

Eco friendly PVC products : Recycled Vinyl tiles from Dialysis solution bags

The Vinyl Sustainability Forum 2024
16 Dec 2024



SIAM CEMENT GROUP (SCG) is one of Thailand's largest conglomerates with over 100 years of experience to leverage people's quality of life by delivering quality products and services from excellent process, technology development, and innovation to be one of ASEAN's leading sustainable companies

SCG BUSINESS GROUPS



Cement-Building Materials Business

Total cement and building materials supplier and distributor including retail business with national network



Packaging Business

Large-scale total paper and packaging in ASEAN with world-class quality product



Chemicals Business

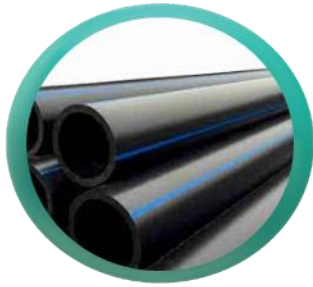
Total chemicals product manufacturer in Asia-Pacific region from upstream to downstream



SCGC Chemicals Leader in ASEAN

ASEAN's leading chemicals producer, **emphasizing on business growth and sustainability.**

Olefins



Vinyl



Fitting



Solvent



Rain Gutter



Ball valve



Hose



PP-R

Green Polymer



High Quality PCR Resin
HDPE, PP, LLDPE, LDPE, PVC



Bio-PE

Services and Solutions



SCGC and ESG

for Positive Impacts on Environmental, Social, and Governance

SCGC strives to become the “**Chemicals Business for Sustainability**”, conducting business in accordance with ESG principles through balancing the value of the triple bottom lines both tangible and intangible capitals



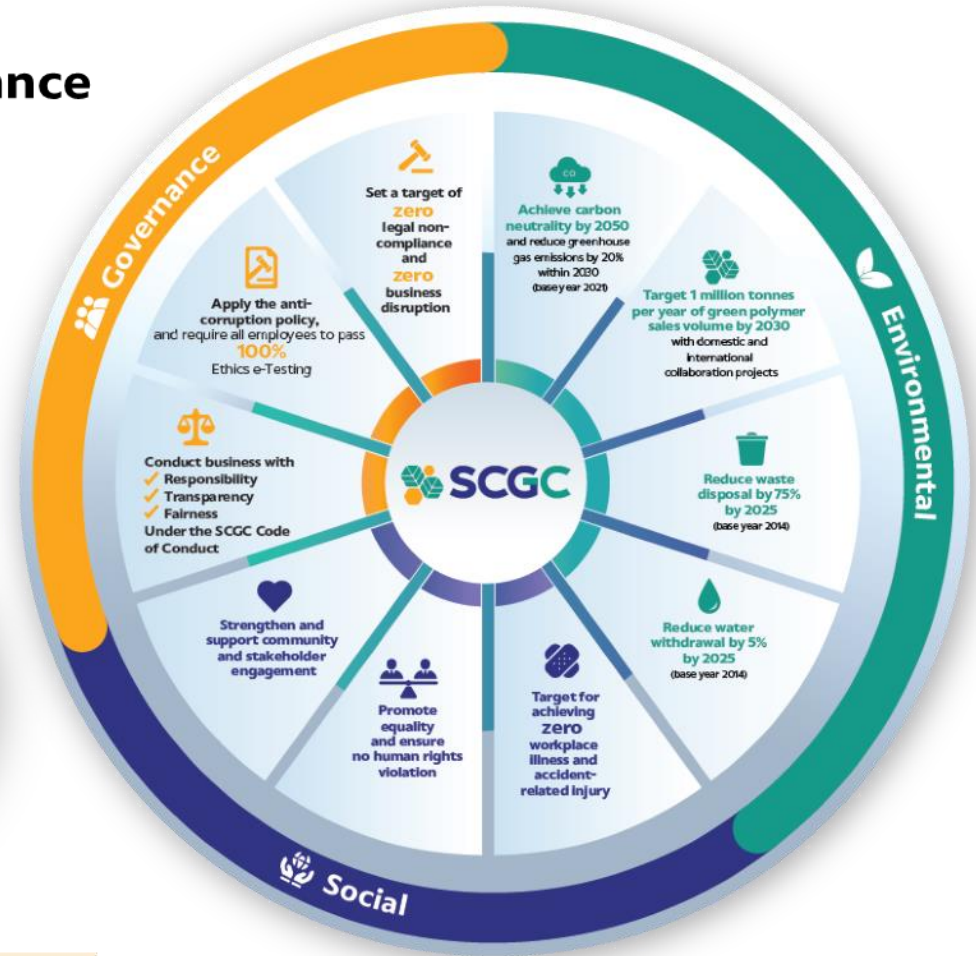
Our commitment is demonstrated through management of energy use, water, waste, pollution, and greenhouse gases



