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**ISO 9001:2015**

# **C.S. CHEMICAL SERVICE THAILAND**

[www.cschemical.co.th](http://www.cschemical.co.th)

## **COMPANY PROFILE PRESENTATION**



### ABOUT US

- Company profile
- Our focus



### TERM OF SERVICE

- Water Treatment
- Chemicals Product
- Mechanical Clean
- Chemical Clean



### BOILER CLEANING SERVICE

- Problem in the industry
- Boiler Mechanical Clean



### OUR CLIENT

- All Client
- Job Reference
- Our Contact





# ABOUT US

C.S. CHEMICAL SERVICE [THAILAND]

“

Established in 2001, we operate a business related to maintaining water quality in an industrial factory system and providing consultation about water treatment and chemical cleaning to meet customers' needs by considering the significance of the environmental impact.

”



# OUR FOCUS

## C.S. CHEMICAL SERVICE [THAILAND]

“

C.S. Chemical Service [Thailand] Co., Ltd. focuses on systematic management in order to efficiently serve target customers such as power plants, the sugar industry, and the food industry.

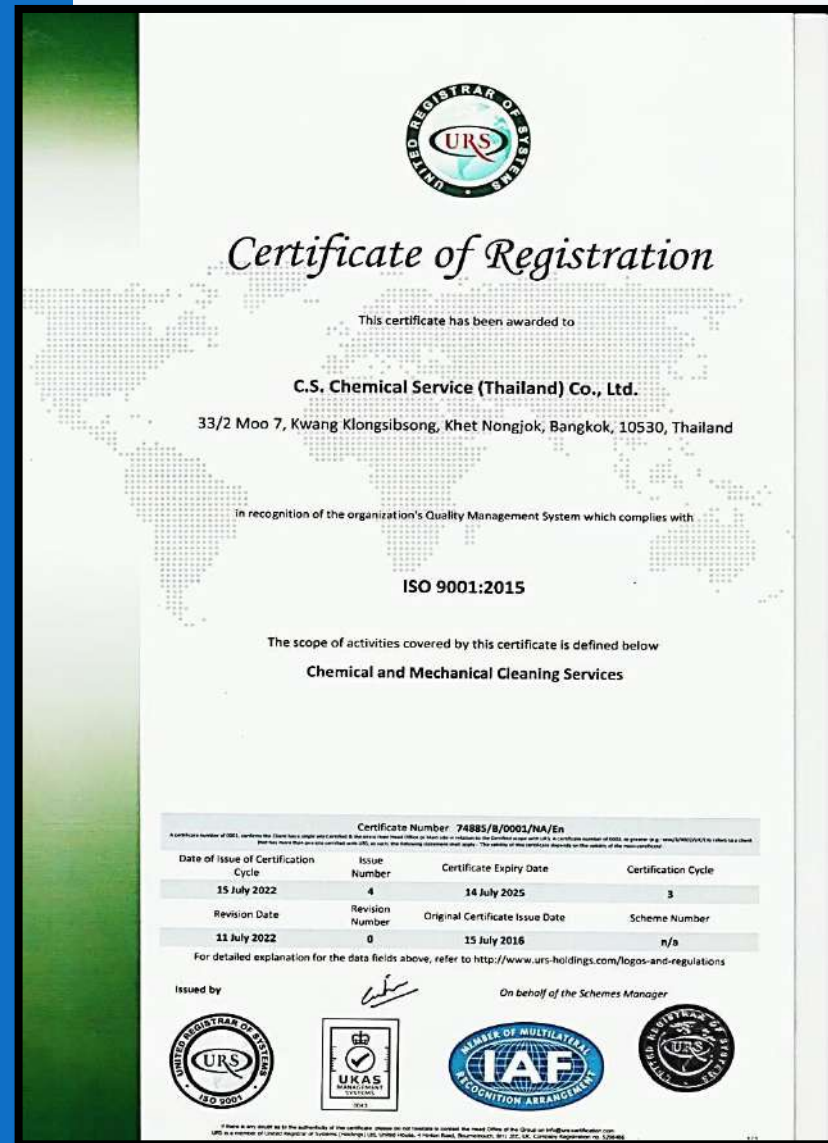
”





# Quality Policy Target

“Commitment to service and developing quality for the highest customer satisfaction”



## Quality

Provides services with quality and standards at the level of satisfaction by the customers.



