

*English Ver.*

# REMATEC

Innovation for the Earth

## REMATEC Corporation

### Our Recycling Service Introduction

**RF System**~Auxiliary fuel manufacturing from wastes.  
– Osaka Plant / Kyusyu Plant

**SC System**~Recycling System utilizing Subcritical Water Technology.  
– Sakai SC Plant

Rev.22.2

# Introduction of Our Recycle System

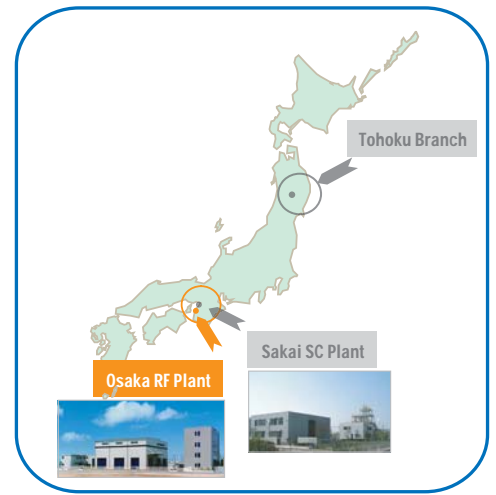


## RF System

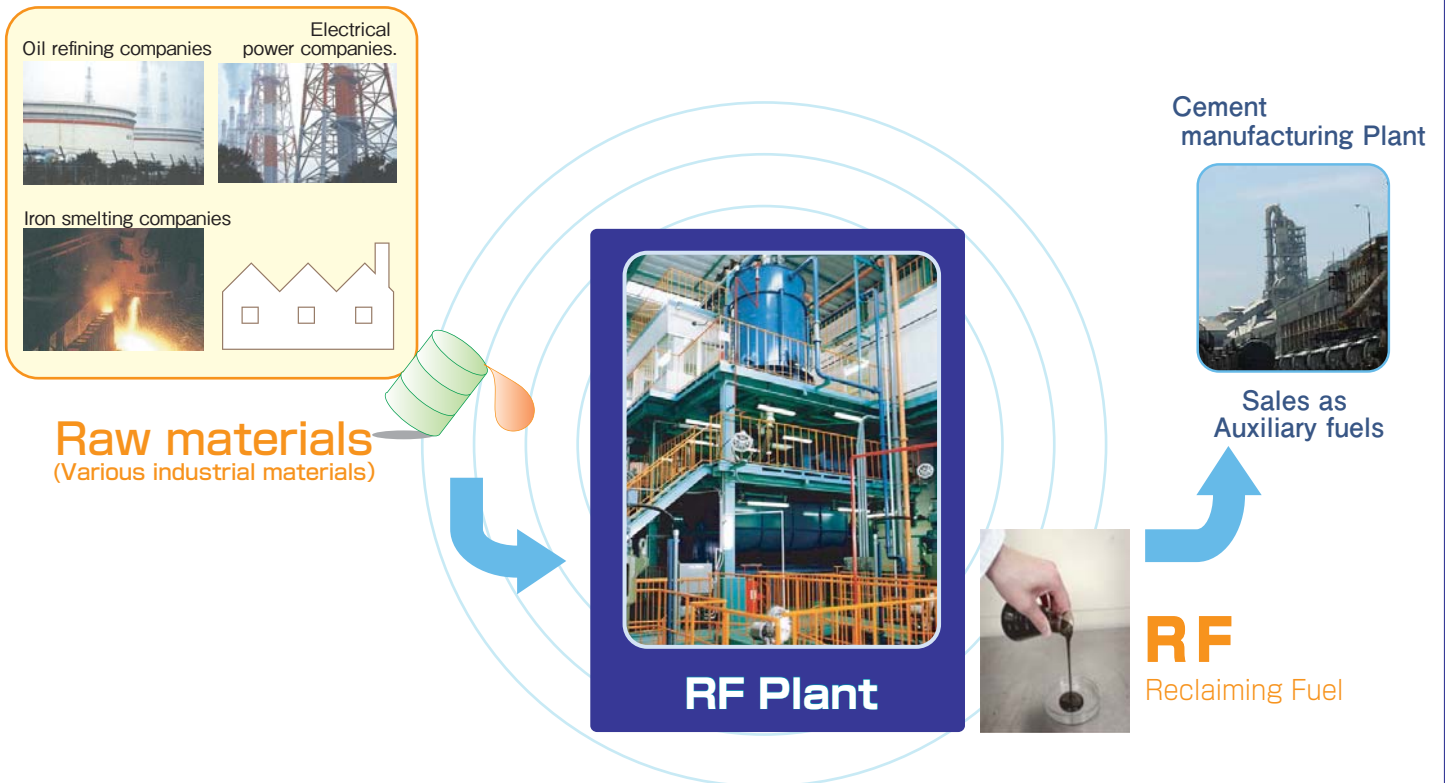
An original industrial wastes treatment system  
Based on...

