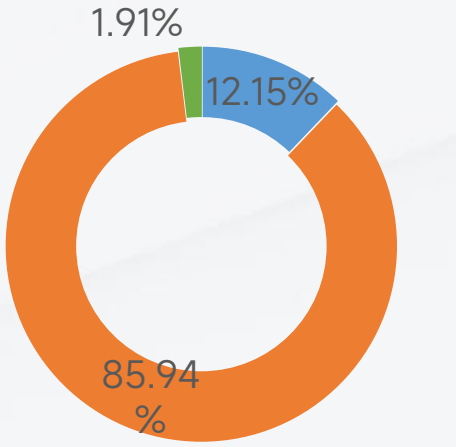
We actively promote the concept of circular economy as well as the comprehensive utilization of solid wastes, achieve agreements with various third-party waste recycling units. And we will continue to track the disposal method and the ultimate destination of waste conversion.

Diversion Rate

98.79%

'Zero Landfill' Rate

Diversion Category



SUSTAINABLE TOP STAR | 5-YEAR PLAN PERFORMANCE

2023 vs 2021

Sustainable Products

97%
(2023)

- Seek cooperation with more sustainable raw material suppliers to produce more sustainable products

Climate Action

-29.17%
(2022 (verified) vs2021)
65,912 tCO_2e
Scope 1+2

- RTS Project in progress
- Gradually replace coal boilers with biomass boilers
- Commit to join SBTi
- Purchasing I-REC

Energy Efficiency

+36.10%
(2023vs2021)
42 MJ/kg

- High efficiency air compressor
- CPB Dyeing
- Low Liquor Ratio Vat
- Continuous Pre/After-treatment
- High efficiency setting machine
- Setting machine waste heat recovery
- Wastewater heat recovery

Water Efficiency

+6.33%
(2023vs2021)
79 L/kg

- CPB Dyeing
- Low Liquord Ratio Vat
- Continuous Pre-treatment/After-treatment

Chemical Management

- Adopt the BVe3 & ZDHC platform to Continuously improve MRSL as well as other chemical management compliance

74.90%
MRSL Level.3
(2023)
72.62% in 2021

Wastewater Exhaust Gas

- Strictly follow the legal requirements and take advance actions

100%
Compliance
(2023)
100% in 2021

Waste Management

- Low carbon dyeing process
- Intelligent packaging
- Improve RFT
- Qualified third party co. recycling

