

About Us

Established in 2003 in Pengkalan Chepa, Kelantan Darul Naim, NR Chemical & Organic Industry (M) Sdn Bhd (NRC) started off as an exporter, manufacturer and distributor of specialty cleaning chemicals providing a wide variety of products for households and industries.

In 2010, our founder developed a technology that would revolutionize on how a wide variety of water and waste water was treated. Since then the technology has now been perfected to address critical and pressing issues in waste water treatment from municipal solid waste landfills (leachate treatment), palm oil mills and refinery, rubber mills and oil & petrochemicals refineries.

We aim to assist and ensure our clients to achieve environmental sustainability. The involvement of NRC in the current trend of POME research focuses on developing tertiary treatment or polishing systems for better effluent management. The tertiary treatment or polishing systems founded by NRC is using Electro-oxidation Integrated with Organic Electrolyte (EOIOE). EOIOE is used to fulfil a more stringent condition of 20mg/L or even fulfilled a zero discharge requirement in very sensitive areas. EOIOE is found capable of performing consistently and continuously and also comparatively inexpensive

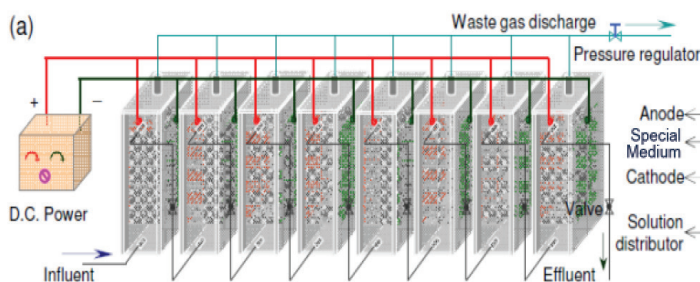


We specialize in

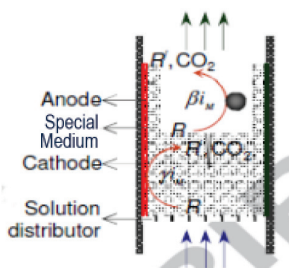
- Water and Waste Water Treatment System Provider
- Electro Oxidation
- Ion Exchange
- Membrane Filtration
- Reverse Osmosis

Our Core Technology

Electro Oxidation (EO) Technology



Packed Bed Electro Reactor (PBER)



- Packed Bed Electro Reactor (PBER)
- Usage of special medium as additional surface area
- PBER consist of anode and cathode electrode inside one casing. Between this two (2) electrodes, there will be special medium where purpose to increase the surface area for the electro oxidation process

System Features



Electro Oxidation Column

- Inexpensive
- Small footprint
- Easy to operate & maintain
- Customizable
- Performance Guaranteed
- Wide variety of applications & waste water treatment

Project Location



LTP – Leachate Treatment Plant

JPSPN - Jabatan Pengurusan Sisa Pepejal Negara



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Blok 18 B,C,D, Kawasan Industri MARA (KIM) Fasa 3, 16100 Pengkalan Chepa, Kota Bharu, Kelantan

Our Clients



Plantation



PETRONAS



A Cenviro Company



WORLDWIDE HOLDINGS BERHAD



KPKT



POME Treatment System

Our collaboration with Sime Darby Plantation Research Sdn Bhd has allowed us to showcase the effectiveness of our technology and as a result, NR Chemical & Organic Industry (M) Sdn Bhd system was awarded the Best Applicable Technology by Sime Darby's Compliance achieving Standard A for the treatment of Palm Oil Mill and Refinery Effluents.



Our system in action:

EFB Effluent Treatment (15m³/hour) in Gua Musang, Kelantan, Malaysia

Features

Zero-Ponding System

Methane avoidance

Colorless Discharge

Boiler Feed Grade Water

70% fresh oil recovery

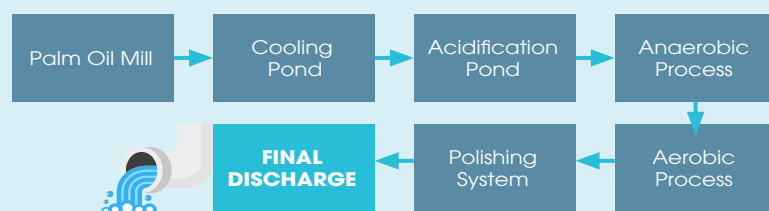
Water footprint reduction by 70%

Animal feed (optional)