- Waste mixing technology
- Waste matching technology
- Thorough safety & environmental management system for waste

We are helping our clients recycle their complex industrial waste into alternative fuel (RF: Recycling Fuel) of coal, Sell the RF to cement factories.



## Technical Character



### **POINT. 01 A wide range of wastes can be recycled by our technology with unique characteristics.**

Japan Patent No. 3039644 [A mixture with reversible thixotropy nature used as a supplementary fuel for cement pyroprocess]

By this property, it is possible to turn wide range of wastes into RF fuel, not only liquid wastes (Waste oil, acid, waste alkali, etc.), but also solid wastes, sludge, or wastes in powdery states.

### **POINT. 02 No combustion and no wastewater discharging. Therefore no second pollution.**

Manufacture of RF is just a composition adjustment process among various wastes by mixing.

Heating is not needed, therefore there is no generation of waste gas.

Also all the wastes are recycled as RF fuel without wastewater discharging in the RF manufacturing process.

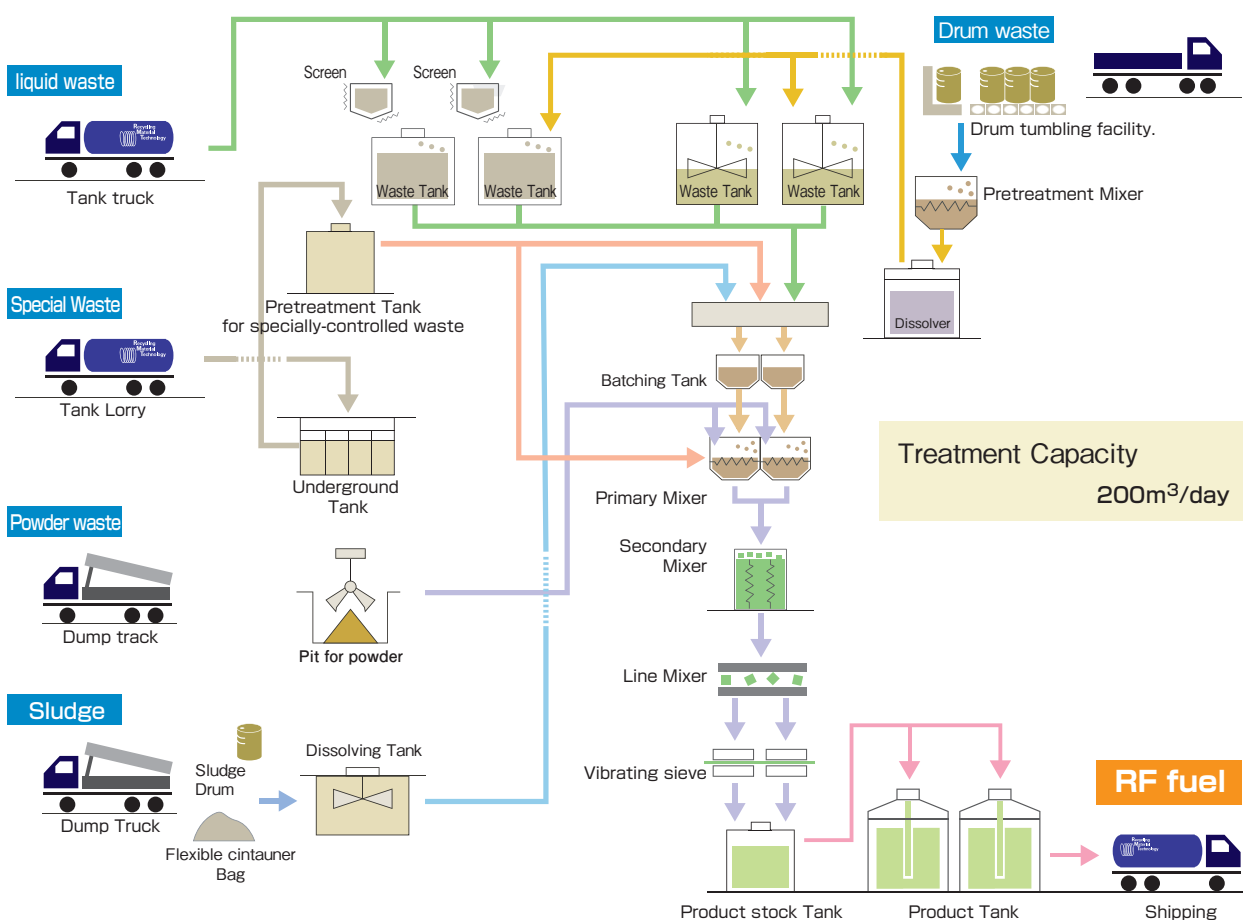
### **POINT. 03 RF is sold as alternative fuel of coal. Final disposal of wastes is not needed.**

