



**NANYA PLASTICS CORP.**

**SUSTAINABILITY**

**100% Post-Consumer Rec. Polyester**



# Recycled Polyester



## Issues of Recycled Polyester

- only 50/72, 75/72, 150/48...  
reg. specification

- **colors**  
yellowish
- **physical property**  
quality index ↘

**Cost  
Higher**

**Limited  
Specifi-  
cation**

**Poor  
Quality**

**Certifi-  
cation**

- **Process:**  
spinning speed ↘  
A grade ↘
- **Material:**  
pellet cost ↗

- not easy  
certification

# Recycled Polyester



## Solutions From NAN YA

### ➤ Solution 1: High Quality **Mechanical Type** Rec. Pellets

import Japan  
rec. pellets

- better quality  
enough to produce fine denier,  
microfiber, mechanical stretch
- whiteness as virgin

set up Nan Ya  
rec. pellets  
plants

- cost down
- Quality better than Japan pellets  
by unique process  
special specification
- whiteness as virgin

# Recycled Polyester



## ➤ Solution 2: Set Up **Chemical Type** Rec. Pellets Process

chemical  
type rec.  
pellets

- flakes → glycolysis to monomer  
→ filtration → polymerization
- add **third ingredients** in polymer  
**functional pellets** : CD (heather  
yarn), flame retardant ...

## ➤ Solution 3: Certification

traceability

- internal —  
add unique tracer &  
set up data bank
- external —  
certificated by Control Union



# Recycled Polyester



## Flexible Supply Chain

Could Supply Yarn From :

**China**



**Taiwan**

**Vietnam**



# Recycled Polyester



## Traceability

### ➤ Internal Traceability

- **Tracer**

The unique tracer of Nan Ya in recycled filament

- **Data bank**

Production information is recorded and can be traced from customer, eco-filament to eco-pellet



### Production record

date	yarn lot	yarn spec.	chip po. no.	chip lot	chip spec.	used volume
10507	L9T19	BYBKD0200241E	57A3Y7	3YDJ5	CYBCD	470.0
10508	L9T19	BYBKD0200241E	57A3Y7	3YDJ5	CYBCD	781.0
10509	L9T19	BYBKD0200241E	57A3Y7	3YDJ5	CYBCD	5467.0

### Sale Record

date	No.	shipping date	order no.	item	clients	yarn spec.	yarn lot	grade	shipping volume	invoice no.
10508	9FX8494	1050823	M8690	08	IDEA	BYBKD0200241E	L9T19	B	139.4	CX90123380
10508	9FX8594	1050829	N7869	11	TSUKU	BYBKD0200241E	L9T19	A	750.0	25D68210

