SUMITOMO RUBBER THAILAND

Environment section, Sustainability planning

ENVIRONMENTAL REPORT 2023

Growth • Advance • Harmony

Carbon Neutral **CO2**

Greenhouse Gases **GHGs**

Sustainable Development Goals **SDGs**

SUMITOMO RUBBER THAILAND

Content

Introduction

The annual Environment Report, a comprehensive overview of our organization's commitment to environmental sustainability and the progress we have made over the past year. This report serves as a testament to our unwavering dedication to protecting our planet and making a positive impact on the world around us.

The annual Environment Report provides a transparent and detailed account of our environmental initiatives, achievements, and areas for improvement. It highlights the steps we have taken to minimize our ecological impact, conserve resources, and promote a greener future. It also serves as a platform to acknowledge the hard work and dedication of our employees, who have played a pivotal role in driving these initiatives forward.

In this report, you will find an analysis of our energy consumption patterns, waste management strategies, and greenhouse gas emissions reduction efforts. We will also delve into our conservation initiatives, such as biodiversity protection, water stewardship, and sustainable sourcing practices. Additionally, the report will shed light on our community engagement programs and partnerships aimed at raising awareness and fostering environmental stewardship.

Environment section, Sustainability planning
Sumitomo Rubber (Thailand) Ltd.,

June 30, 2023

Environmental Policy

Sumitomo Rubber (Thailand) continuously strives to achieve the goal of "helping realize a sustainable society". In order to attain Sumitomo Rubber Group vision of ideal state, Let's implement an environmental preservation activities, promote environment activities and response to environment change to achieve environmental performance by;

1. Environmental activities improve continuous by PDCA circle.

2. Prevent an environmental pollution of company activities it can either control or influence such as Air pollution, Water pollution, Soil pollution, Waste pollution.

3. Fulfil its compliance obligation, needs and expectation of interested parties.

4. Create excellence to achieve environmental target with the participation of all departments, management and all employees from activities and creating environmental awareness.

5. Helping realize a sustainable society and harmony with nature by activities: afforestation, reforestation and biodiversity conservation and protection.

6. Promoting the knowledge of "Sustainable Development Goals: SDGs" for all employees.

Environmental Policy

7. Environmental Target Y2022 versus Y2021

No.	Activities	Result	Target	Target	Unit
		Y2021	2022vs2021	Y2022	
7.1	Energy Usage	0.3378	≥ -3%	0.3276	kL /Ton (final compound)
7.2	CO2 Reduction	0.7080	≥ -3%	0.6868	Ton-CO2 /Ton (final compound)
7.3	VOCs Reduction	0.5190	≥ -3%	0.5034	kg/Ton (final compound)
7.4	Waste Discharge (valuable wastes)	0.0811	≥ -1%	0.0803	Ton/Ton (final compound)
7.5	Waste Discharge (non-valuable wastes)	0.0107	≥ -3.4%	0.0104	Ton/Ton (final compound)
7.6	Water Usage	3.355	≥ -17%	2.785	m3/Ton (final compound)
7.7	Oil and Grease in Wastewater	≤ 8	≤ 8	≤ 8	mg/L
7.8	Reduce Paper Usage (A3/A4)	77.39	≥ - 4%	74.29	Ton
7.9	Odor Claim	0	= 0	0	Time