RF is sold to major cement companies to be used as the alternative fuel of coal.

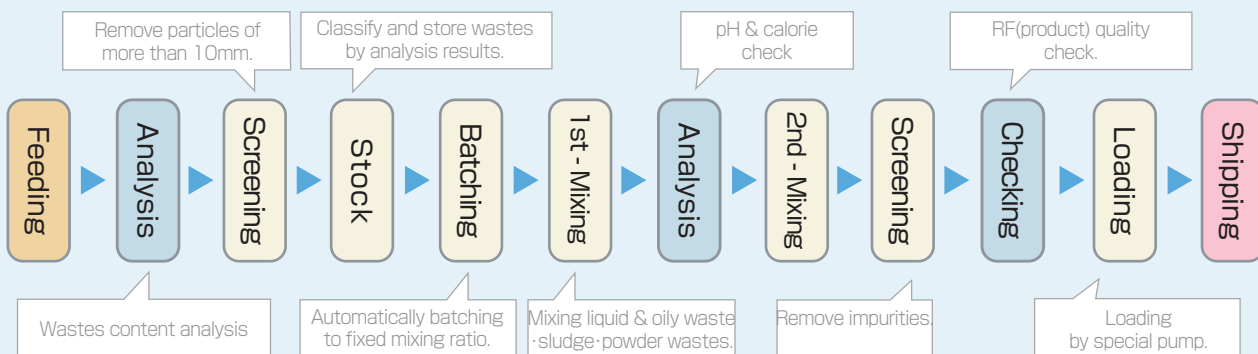
Greenhouse gas- CO2 generated from coal combustion is greatly decreased.

Residual cinder is converted to cement raw materials, therefore final disposal process of waste is not necessary.

## RF Process Flow

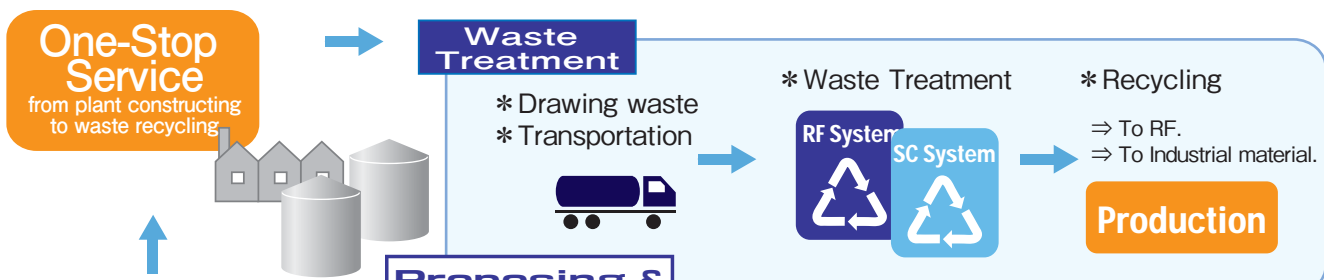


## Quality control



## Tank Cleaning

We provide various services including tank and pit cleaning.