## Management

Develops the quality of personnel, the operation, and the management of the company to always be up-to-date to efficiently meet the need of the industrial market



## Safety

We are committed to our staff and their welfare and providing a safe workplace for all is our highest priority.



## Customer

Emphasize the highest customer satisfaction.





# Safety

We are committed to our staff and their welfare and providing a safe workplace for all. is our highest priority in the workplace.





# Safety talk

Get ready before work every morning. by introducing safety measures and checking equipment Including complete personnel protective equipment [ PPE ] before starting work.





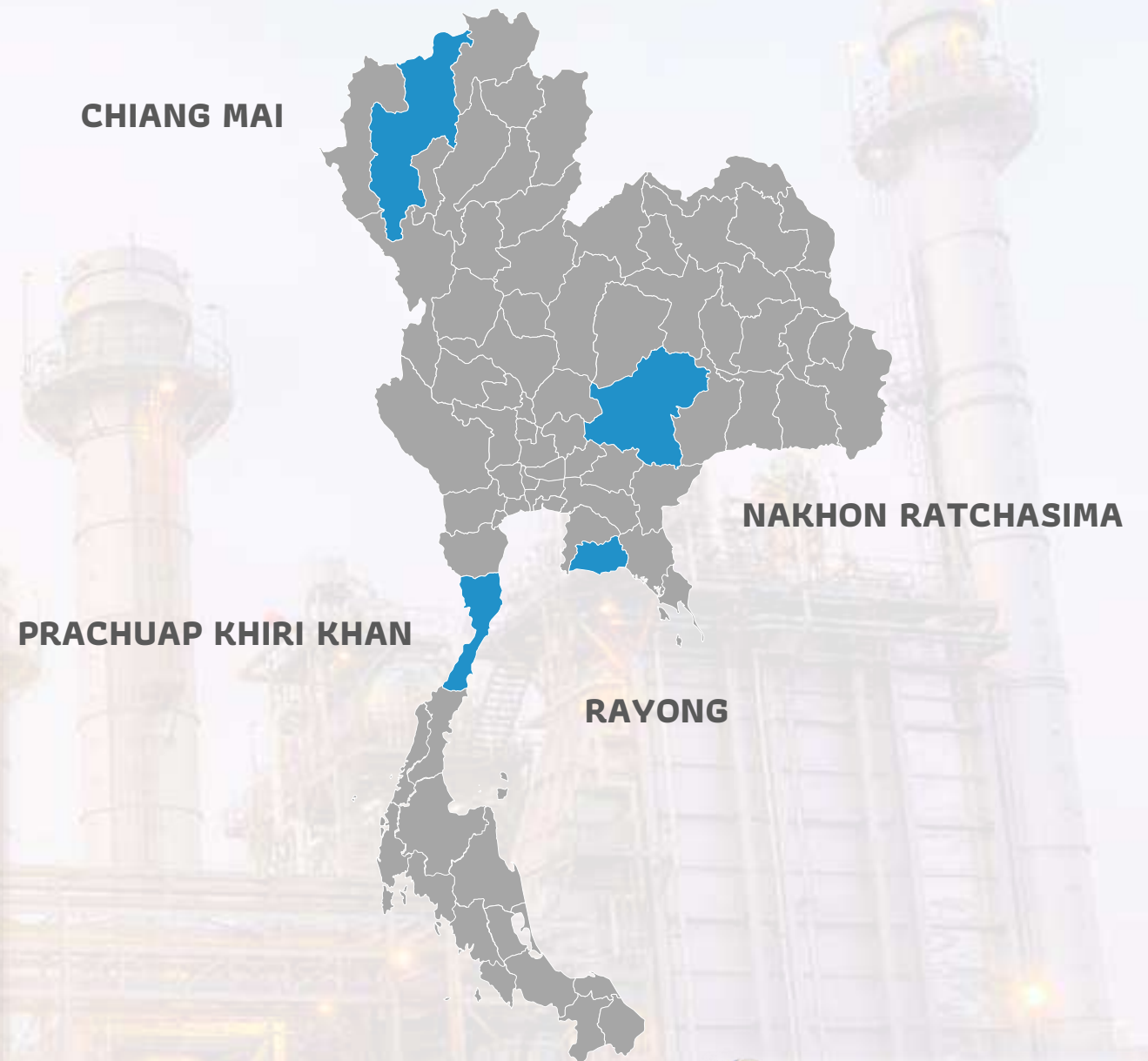


## C.S. Location

### C.S. Chemical Service

Currently, C.S. Chemical Service [ Thailand ] company located in Bangkok and has branches covering all over the country, located in 4 provinces, including [Chiang Mai](#), [Nakhon Ratchasima](#), [Prachuap Khiri Khan](#), and [Rayong](#).