8. Promoting the effort on environmental issues.

8.1 Odor pollution control: expand odor treatment system.

8.2 Reduce water usage by reuse and recycle water

8.3 Reduce Volatile Organic Compounds (VOCs) by activities from all section

8.4 Reduce paper usage (A3/A4) by activities from all section.

8.5 Prevent reoccurring environment impact by Yokotenkai system

8.6 Use new technology to reduce waste generation.

9. Establish environmental management system.

9.1 Maintain ISO14001: 2015 environmental management system global multi-site certification.

9.2 Enhance of environmental management system by participate with green industrial project.

9.3 Enhance of environmental management system by participate with Amata Waste Management Award platinum level.

Certification and Award

TDEM Requirements:
1) CO2 reduction >35%
2) EMS audit >75%

Waste best management award, IEAT Amata city, Rayong, Thailand

ISO 14001:2015

Green Industry

CSR-DIW Award

Energy Saving & CO2 Reduction

Introduction

Energy saving and CO2 reduction go hand in hand and are closely linked. By implementing energy-saving measures, factories can significantly reduce their energy consumption, which in turn leads to a reduction in CO2 emissions. Here's how energy saving contributes to CO2 reduction

Targets

1) Energy Usage Reduction
2) Reduction of CO2 Emission

Strategies

1) Implement the energy reduction policy into each department
2) Monthly tracking the energy reduction report.
3) Investment on new technologies and method to safe energy use.
4) Minimize the production waste.

Results

The CO2 emission of 2022 mostly lower than 2021 by month. Totally 10.40 % reduction for whole year.

2021	207,813 Ton CO2
2022	186,204 Ton CO2
% Reduction	10.40%

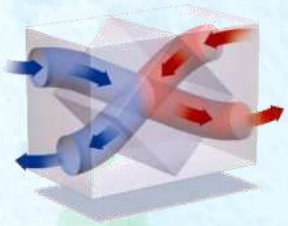
Energy Saving & CO2 Reduction

Energy Saving Activities

Topic

Recovery the exhaust heat from curing bladder for hot water absorption chiller at Production B.

Strategies



Reduce energy consumption of electric chiller by

1) Recycle waste heat from bladder exhaust.

2) Spray water for up temperature of water and then to be heat exchanger for air condition system.

3) Use hot water absorption chiller instead office at Production B.

Results

Energy consumption Air con. Unit area

Saving	3,632,958.00	kWh/year
	11,262,169.80	THB/year
	(Energy cost 3.1	THB/kWh)
Investment	29.0	MTHB
Effect index	1.64%	
Payback period	3.24	year
CO2 reduction	1,516.22	t-CO2

Energy Saving & CO2 Reduction

Energy Saving Activities

Topic

Improve efficiency of Air condition by installation Jet fan and Temperature sensor for control fresh air.

Strategy

Improvement the air condition system by install a Jet fan for up air flow velocity to working area for increase temperature supply. And bringing fresh air with low temperature outside the building at night to Compressor air

Results

Energy consumption Air con. Unit area

- Before	51.07	MWh/day
- After	46.76	MWh/day
- Saving	4.31	MWh/day
	507.83	MWh/year
	5,126,639.23	THB/year
	(Energy cost 3.4 THB/kWh)	
Investment	8.4	MTHB
Effect index	0.65%	
Payback period	1.88	year
CO2 reduction	902.59	t-CO2

Energy Saving & CO2 Reduction

Energy Saving Activities

Topic

Improve efficiency Air compressor by reduce temperature air inlet and heat exchanger efficiency.

Strategies

1) Reduce temperature of air inlet of air compressor by installation the ventilation fan and mesh at shutter doors.

2) Improve efficiency heat exchanger of air compressor by addition water cooling piping to increase flow rate.

Results

Energy consumption of Air compressor

Saving	294,013.74	kWh/year
	911,442.59	THB/year
	(Energy cost 3.1 THB/kWh)	
Investment	2.4	MTHB
Effect index	0.13%	
Payback period	3.29	years
CO2 reduction	122.71	t-CO2

Air Pollution Control

Introduction

Overall, monitoring air emissions from factories is essential for protecting the environment, safeguarding public health, ensuring regulatory compliance, promoting sustainability, and driving continuous improvement in industrial operations. It allows us to make informed decisions, take proactive measures, and work towards a cleaner and healthier future. Therefore SRT keep monitoring the air emission regarding to the local standards.