### Cleaning

- \* Cleaning of various tanks & pits.
- \* Inside inspection & Maintenance.
- \* Chemical cleaning.
- \* Demolish works.



### Rematec Clean.Co.,Ltd. (REMATEC Group)

Rematec Clean Co.,Ltd. is a major cleaning company, providing wide range services including tank cleaning and maintenance for petroleum terminal, oil factory and electric power plant station with their 20 years actual performance and accumulated practical experiences.



SC System



# SC System

(Material recycling utilizing Subcritical Water technology)

An unprecedented recycling system by utilizing the power of high-temperature and high-pressure water....."Subcritical Water".



Received the honor of Intellectual Property Award in the year 2011 by Osaka Prefecture.



We are certified to be 「Sakai Challenge Company in 2012」.



## Technical Character

POINT.

01

### Recycling by utilizing Safe and Harmless WATER as the reactant.

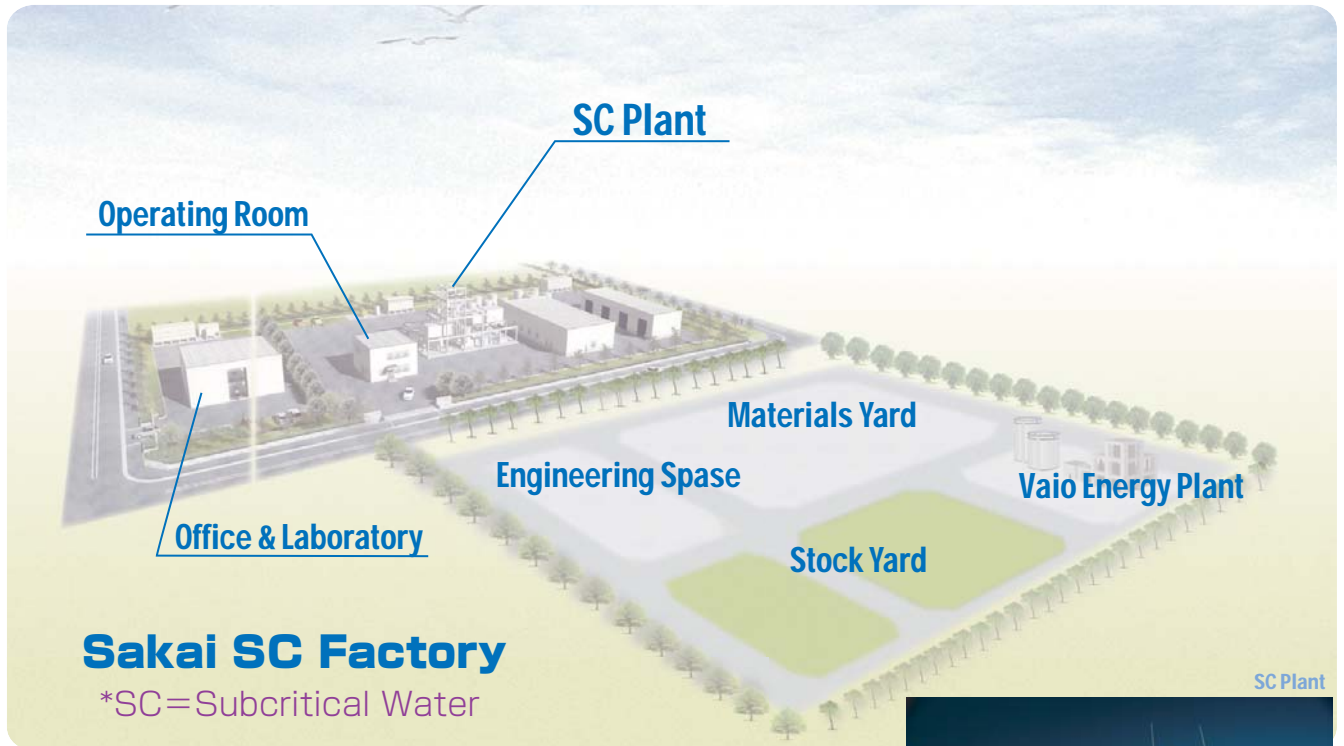
We are operating an effective recycling system to decompose hazardous wastes and recover useful materials by utilizing **Subcritical Water** technology. It is an earth-friendly recycle system.