**C.S.**







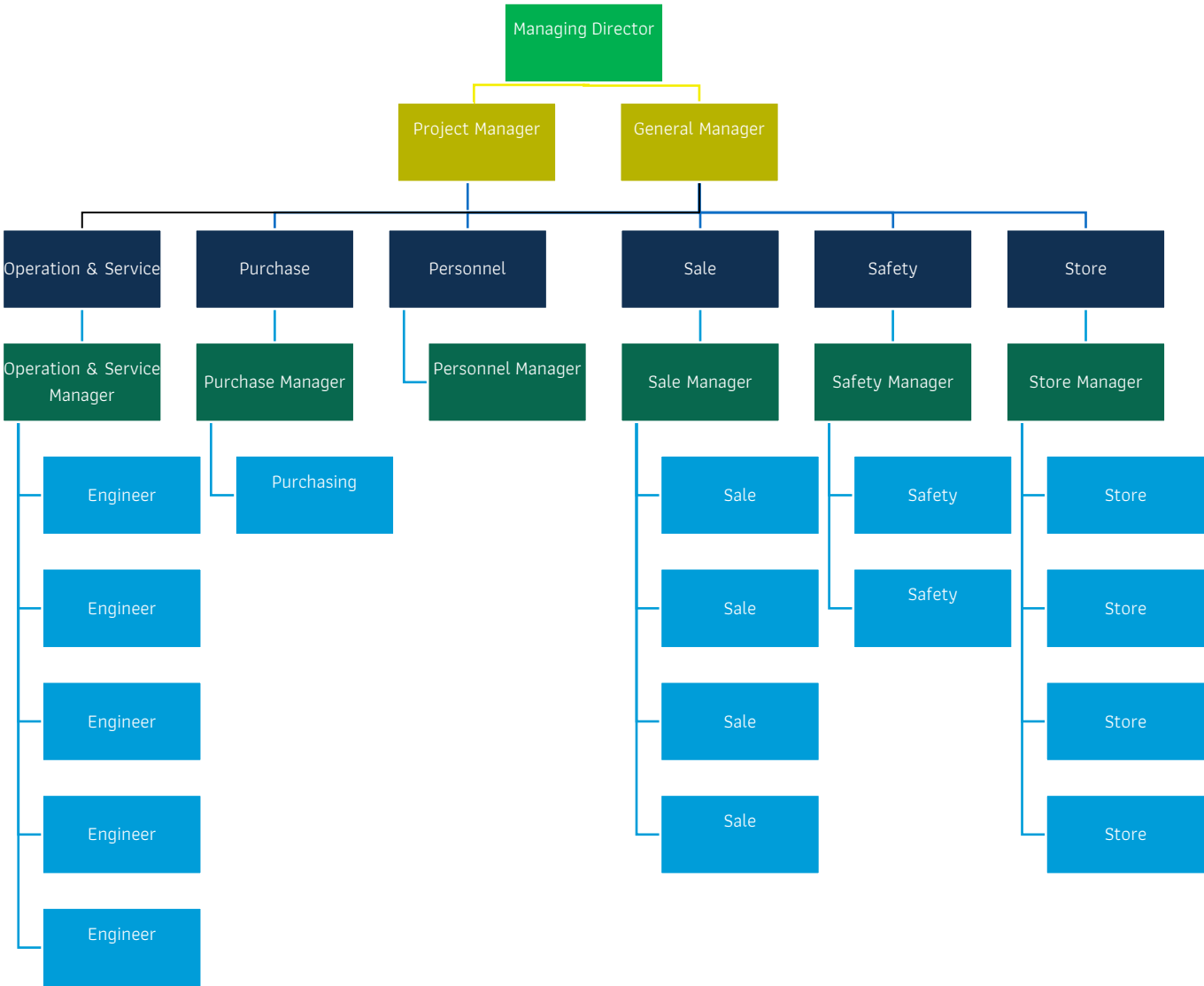
# Organization Chart

This chart shows the organization in our company

- Managing Director: 1
- General Manager: 1
- Project Manager: 1
- Admin Dept. : 15
- Marketing Dept. : 10
- Technical & Engineering: 20
- Field operation & Service: 90



= 138 persons





# CS History

Our timeline shows the company's development



Advance Agro Public Co., Ltd.  
[Power Plant AA-5] Chemical  
Cleaning Boiler System [capacity  
198 Tons./hr.]

2004



EGAT. Wang Noi Power  
Plant Chemical Cleaning  
Boiler.

2012



ItalThai Engineering Co., Ltd. [ITE].  
Chemical Cleaning Steam Pipe  