Goals

1) The air emission complied with local regulation
2) Inspection the air emission twice a year
3) Complete the annual government report

Strategies

1) Maintain the odor treatment system operation and PM regularly.
2) Monitoring by certified 3rd party

Results

SRT keep monitoring the air emission from stack for twice a year. The result have shown that it is complied with the standard.

SRT	Facility	Parameter	Unit	Regulatory value control	FY2022 Results		
					Smallest	Maximum	Average
Air Pollution Emissions to the atmosphere	Boiler @ Fac 2	SOx (Sulfur Dioxide)	PPM	≤ 60	ND	<1	<1
		NOx (Nitrogen Dioxide)	PPM	≤ 200	21	40	33.26
		Dust as TSP	mg/m^3	≤ 400	0.47	3.28	2.46
		CO (Carbon Monoxide)	PPM	≤ 690	ND	13	7.72
	Boiler @ Fac 3	SOx (Sulfur Dioxide)	PPM	≤ 60	ND	ND	0
		NOx (Nitrogen Dioxide)	PPM	≤ 200	<1	38	16
		Dust as TSP	mg/m^3	≤ 400	1.38	6.8	4.09
		CO (Carbon Monoxide)	PPM	≤ 690	2	3	2.5

Reference: Ministry notification : the standard control of air emission from factory BC 2549 under the Act of factory BC 2535 (AD1992)

Air Pollution Control : CEMS

Introduction

Continuous Emission Monitoring Systems (CEMS) is for online monitoring of air emissions offer several benefits as Real-time data, Compliance assurance, Early issue identification, Data accuracy and integrity, Environmental protection, Stakeholder transparency which can bring us the sustainable environment and communities.

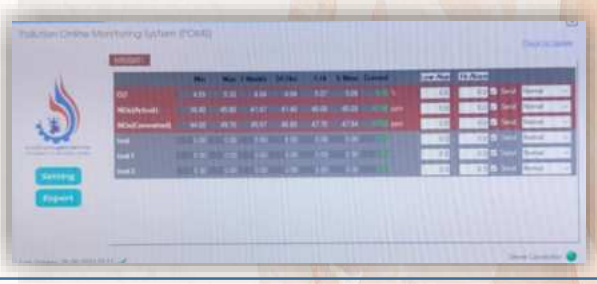
Strategies

1) Using the low carbon and clean energy as NG : Natural gas.

2) Install of Air pollution inspection for the Nitrogen oxides (NOx) at Boiler 30 Tons.

Online POMS (diw.go.th)