98.79%
Waste Diversion
(2023)
92.81% in 2021

SUSTAINABLE TOP STAR | ENVIRONMENT PERFORMANCE

Site info. & Permit

EMS

Energy

Chemicals

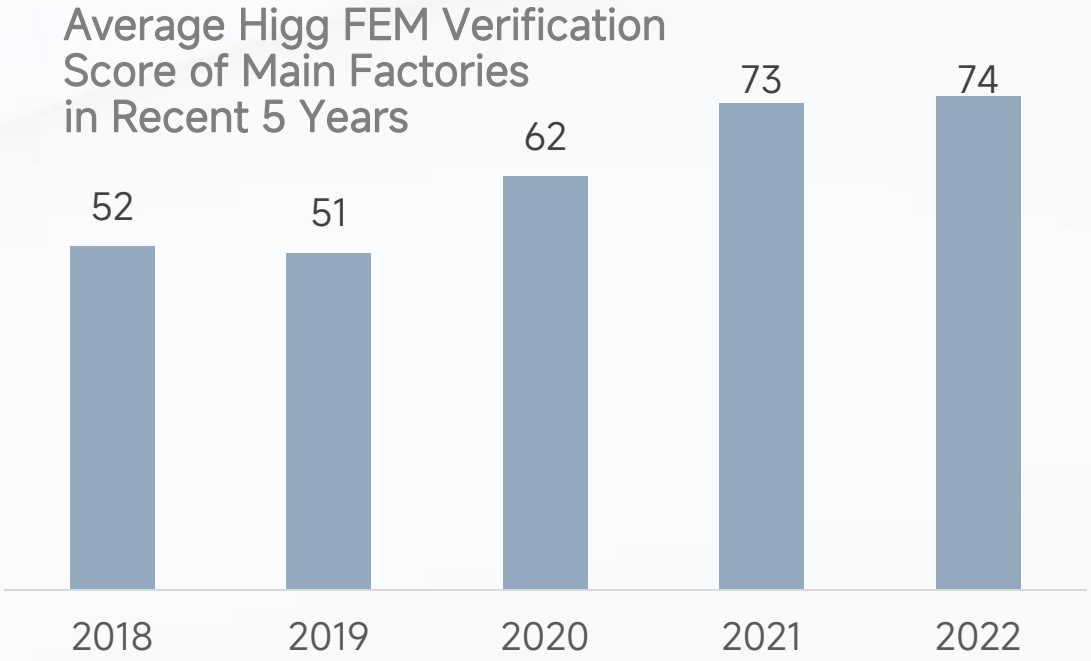
2022 Higg Facility Environmental Module

Water

Air Emissions

Waste

Wastewater



SUSTAINABLE TOP STAR | AWARDS & HONORS

1997-2023

6 prizes
Top Of The League

4 prizes
Best Fabric Supplier of R&D

3 prizes
KPI Champion of suppliers

2 prizes
Performance Award

4 prizes
ME/Leadership Sustainability Award

1 prize
Best Global Supplier

1 prize
Performance Award (People)

2 prizes
Quality Award

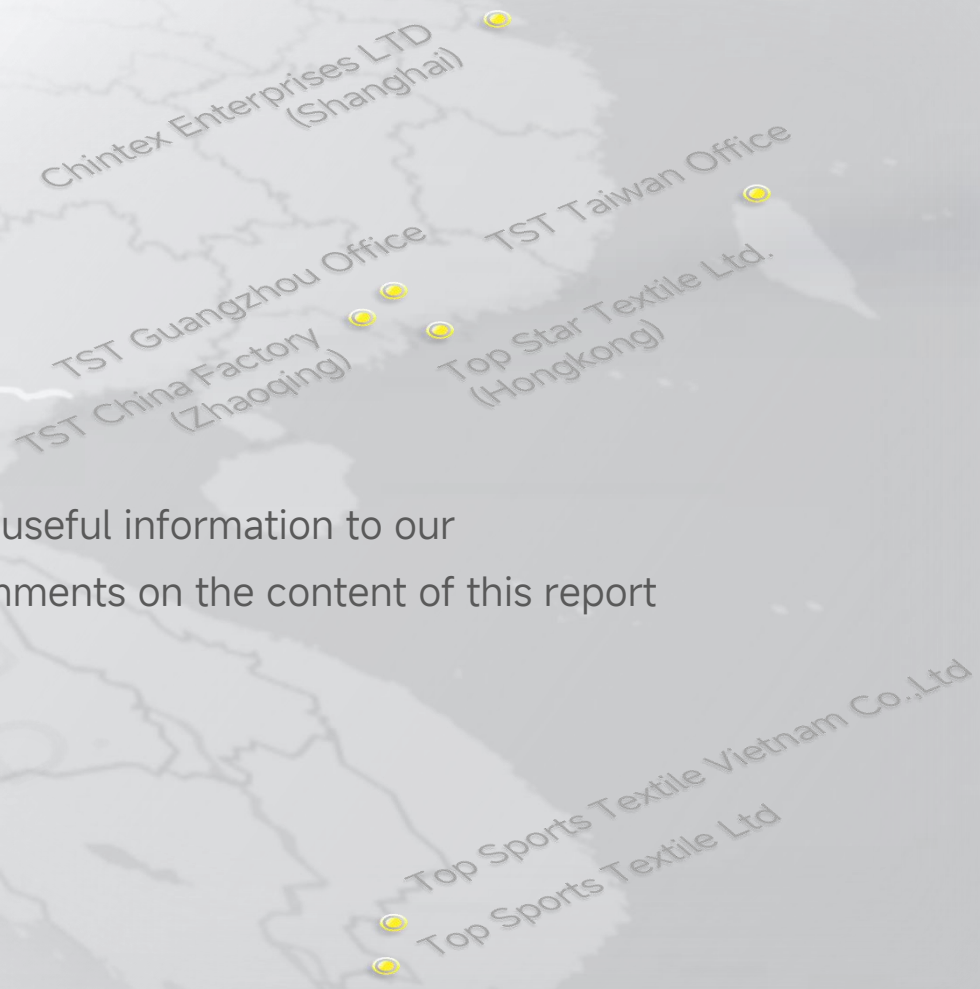
1 prize
Agility Award

CONTACT US

Ella Wu ella@tstco.com

ENVIRONMENTAL MANAGEMENT MANAGER

TOP STAR TEXTILE LTD. (GUANGZHOU OFFICE)



We sincerely hope that this ***Sustainability Report*** can provide useful information to our stakeholders. We are also looking forward to your valuable comments on the content of this report and our sustainability work.

Should you have any questions or suggestions,
please feel free to contact us, thank you.

織 識 本 位　織 造 美 好 生 活

MAKE TEXTILE　MAKE GREEN LIFE