Our efforts are focused on employee treatment, consumer responsibility, and social and community development



We emphasize good corporate governance, risk management based on sustainability, and supply chain management



Implementation of ESG Guidelines in 3 Key Areas

SCGC Sustainable Development Strategy

Combating Climate Change

2030 Reduce **20%** GHG compare with base year 2020

2050 **Carbon Neutrality**



Sustainable Water Solution

2025 Reduce **5%** amount of water withdrawn compare with BAU at base year 2014



Zero Waste to Landfill

2025 Reduce **75%** amount of waste disposed without recycling or reusing per production unit



Circular Economy with

Green Polymer

Sales volume target:

2030 1,000,000 TPA



Green Choice Products & Services

2030 **67% SCG Green Choice** Sales revenues of products & services



REDUCE

การลดการใช้ทรัพยากร



Enhancing Material for
Eco-efficiency

RECYCLABLE

การออกแบบเพื่อให้รีไซเคิลได้



Design for Recyclability

RECYCLE

การนำกลับมาใช้ใหม่



Mechanical & Advanced
Recycling

RENEWABLE

การใช้ทรัพยากรหมุนเวียน

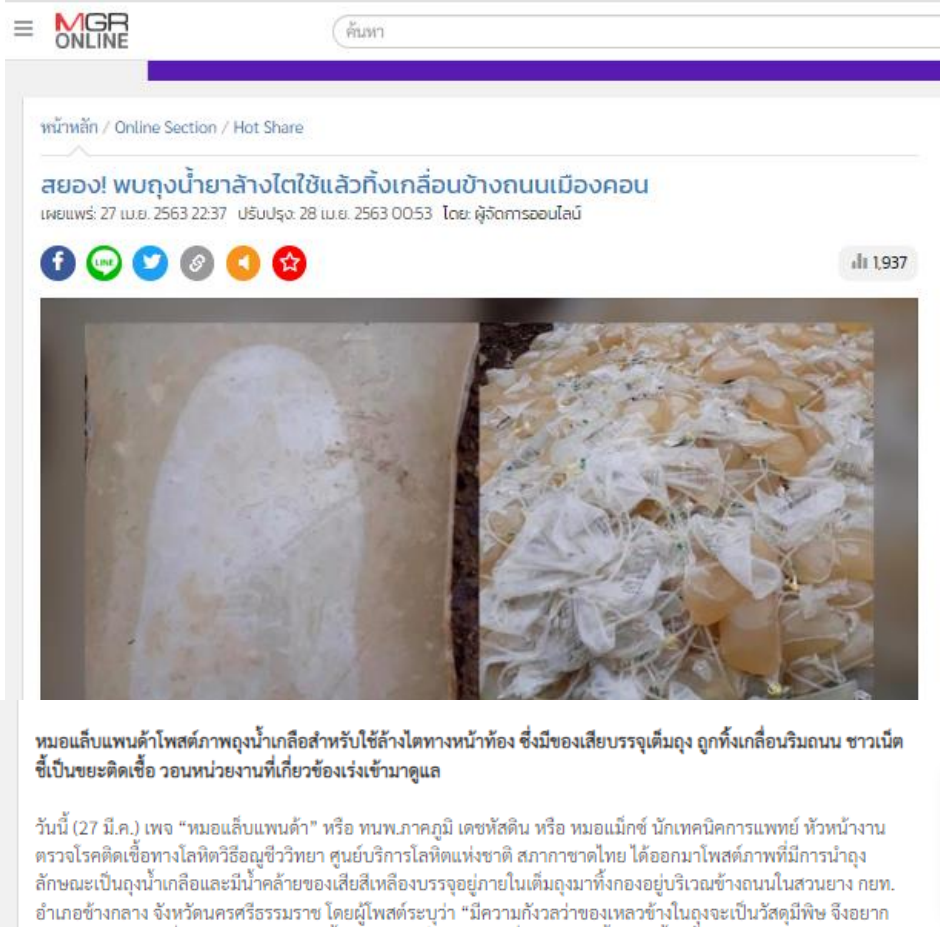


Bioplastics

**Eco friendly PVC products : Recycled Vinyl tiles
from Dialysis solution bags**

Background

There has been disposal of dialysis solution bags mixed with general waste in the community. MGR online, Apr, 2019



Misunderstanding about PVC!!