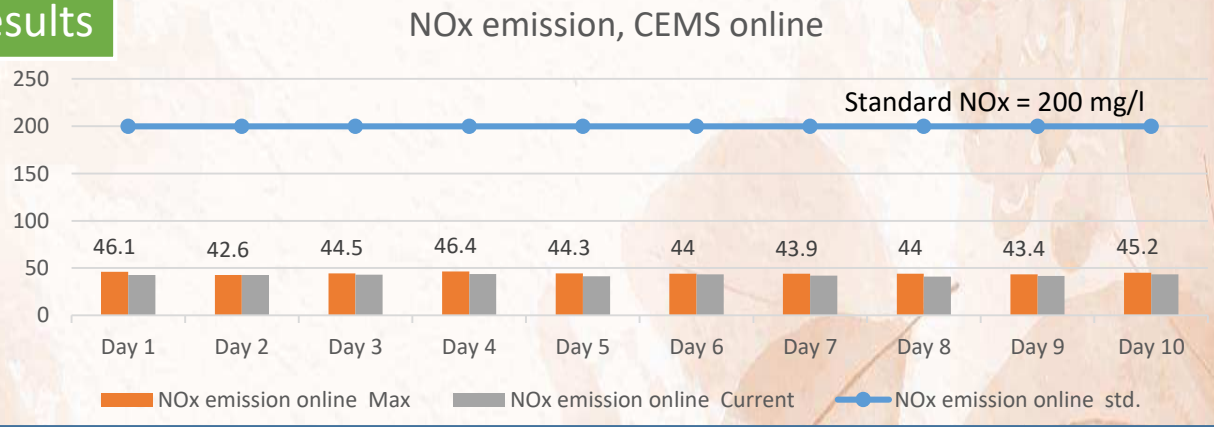
Monitor of CEMS



Targets

All results complied with standard

Results



Air Pollution Control : Odor

Introduction

Monitoring odor nuisance from a rubber factory is essential to protect community well-being, ensure regulatory compliance, safeguard the environment, promote employee health and safety, mitigate reputation risks, and drive continuous improvement in odor management practices. It allows factories to proactively address and mitigate odor issues, fostering a harmonious relationship with local communities and stakeholders.

Strategies

1) Maintain the odorant treatment system.
2) Arrange of the strong odorant compound mixing batch.
3) By pass strategy when PM the treatment system.
4) Check and control of the odorant gases emission from stack.
5) Record the weather and wind direction.

Gas detector

Odor monitoring

Wind detector

Targets

"Zero Claim"

Results

Zero Claim on Odorant nuisance in 2022

Water Resource Management

Introduction

Wastewater contains various pollutants, including chemicals, and organic compounds. If not properly treated and monitored, these pollutants can harm aquatic ecosystems, contaminate water sources, and disrupt the balance of fragile ecosystems. Wastewater monitoring helps identify and assess the levels of pollutants, enabling appropriate treatment measures to protect the environment.

Targets

Discharge wastewater comply standard

Strategies

1) Monitoring wastewater parameter weekly
2) Monitoring and test oil and grease daily.
3) Apply multi methods to remove oil and grease.

(1) Remove at oil source, limit cooking oil.
(2) Remove oil by automatic skimmer
(3) Remove oil manually

Results

The result of wastewater characteristics complied to standard of IEAT; Government sector.

	Discharge Wastewater Factory1						
2022	O&G (mg/L)	Temp. (°C)	BOD (mg/L)	COD (mg/L)	pH	TDS (mg/L)	TSS (mg/L)
	10 (mg/L)	45 (°C)	500 (mg/L)	750 (mg/L)	5.5-9	3000 (mg/L)	200 (mg/L)
Jan	4	34	24	88	8	287	27
Feb	3	36	31	70	8	336	27
Mar	3	36	68	225	7	478	40
Apr	4	31	70	140	8	514	40
May	4	31	61	116	8	300	33
Jun	3	31	58	137	7	306	27
Jul	3	39	8	40	8	864	9
Aug	4	36	26	91	8	500	28
Sep	3	36	4	46	7	543	9
Oct	3	30	26	116	7	1432	26
Nov	3	30	41	166	8	450	42
Dec	3	30	41	166	8	450	42
Max	4	39	70	225	8	1432	42

Water Resource Management

Introduction

The jar test is a commonly used laboratory method for wastewater plant operation that helps determine the optimal dosage of chemicals for coagulation and flocculation processes.

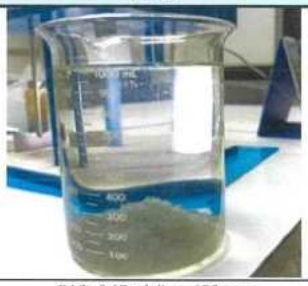
Strategies

Apply the jar-test method for wastewater treatment operation

Jar-test report

Customer : Sumitomo Rubber (Thailand) Co.,Ltd.
Location : Amata City Ind.

Report date : 26-Dec-22
Sampling date : 28-Nov-22

	Raw Wastewater	Jartest	Jartest (Actual)
			
	Raw Wastewater	PAC : 0.67 ml./L. at 670 ppm Control pH by NaOH 50% Polymer 0.05% : 4 cc at 2 ppm	PAC : 25 ml/min at 333 ppm Control pH by NaOH 50% Polymer 0.05% : 67 ml/min at 0.45 ppm

Iteme	Standard	Result	Result	Result
pH	5.5-9	5.7	7.93	6.9
Oil & Grease (mg/L)	10	87.8	2.1	5.0

Targets

1) The waste water treatment plant is well and completed operating.