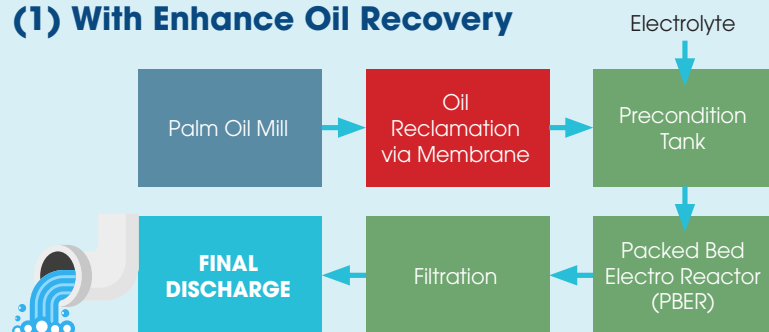
Customizable to suit budget

Zero Ponding System

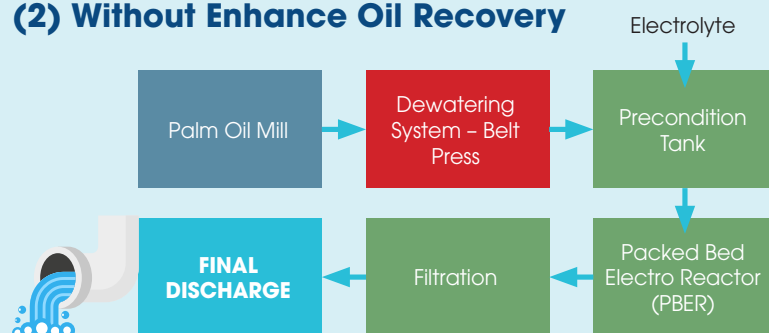
Conventional Ponding System



(1) With Enhance Oil Recovery



(2) Without Enhance Oil Recovery



1. A self paid system

- 70% oil recovery from sludge pit

2. Reduce in footprint

- Our average footprint takes approximately 1.5% of land usage as compared to conventional ponding system
- Ponding are eliminated

3. Eliminating Anaerobic Process

Result : no emission of Green house gases

4. Reduction of Sludge

Conversion of organic compound to CO2 reduces sludge generation from treatment process - 79% reduction

5. Zero liquid discharge concept and achieve boiler feed water quality -

Result : TDS value < 200ppm

6. Shorter Hydraulic Retention Time (HRT)

Reduce treatment time to more than 99% from the conventional method

FEATURES

- Final discharge complies Malaysia's Dept of Environment Standard
 - BOD5 < 20ppm
 - Color < 100 ADMI
 - AN < 10 ppm
- 70% oil reclamation
- Zero discharge
- Generated sludge is convertible for animal feed

Items	Incoming Effluent	Result (After)		Limit
		Our Reclamation	Our System	
COD (ppm)	80,000	33,935	76	-
BOD5 (ppm)	58,000	7,665	17	20
TSS (ppm)	42,000	420	3	200
O&G (ppm)	6,200	5.0	2.3	5
AN (ppm)	464	147.84	4.05	20
Color	9,240	7,050	5	100



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PORE Treatment System

1. Achieve standard A discharge while lowering your OPEX

Result : OPEX of ~RM 0.50 per m³ of waste water. Conventional between @M 2.50 to RM 3.00 per m³ for conventional.

2. Zero liquid discharge concept and achieve boiler feed water quality -

Result : TDS < 10 ppm with standard A water quality.

3. Reduce in footprint

- Our average footprint is only 1/3 compared to current conventional.

4. No scheduled waste generation

No alum based chemicals used.

5. No aeration process involved

- Our system are mechanical and electrical only. No biological process involved. Therefore reducing downtime.

6. Shorter HRT (Hydraulic Retention Time)

- Conventional system average HRT around 12 hours to 2 days.
- Our EO system averages below 10 minutes.