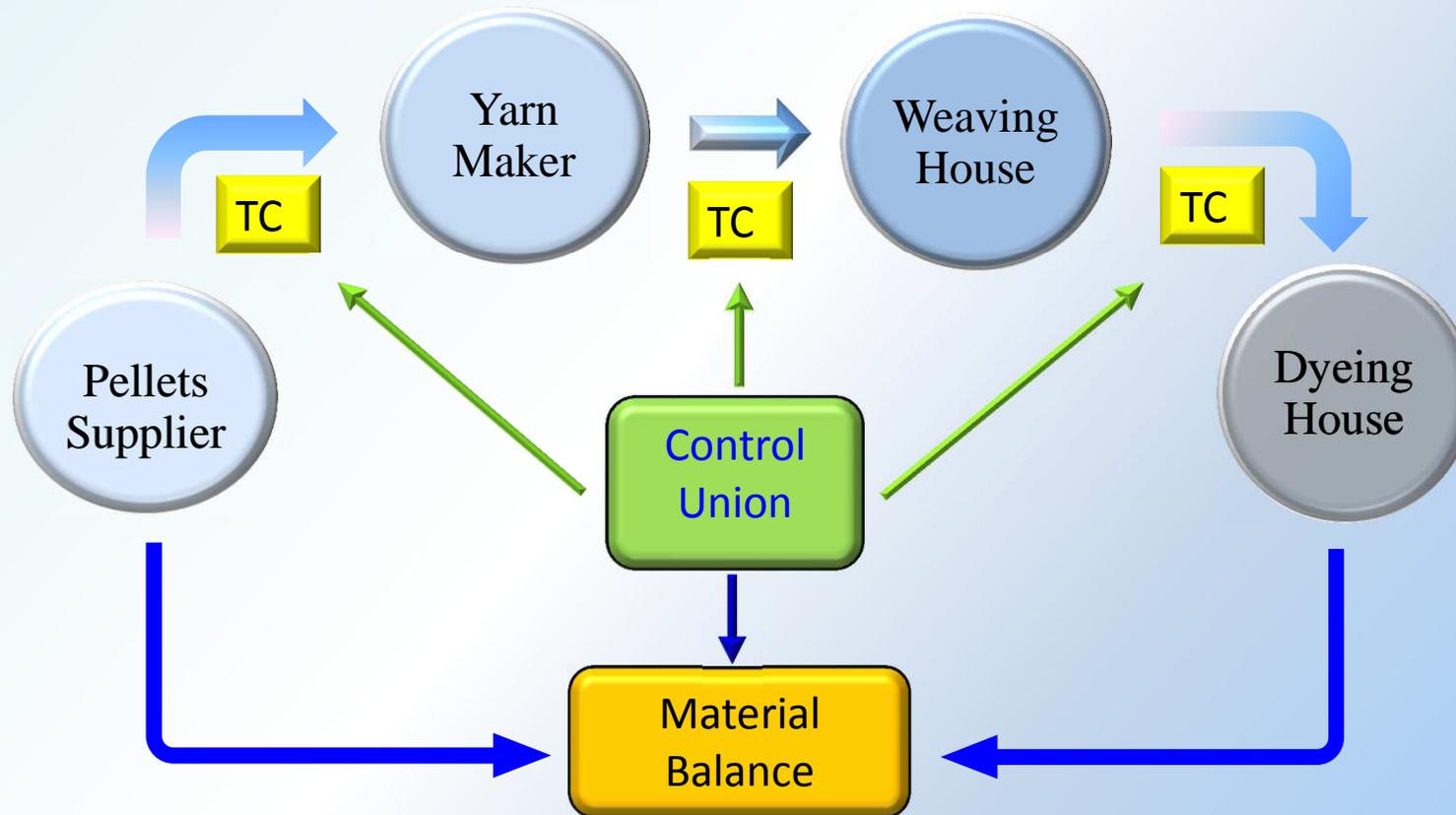
# Recycled Polyester



## ➤ External Certification

Certificated from C. U. (Control Union)