2) waste water characteristics meet standard before discharge to the central water treatment plant.

Results

1) Effluent waste water characteristics meet standards.

2) Oil and grease is 3-6 mg/L (standard is 10 mg/L)

Water Resource Management

Strategies for Sustainable Water Resource Management

Cooling tower controllers:
These controllers regulate water flow and chemical treatment in cooling towers, reducing water usage and preventing water loss through evaporation.

Water is recovered from bladder machine

Water recovery :
recovery and collecting the condensate water or steam after use.

Smart water meter :
use to reduce the air in water supply system

Water Resource Management

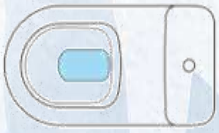
Strategies for Sustainable Water Resource Management

Low-flow faucets :

These devices restrict water flow without reducing water pressure, resulting in significant water savings.

Greywater recycling systems:

These systems capture the brine RO water to reuse for non-potable purposes such as irrigation or toilet flushing.



RO water

Brine RO water

Brine RO water in toilet
Production Factory 2

Rainwater harvesting systems:

These systems collect rainwater from roofs and other surfaces, and store it for later use in the water recycle plant

Over 10,000 m3/year of rain water was harvesting

Waste Management

Introduction

there is a significant reduction in waste being disposed of in landfills. Recycling and utilizing incinerators can help minimize the environmental impact of waste management. Here's a breakdown of the benefits associated with these waste management methods:

1) Recycling (56.08%): Recycling waste materials helps conserve natural resources, reduce energy consumption, and minimize greenhouse gas emissions. This contributes to the preservation of natural habitats, reduction in air and water pollution, and overall environmental sustainability.

2) Incineration (43.92%): Incineration is a waste management method that involves the controlled burning of waste at high temperatures. Incineration helps reduce the volume of waste that would otherwise be disposed of in landfills, thereby extending the lifespan of landfills and reducing their environmental impact.

Results

There is zero waste that been disposal by landfill. Most amount of waste is recycle for 56.08% and go to incinerator for 43.92%

Code		Methods of waste disposals	% By volume	
041	Incinerator	Use as fuel	35.68%	43.92%
042		Blending to be fuel	6.65%	
044		Use as material in cementing manufacturer	1.28%	
075		Secure incinerator	0.29%	
074		Non-HZ incinerator	0.02%	
033	Recycle	Return the producer for repackage	4.64%	56.08%
049		Recycle	28.24%	
011		Separate and sell	23.20%	
065	other	Treatment as wastewater	0.02%	0.02%
011		Waste to landfill	0.00%	0.00%

Waste Management

Introduction

Turning waste into valuable resources is a concept known as waste valorization or resource recovery.
Instead of viewing waste as something to be disposed, it focuses on extracting value from waste materials through various processes.