POINT.

02

### Realization of the world's first commercial plant by business-academia collaboration.

An achievement of co-research with Osaka pref.Univ. & supports of governments(METI, MAFF, MOE). Start -up on Dec.2006 by support of Osaka Pref. government in **ECO-TOWN**.



## Sakai SC Factory

\*SC=Subcritical Water



Laboratory

Treatment research & product quality check.



Operating Room

24-hour continuous operating by remote control.



Stock Yard

Flexible reception service to match customer's needs. Ex) Small lot size, Tank lorry.



SC Plant

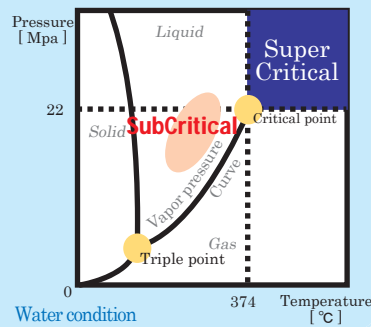
The world's first commercial plant with treatment capacity of 70t/24hours. Our SC plant was self-designed and self-constructed.

## What is Subcritical Water?

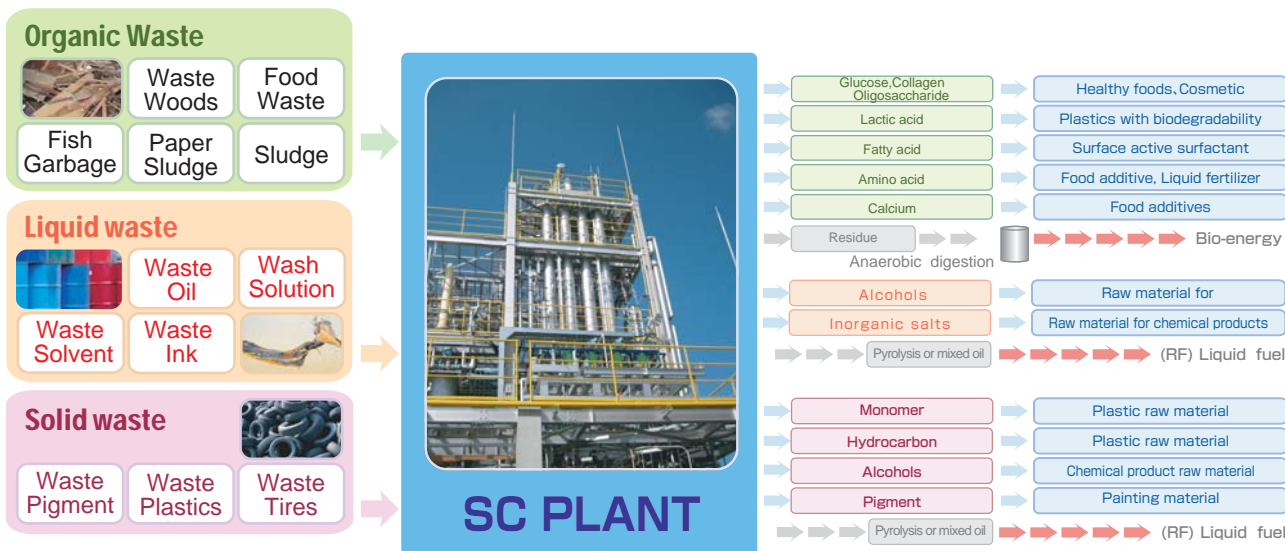
Water will be changed into non-liquid and non-vapor phase at above a temperature of 374°C and a pressure of 22MPa (220 times of atmosphere pressure).

Below or near this critical point we call it sub-critical water.