- All transactions are checked by TC



Transaction Certification (TC) of GRS

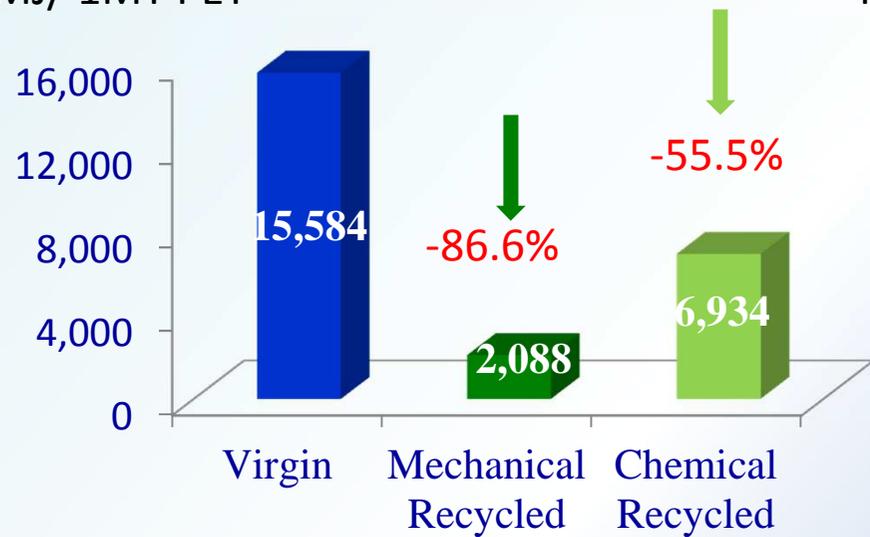
# Recycled Polyester



## Energy consumption & CO<sub>2</sub> Emission Comparison

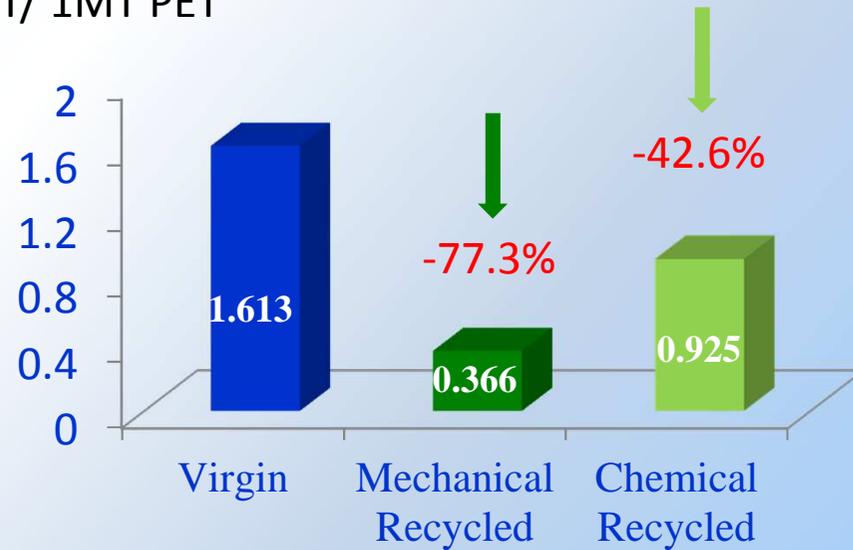
### Energy Consumption

MJ/ 1MT PET



### CO<sub>2</sub> Emissions

MT/ 1MT PET



# Recycled Polyester



Most spec. could be changed to rec. version

Low Denier—10d~40d

Microfiber—0.25~0.5dpf

Special Cross Section

CD, Heather



Regular type	Specification
DTY	50/36, 50/72, 75/36, 75/48, 75/72, 100/36, 100/48, 100/72, 100/96, 100/144, 150/48, 150/72, 150/144, 200/288
FDY	SD: 50/24, 50/48, 50/72, 75/36, 75/72, 100/36, 122/24/2, 150/5, 150/48 Br: 50/24Y, 75/24Y, 75/36Y, 50/48, 75/24

# Recycled Polyester



Specialized type		Specification
Fine denier	DTY	20/18, 20/24, 20/72, 30/36, 40/36, 40/72
	FDY	10/12, 20/24, 20/48, 30/24, 30/48, 40/12, 40/72
Microfiber	DTY	35/144, 50/144, 55/216, 75/144, 150/288
	FDY	30/72, 50/144, 75/144
Full dull	DTY	30/36, 75/36, 75/72
	FDY	40/24, 50/48
CD	DTY	50/48, 75/36, 75/72, 150/48
	FDY	30/12, 30/48, 50/48, 75/72
CD mix	DTY	75/72/2
Cross section	DTY	75/48+, 75/72+, 75/30 wave
	FDY	23/24 wave FDY, 30/48Y, 20/36Y
Stretch	DTY	75/48 S/S, 75/72 HCR
Dope Black	DTY	75/36, 100/36, 150/36/2, 80/30 wave