Raw Effluent

Treated Effluent

FEATURES

- Final discharge achieves Malaysia's Dept of Environment Standard A
- COD < 50ppm
- Admi < 50ppm
- 80% operating cost reduction
- Zero discharge
- Reduce schedule waste cost

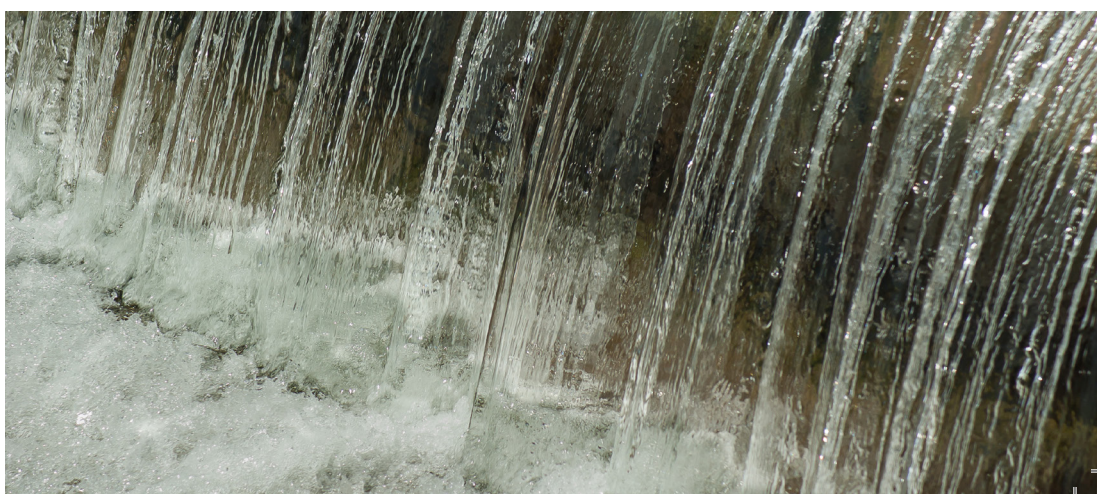
Items	Incoming Effluent	Result (After)	
		Our Reclamation	Our System
COD (ppm)	1500 - 2000	< 200	< 40
BOD (ppm)	< 1000	< 10	< 10
TS (ppm)	5000 - 6000	4000 - 5000	< 400
O&G (ppm)	300 - 400	< 10	< 10
OPEX	-	RM 2.50/m ³	RM 0.50/m ³



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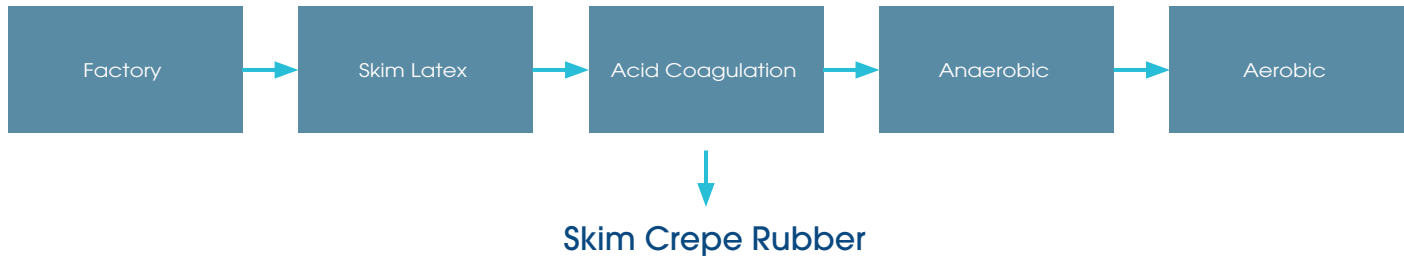


Latex Treatment System

Electro Oxidation Complex
- Self Paid System for Latex Waste



Conventional Method



EO Oxidation Complex



**Concentrated
Skim Latex 20%
DRC**

**Blend with
incoming field
latex**

FEATURES

- Final discharge complies Malaysia's Dept of Environment Standard
- Achieve BOD < 20ppm
- Achieve Color <100 ADMI
- AN < 10 ppm