Branch.

2018



Currently, to find new challenges,  
we have plans to expand our  
business. to Southeast Asia.

Present

2001

company establishment and  
started a business by cleaning a  
small boiler.



2010

Nakornphet Sugar Co., Ltd.  
Mechanical Clean, and Chemical  
Passivation Boiler  
[capacity 200 Tons./hr.]



2015

ECCO Engineering & Service CO.,  
Ltd [ESCO]. Plant Ladkrabang  
Power Plant.



2022

B-Grim Power [Laem Chabang].  
Chemical clean steam distribution  
system, Recycle water system,  
Wastewater system, and pipe rack.

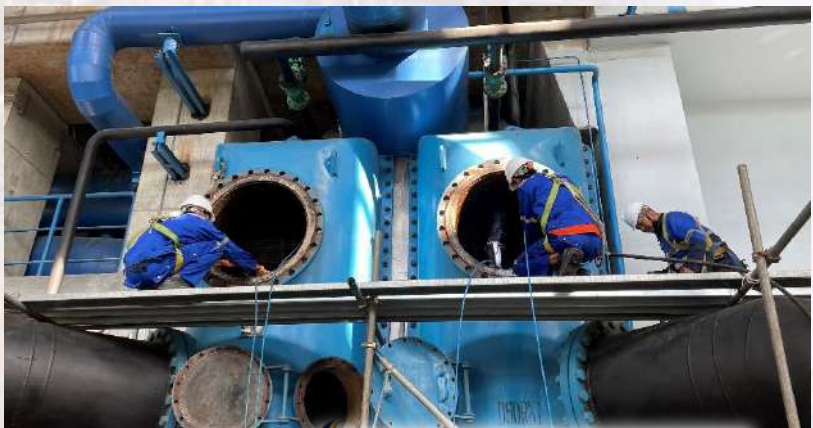
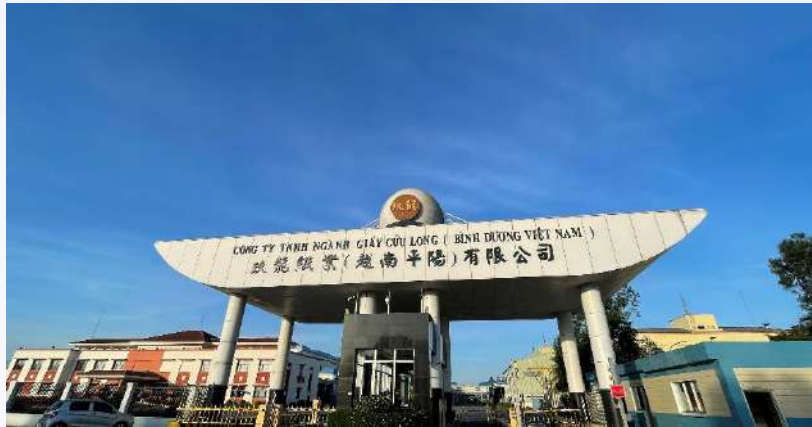