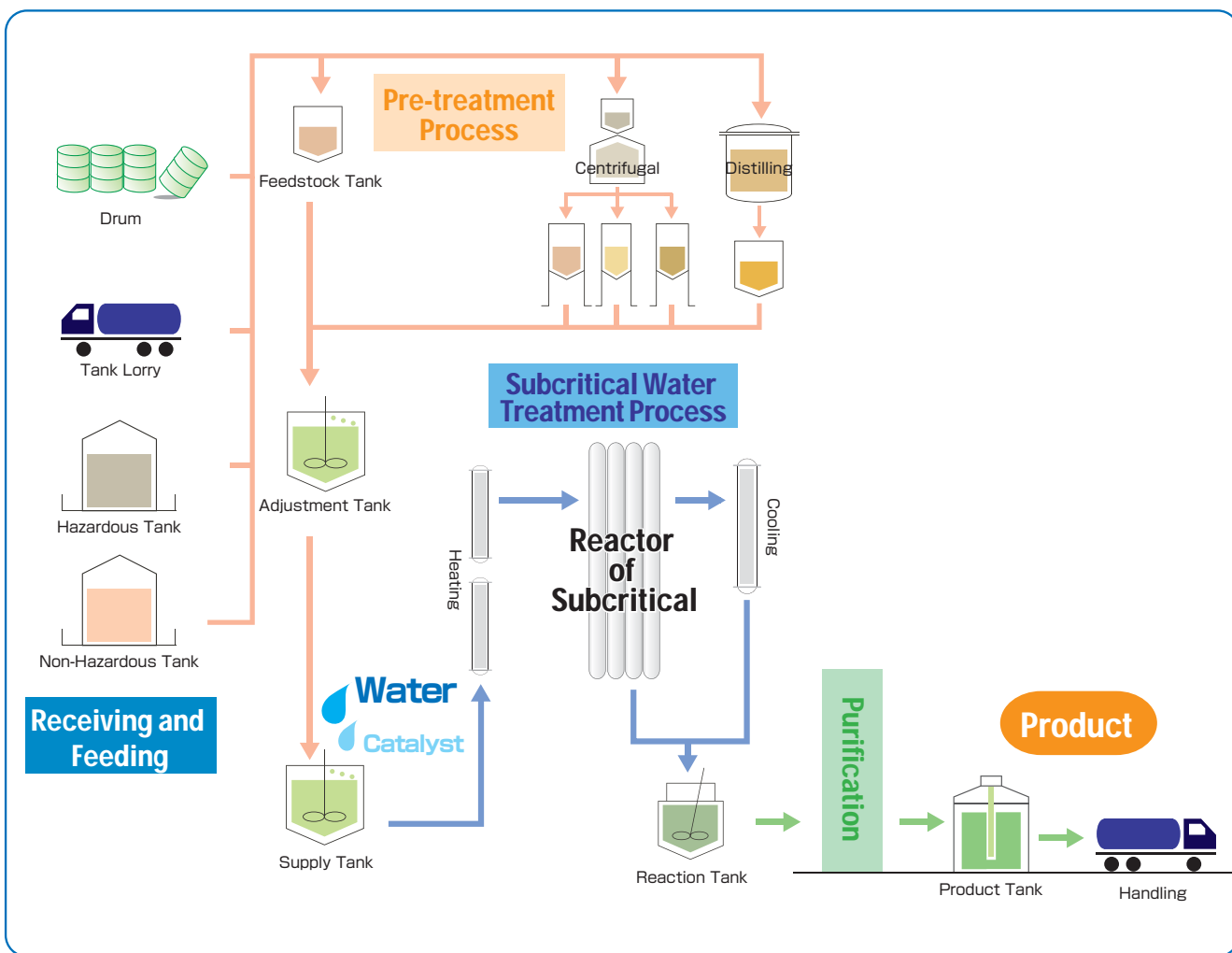
Utilizing Subcritical Water's special properties, varieties of industrial wastes can be recycled and turned to be recovery resources.