Dioxin

PVC is harmful material

HCl

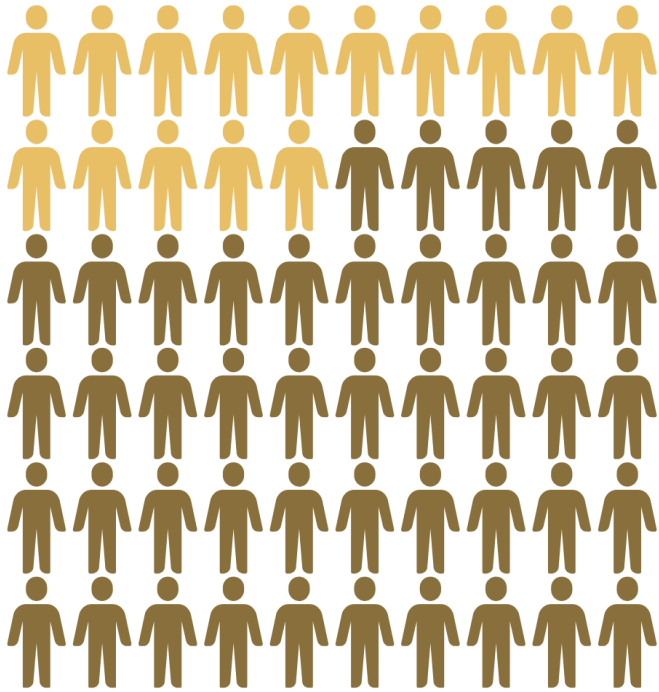
PVC disposal release toxic gas

PVC Cannot Recycle



Background

Huge number of PVC medical waste !!



In Thailand over 8 million kidney disease patients

More than 25,000 of these patients require kidney dialysis

7,000 patients use peritoneal dialysis treatment
(Home therapy)

Each patient using 1,460 dialysis solution bags per year

Contributing to medical waste amount 1,740 tons per year*

* Baxter database FY'2023



Field Visit



Lack of awareness on waste reduction & How to do



คำแนะนำ
 เรื่อง แนวทางการจัดการของเสียและมูลฝอยที่เกิดจาก
 กระบวนการล้างไตทางช่องท้อง (peritoneal dialysis; PD) ในชุมชน

QR Code คำแนะนำ
 QR Code ชุด Infographic

กรมอนามัย สมาคมโรคไตแห่งประเทศไทย
 และคณะทำงานพัฒนาแนวทางการจัดการของเสีย
 และมูลฝอยที่เกิดจากกระบวนการล้างไตผ่านทางช่องท้อง

Build awareness of waste reduction

Peritoneal dialysis waste management guidelines from the Department of Health, October 2020

Initiative Idea

Objective: Increase PVC waste recycling and producing high-quality recycle PVC product.

Expected Outcomes:

- Increased recycling rates
- Produce high-quality, marketable products
- Market acceptance of recycled PVC product.