# FIRST STEP

## VIETNAM

C.S. Chemical Service [Thailand] began to expand the market to foreign countries. From establishing a company in Vietnam and operating the first customer, Nine Dragons Paper Factory Co., Ltd in Ho Chi Minh. Under the good feedback from customers.





# TERM OF SERVICE

12





# TERM OF SERVICE

13



**WATER  
TREATMENT**



**MECHANICAL  
CLEAN**



**CHEMICAL  
CLEAN**



# WATER TREATMENT & CHEMICAL PRODUCTS

C.S. Chemical Service [Thailand] has many chemicals product for water treatment. Our service team already analyzes water quality and services all clients perfectly.

As follows :

- Chemical treatment product
- Boiler Water Treatment
- Cooling Tower Water Treatment
- Condenser Water Treatment





# MECHANICAL CLEAN INDUSTRY SERVICE

C.S. Chemical Service [Thailand] has a special solution to remove slag & rust from inside and outside the tube surface. Using a high-pressure water jet from professionals who have been working at the workplace for more than 10 years.

As follows :

- Fire Tube Boiler
- Water Tube Boiler
- Tank farm
- Cooling tower
- Condenser
- Pipeline





# CHEMICAL CLEAN INDUSTRY SERVICE

C.S. Chemical Service [Thailand] is a professional in the chemical cleaning process. We use acid for abrasive descaling. Our cleaning program is based on the type of slag. for removing calcium carbonate and magnesium carbonate.

As follows :

- HRSG
- Water Tube Boiler
- Fire Tube Boiler
- Waste heat Boiler
- Condenser
- Pipeline
- Hot oil boiler
- Heat exchanger





# BOILER

## CLEANING SERVICE

### INTRODUCTION

C.S. Chemical Service [Thailand] is a professional cleaning boiler with under 20 years of experience. We have many chemical cleaning programs for many types of slag such as Calcium carbonate & magnesium carbonate.



# PROPOSAL

## PROBLEMS IN THE INDUSTRY



Most of the problems encountered in operating the boiler in the industry are HRSG, Water Tube Boiler, Waste heat Boiler, and Hot oil boiler. Found that the problem of scale and rust is a common problem and difficult to solve.



# PROPOSAL

## PROBLEMS IN THE INDUSTRY



### **EFFICIENCY**

Reduce fluid flow rate due to pipe diameter being small.

### **HEAT TRANSFER**

Decreased heat transfer efficiency.

### **POWER**

Uses more power to operate.

### **COST**

Makes high costs for operating.



# BOILER MECHANICAL CLEAN

Remove scale and rust from the pipe surface by using a high-pressure water jet. By professionals who have been working for more than 10 years. We have many types of high-pressure washers for each situation, including 500 bar, 800 bar, and 1,000 bar to meet the needs of customers. and guarantee that Scale and rust problems will be gone.





# MECHACAL CLEAN PROCESS



## PREPARATION

Mobilization to the working area and Safety training programs.