## Application Cases of Subcritical Water Technology



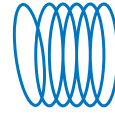
## ex.) Treatment Flow



# REMATEC GROUP Philosophy

As the core of our "Technology",  
By using "Material" which is the earth resources,  
By "Recycling" those materials effectively,

We aim to be a group that contributes  
for the establishment of a sustainable society.



**REMATEC**

Innovation for the Earth

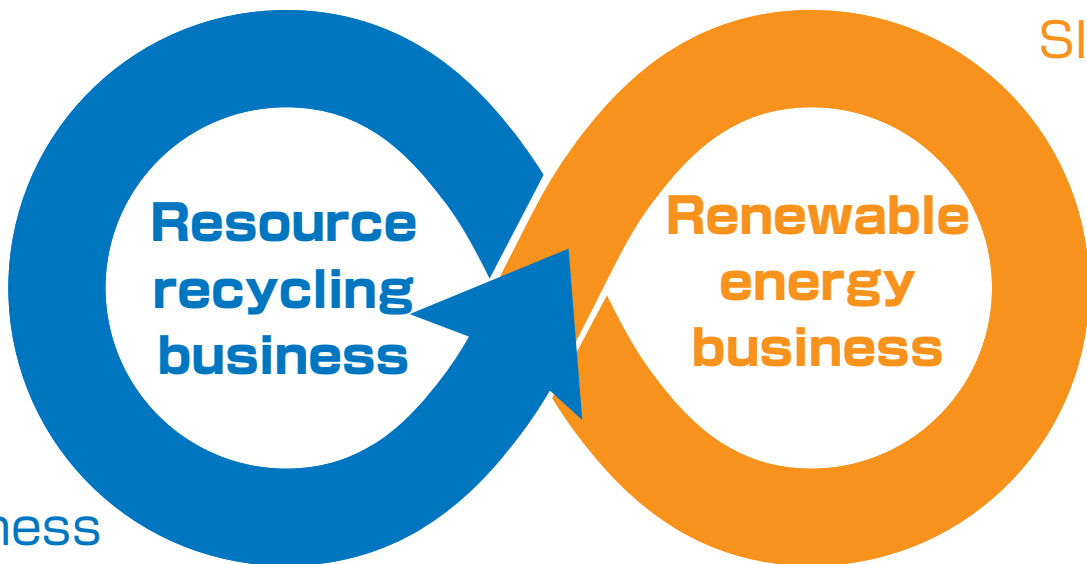
## *Innovation for the Earth*

For realizing a sustainable society, not only in waste treatment field,  
we are also actively taking various challenges on technologies and  
new business models developing for promoting a paradigm change.

Solar power generation business

Biogas power generation business

SILES



RF business

SC business

Environmental restoration business

Tank cleaning business

Networking and logistics business



RF



SC



SILES



Solar



Environmental restoration



Logistics



Cleaning



Biogas

# REMATEC GROUP Plant Engineering Achievements

2006. Iwate-PJ  
Waste separation Plant  
Water Treatment Plant

1996. RF Plant (Ulsan in Korea)  
Technology Transfer

1993. RF Plant(Kaohsiung in Taiwan)  
Full Turkey Export

2008. BOFc Plant

1988. Our Kyusyu  
RF Plant

1993. Our Osaka  
RF Plant

2013.  
RF Pilot Plant  
(Saraburi, Thailand)

2006.  
Our Sakai SC Plant

## Earthquake Disaster Reconstruction



2011. Secondary screening plant  
Iwate Ohfunato-City



2011. Secondary screening plant  
Iwate Rikuzentakada-City



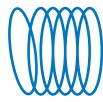
2011. Salt removal Plant  
Iwate - Ohfunato City



2013. Wet/dry sediment screening plant  
Iwate Rikuzentakada-City



2013. Biogas pilot plant Iwate - Ohfunato-City



**REMATEC**  
Innovation for the Earth

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リマテック株式会社

## REMATEC Corporation Corporate Profile

Established : November 1974  
Capital-Fund : 100 million yen  
Employees : 48 (as of 1st Apr, 2015)  
HeadQuarters : Kishiwada-City, Osaka



### Main Business

- \* Treatment, collection & transportation of industrial waste.
- \* Designing, building and selling of recycling plant.
- \* Offer consulting services for waste recycling system.
- \* Cleaning services of tank, pit.