Targets

Valorization of lubricant oil instead of disposal it with expense

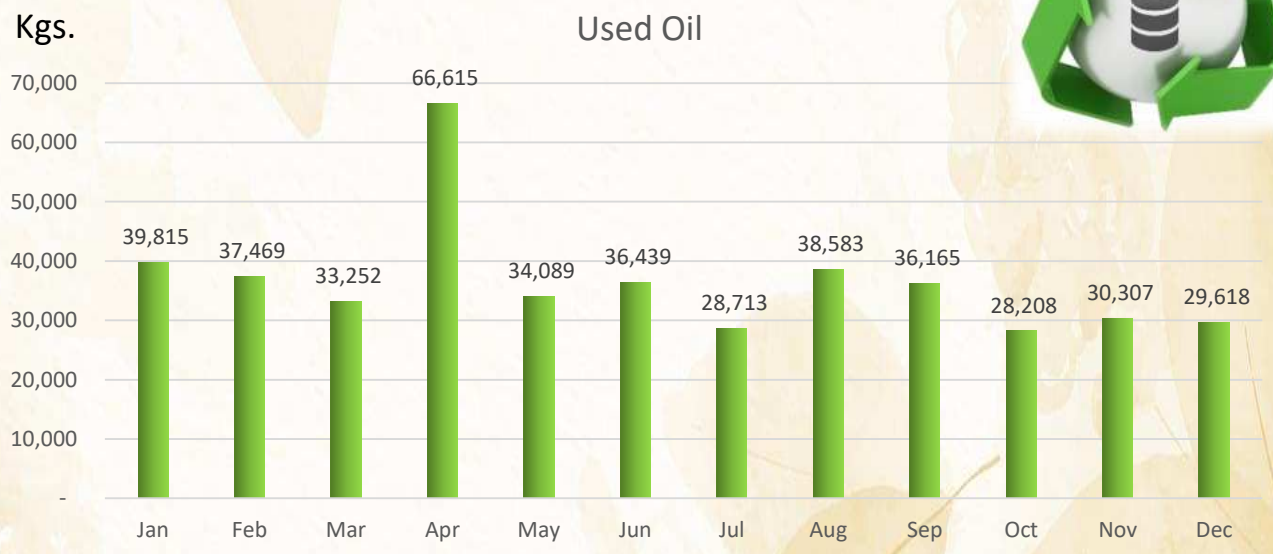
Strategies

Recovery use oil from the utility function of curing process.

1. Oil separating at the underground tank.
2. Pumping oil into the station.
3. Transfer to the waste processor

Results

Separate used oil and send to waste recycle company. Approximately recovery 400 ton in 2022



CSR Environment

CSR for sustainable environment

Introduction

Corporate Social Responsibility (CSR) initiatives can play a vital role in promoting a sustainable environment. Here are some CSR activities that SRT undertake to contribute to a sustainable environment:

Activity title : CSR Activity Trees Planting
Location : Frees Space Area Amata City Rayong, Thailand
Date : 27 July 2022
Cooperate with : Industrial Estate Amata City Rayong
Amount 1,500 trees and subsidize 3,000 THB.

Activity title : CSR Activity Trees Planting
Location : Frees Space Area Amata City Rayong, Thailand
Date : 22 August 2022
Cooperate with : Industrial Estate Amata City Rayong
Amount 1,000 trees and budget 3,000 THB.

Environmental Promotion

Promote the environment news

Introduction

To promote environmental news effectively via Email, PC monitor and broadband is able to engage the audience, and adapt the strategies based on their feedback and preferences.

Building a strong online presence allows us to effectively promote environmental news, raise awareness, and inspire positive action towards a sustainable future.

Environmental Promotion

Promote the environment and sustainability knowledge via company's Line Group; online application

Environmental Cooperation

Sumitomo Rubber (Thailand) Co., Ltd., together with the Thailand Greenhouse Management Organization and Chiang Mai University, signed a Memorandum of Understanding on the "Low Carbon Industry Development Project in the EEC according to the Circular Economy Concept" for the year 2023

Click more : Welcome to Sumitomo Rubber Thailand

Circular Economy

CE is a circular economy that focuses on the most cost-effective use of resources. The three main areas are full-cycle product usage (Reuse, Refurbish, Sharing) Recycle, and Product Design and Production Process to Achieve Zero-Waste

SUMITOMO RUBBER THAILAND

Sumitomo Rubber (Thailand) Co.,Ltd.

7/232 Moo 6, Soi Pornprapa (Amata City Rayong Industrial Estate)
Tombol Mabyangporn, Amphur Pluakdaeng, Rayong 21140

Tel: +66(0) 38 953 000 Fax: +66(0) 38 953 021