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Leachate Treatment Solution



**Padang Cina Landfill in Kulim, Kedah
(Capacity: 300 mt/day, 52 Acres)**



Padang Cina Leachate Treatment Plant

Item	Incoming	Final	Limit
BOD5 (ppm)	213	13	20
COD (ppm)	784	126	400
SS (ppm)	176	5	50
AN (ppm)	433.16	<0.07	5



Padang Siding Leachate Treatment Plant

Item	Incoming	Final	Limit
BOD5 (ppm)	1515	15	20
COD (ppm)	4568	19	400
SS (ppm)	262	5	50
AN (ppm)	914	3.75	5



Jabi Leachate Treatment Plant

Item	Incoming	Final	Limit
BOD5 (ppm)	5	2	20
COD (ppm)	109	19	400
SS (ppm)	32	5	50
AN (ppm)	18.42	4.23	5

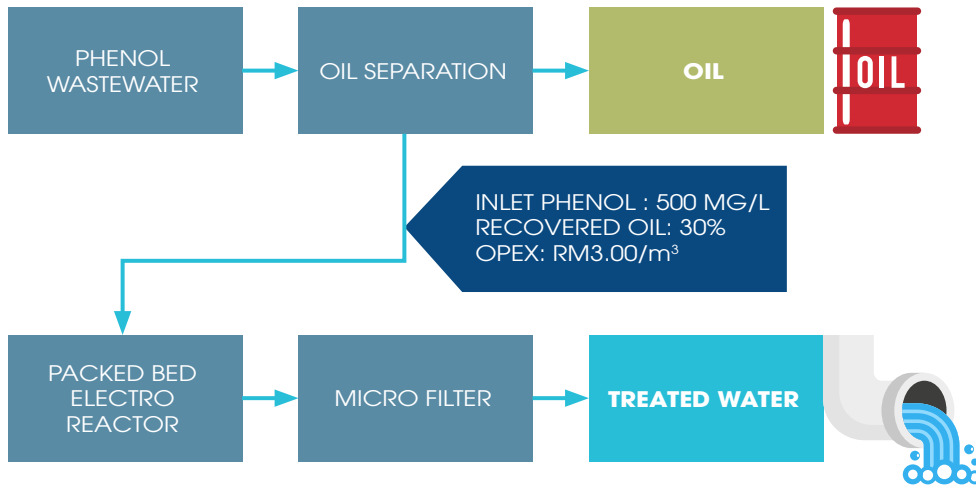


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Kota Bharu, Kelantan

Oil & Petrochemicals



Raw Effluent



Treated Effluent

FEATURES

- Final discharge achieves Malaysia's DOE Standard B
- COD < 200 ppm
- Color < 100 ppm
- Phenol < 1 ppm
- 30% Oil recovery
- Reduce schedule waste cost

1. Achieve standard B discharge.

Result : Able to treat phenol from 500 ppm to < 1.0 ppm

2. Recovery of oil

Result : 30% recovery of oil with (jet oil quality)

3. Reduce in footprint

- Requires minimal area for operation

4. Reduction of scheduled waste generation

- Conversion of organic compound to CO₂ reduces sludge generation from treatment process



Groundwater



Raw Effluent



Treated Water

NR Cavitation System

- Based on Aeration and Filtration

Customized System

- Uses patented venturi nozzle to provide constant 11ppm of saturated oxygen.
- Utilize Rapid Gravity Sand Filter for Filtration
- Reuse sludge from Sand Filter as value added ferric based coagulant.

FEATURES

- Total solution for water treatment and sludge treatment
- NR Cavitation System of:-
 - Patented Venturi nozzle
 - Rapid gravity sand filter
 - Reuse sludge generated as coagulant

Parameter	Raw Water	NR Cavitation System	Malaysia's Health Dept Standard
Turbidity, NTU	0.37	0.52	≤5
pH	6.57	7.3	6.5 - 9.0
Ferum, mg/L	10.47	0.04	≤0.3
Manganese, mg/L	0.284	0.021	≤0.1
Color, Hanzen	310	4	-
Chloride, mg/L	44.2	54	≤250
Nitrogen Ammonia, mg/L	2.83	0.01	≤1.5
Total Dissolved Solid, mg/L	128.8	172.4	≤1,000
Conductivity uS/cm	268	358	-



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