**ISO 14001 Approval.** Head Quarters, Osaka Plant • Sakai SC Plant,

## License Information

### Industrial waste treatment License

Osaka Plant	Osaka Pref.	No. 2720000404
Sakai SC Plant	Sakai City	No. 6720000404

### Specially-controlled industrial waste treatment License

Osaka Plant	Osaka Pref.	No. 2720000404
Sakai SC Plant	Sakai City	No. 6720000404

Collection & Transportation License for industrial waste  
Collection & Transportation License for specially-controlled industrial waste.  
Specific construction License

Minister of Land, Infrastructure and Transportation (Specific-24) No.24515	
* Civil Engineering Works	*Scaffolding Engineering Works
* Mason Engineering	*Plumbing Engineering
* Steel Civil Engineering	*Pavement construction Works
* Dredging Engineering Works	*Painting Engineering
* Water Utility Engineering	*Facility Cleaning Works

### General Construction

Minister of Land, Infrastructure and Transportation (Specific-24) No.24515  
\* Electric Construction Engineering

## Plant Information

	Treatment Process	Treatment Capacity
Osaka Plant	Mixing and Fuelizing.	200m <sup>3</sup> / day (8h)
Sakai SC Plant	Subcritical Water Reaction. Weak Acid-base Reaction. Weak Acid-base Reaction.(Waste nitric acid recycling) Neutralization.	70t / day (24h) 7t / day (24h) 24.8t / day (24h) 48m <sup>3</sup> / day (24h)

Headquarters&Osaka Plant	11-1, Jizohama-cho, Kishiwada-City, Osaka, 596-0015, Japan Tel: +81-72-438-6434 Fax: +81-72-422-3617
Sakai SC Plant	4-2-4, Chikko-Shinmachi, West-Ward, Sakai City, Osaka, 592-8331, Japan Tel: +81-72-280-0525 Fax: +81-72-280-0526
Tohoku Branch	2-3, Kameida, Akazaki-cho, Ofunato City Iwate,020-0007, Japan Tel: +81-19-47-3526 Fax: +81-19-47-3527
Fujiwara Office	1361-1, Tohzenji, Fujiwara-cho, Inabe-City, Mie, 511-0515, Japan Tel: +81-594-46-4544 Fax: +81-594-46-4544
Nanko Office	7, Nanko-minami, Suminoe-Ward, Osaka-City, Osaka, 559-0032, Japan Tel: +81-6-6613-7761 Fax: +81-6-6613-7761

## REMATEC GROUP

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Rematec Kyusyu Corp.	906, Miyakobaru, Notsu-machi, Usuki-City, Oita, 875-0211, Japan Tel: +81-974-32-7820 Fax: +81-974-32-7821
Rematec Tohoku Corp.	2-3, Kameida, Akazaki-cho, Ofunato City Iwate,020-0007, Japan Tel: +81-19-47-3526 Fax: +81-19-47-3527
R T T Corp.	11-1, Jizohama-cho, Kishiwada-City, Osaka, 596-0015, Japan Tel: +81-72-433-7880 Fax: +81-72-433-7881
R T T Corp. Kyusyu Branch	906, Miyakobaru, Notsu-machi, Usuki-City, Oita, 875-0211, Japan Tel: +81-974-32-7820 Fax: +81-974-32-7821
Rematec R&D Corp.	8F, Daiwa Jimbocho3chome BLDG., 3-2-3, Kandajimbocho, Chiyoda-ku, Tokyo, 101-0051, JAPAN Tel: +81-3-6682-5095 Fax: +81-3-6682-4884
Rematec Clean Co.,Ltd	2F, Wako Bldg., 1-9-23, Yanagimachi, Moji-Ward, Kitakyusyu-City, Fukuoka, 800-0025, Japan Tel: +81-93-371-3340 Fax: +81-93-371-3074
Renagen Inc.	8F, Daiwa Jimbocho3chome BLDG., 3-2-3, Kandajimbocho, Chiyoda-ku, Tokyo, 101-0051, JAPAN Tel: +81-3-3556-0173 Fax: +81-3-6682-4884