## INSTALLATION

Set up accessories and connect the system with a high-pressure water jet.



## MECHANICAL CLEAN

Remove scale and rust from the pipe surface by using a high-pressure water jet.



## PASSIVATION

Remove scale and rust from the pipe surface by using a high-pressure water jet.



## INSPECTION

Check the slag condition inside the tube.



## Process: 1 PREPARATION



Mobilization to the working area. Safety training programs for checking manpower, PPE, and other equipment are all ready to work, to make accidents zero.







## Process: 2 INSTALLATION



Set up accessories, scaffolding, and high-pressure water jet, and Connect the High-pressure water jet with temporary equipment. Connect equipment with the water supply line. And connect electricity by the technicians from the industry.





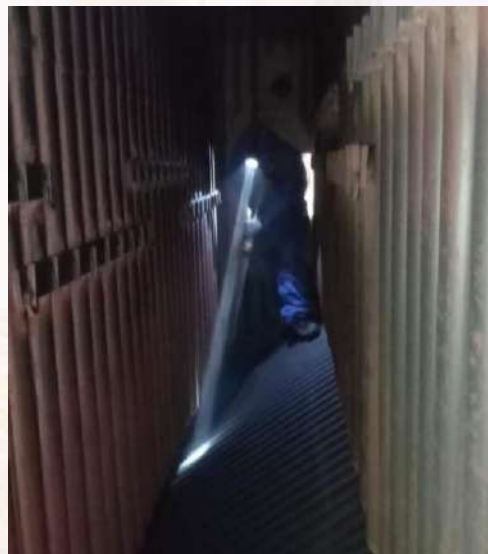


## Process: 3

# MECHANICAL CLEAN



Clean the water pipe by using the High-pressure water jet. To remove deposits and slag from the tube surface. Operate pressure at 600-800 bar to protect the water pipe from breaking. And then increase the pressure to 1,000 bar.







## Process: 4 PASSIVATION



The passivation process makes a film for coating the materials from oxidation reactions. Fill up the water by slowly adding *THERMOLID: CS.6003*.







## Process: 4 INSPECTION



Isolate the system temporary cleaning for visual inspection was found satisfactory of magnetite formation on the wall surface.

- No, rust in The steam pipe.
- Well of passivation surface.