Key Activities

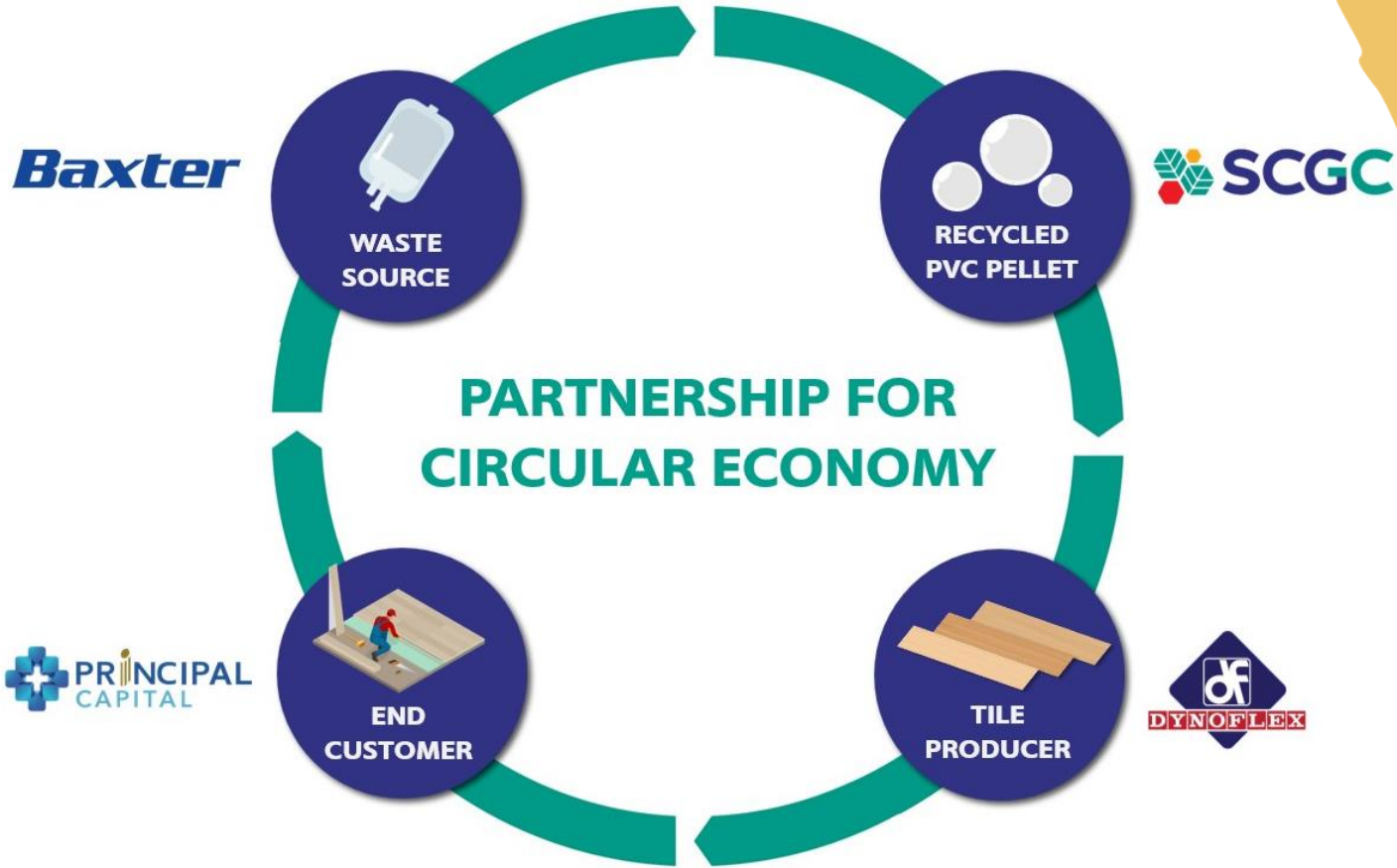


Identify scope

1. What is the product we can create from dialysis bag waste?
2. Who is our customer ?
3. How to create the product
 - Source of waste
 - Product convertor



Collaboration Project



VDO PROJECT

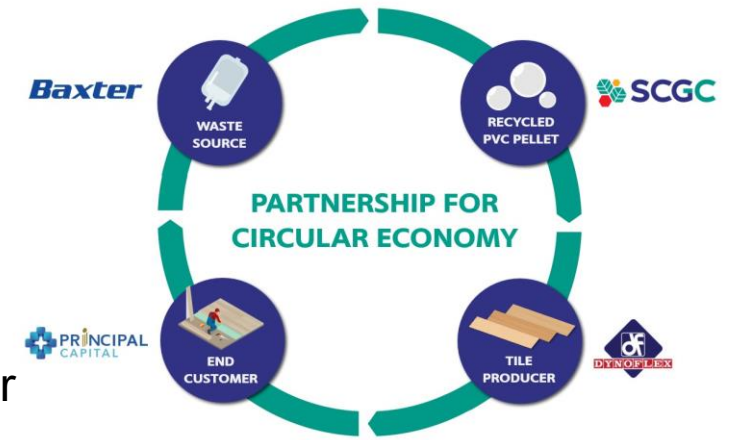
Welcome - Construction accessories Co., Ltd



SCGC Responsibility



Develop innovative solutions for high-quality Post-Consumer Recycled (PCR) PVC.



Construction Accessories Responsibility



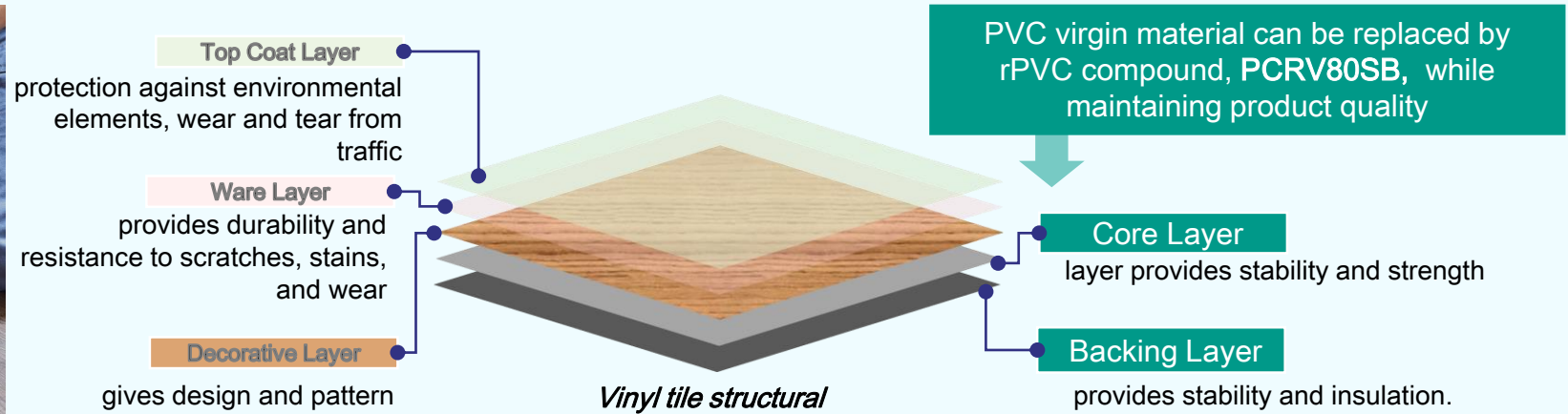
Design and produce recycled PVC tiles that meet global product standards.



*ISO 10582:2017 - Resilient floor coverings, JIS A 5705 - Polyvinyl chloride floor coverings - Standards



Product information & Benefits



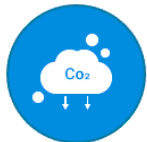
rPVC Compound grade PCRV80SB, Offers a 3.4% reduction in greenhouse gas emissions during vinyl tile fabrication compared to virgin PVC resin

** Calculation from Construction Accessories Co., Ltd.'s formulation*



Reduce resource use of virgin material at least 50 %*

** for production of backing layer*



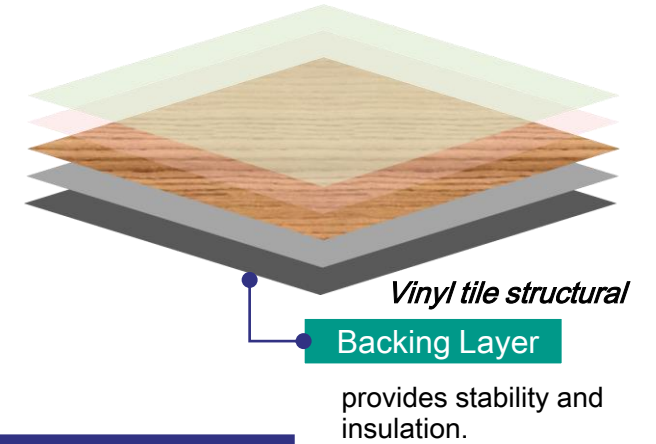
Reduce GHG emission at least 12.3 KgCO₂eq * from fabricating vinyl tile 100 sq.m



Consumed 59 Dialysis solution bags / 100 Sq.m. vinyltile

Vinyl Floor Properties

Sample : Back sheet testing
Test Item : Dimension stability
Method : Measure dimension before and after oven
Standard : JIS A 5705 (80 degree C 6 hrs)



Sample	Before Oven Dimension (mm)		After Oven Dimension (mm)		% Dimension change (Spec < 0.20%*)	
	W	D	W	D	W	D
Reference – sheet	302.34	302.56	302.47	302.68	0.043 %	0.040 %
PCR PVC- Sheet	302.32	302.46	302.48	302.59	0.053 %	0.043 %

Remark: Specification control 0.2 % Max. of dimension change

Summary:

1. PCR material dimensional stability meets the product specification controls.
2. Quicker gelation time and reduce processing temperature

Promoting campaigns



Economic impact



Mukdahan
Phitsanulok
Sisaket

Fully installation area of
over 9,000 sqm.

5,320 used dialysis solution bags
which reduce waste to landfill

Reducing GHG emissions by over 1,110 kg Co2e => Planting 120 trees

SUSTAINABILITY EXPO 2024 EXHIBITION IQSNCC



Social impact

Raising awareness and initiating waste
management thinking in various areas.

Conclusion

What this initiative aims to achieve ...



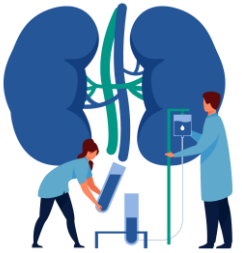
Raise patient awareness about reducing waste



Reduce the disposal of dialysis solution bags with community waste.



Create High quality and marketable rPVC products





THANK YOU