BEFORE

AFTER





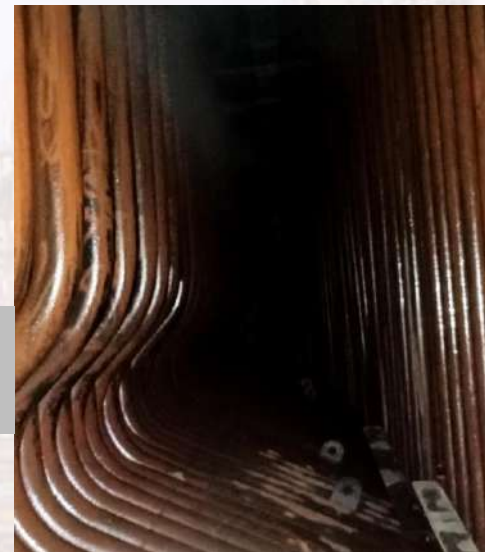


## Process: 4 INSPECTION



BEFORE

AFTER







## EGAT. Wang Noi Power Plant

BEFORE CLEANING



# EGAT

Power for Thai Happiness

## VS

Before

After



AFTER CLEANING







# Gulf Power Generation Co., LTD. [ Kangkoi 2 ]

BEFORE CLEANING



VS

Before

After



AFTER CLEANING







# Amata B-Grim Power



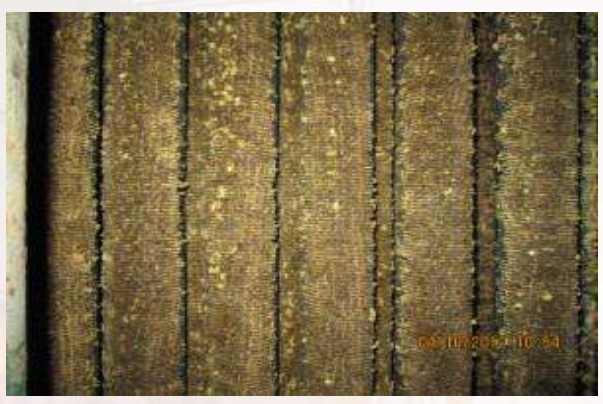
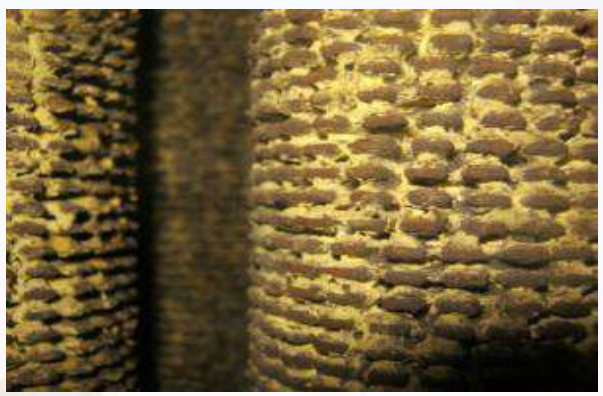
VS

BEFORE CLEANING

AFTER CLEANING

Before

After







# Khonburi Power Plant



VS

BEFORE CLEANING



Before

After



AFTER CLEANING







# Banrai Sugar Industry

BEFORE CLEANING



บริษัท อุตสาหกรรมน้ำตาลบ้านไร่ จำกัด

VS

Before

After



AFTER CLEANING





# Rojana Power Plant



VS

BEFORE CLEANING



Before

After

AFTER CLEANING







# E-saan Sugar Industry



VS

## BEFORE CLEANING



Before

After



## AFTER CLEANING





# BOILER CHEMICAL CLEAN

Boiler Chemical cleaning is the preferred method for removing scale and rust from the pipe surface. This method uses a chemical acid for abrasive descaling. We have many chemical cleaning programs for many types of slag such as Calcium carbonate & magnesium carbonate. For new boilers, an alkali boil-out boiler is a special method for cleaning.





# SCOPE OF WORK

## CUSTOMER SUPPLY

1. Coordination
2. Electric at the work site
3. Water supply
4. Forklift
5. Waste pond
6. Permanent Gasket

## C.S. SUPPLY

1. Cleaning chemicals
2. Temporary pipes connect the
3. system for chemical clean
4. Manpower
5. Circulating pump
6. Circulating tank
7. Safety technical
8. Drainage hose
9. Temporary piping
10. Temporary valve
11. Temporary flank and gasket
12. Field Laboratory
13. Waste disposal [Adjust pH 6.5-9]
14. Lighting in the working area

## WORK SCHEDULE

- |                                  |              |
|----------------------------------|--------------|
| 1. Mobilization and Preparation: | 4 day        |
| 2. Chemical cleaning:            | 5 days       |
| 3. Demobilization                |              |
| and Pending Work:                | 1 day        |
| <br>Total                        | <br>10 Days. |

## CHEMICALS

1. THERMOLOID: INHIBITOR
2. THERMOLOID: CS.7009
3. THERMOLOID: CS.804
4. THERMOLOID: CS.6003
5. Sodium hydroxide
6. Nitrogen



# CHEMICAL CLEAN PROCESS



## INSTALLATION

Mobilization to the working area. Set up accessories and connect the pipe system with a circulation tank, circulation pump and temporary equipment



## ACID CLEAN

Uses an acid chemical for abrasive descaling. Chemical cleaning programs based on the type of slag



## PASSIVATION

Uses a passivation chemical to protect the pipe from oxidation reactions



## INSPECTION

Check the slag condition inside the pipe.

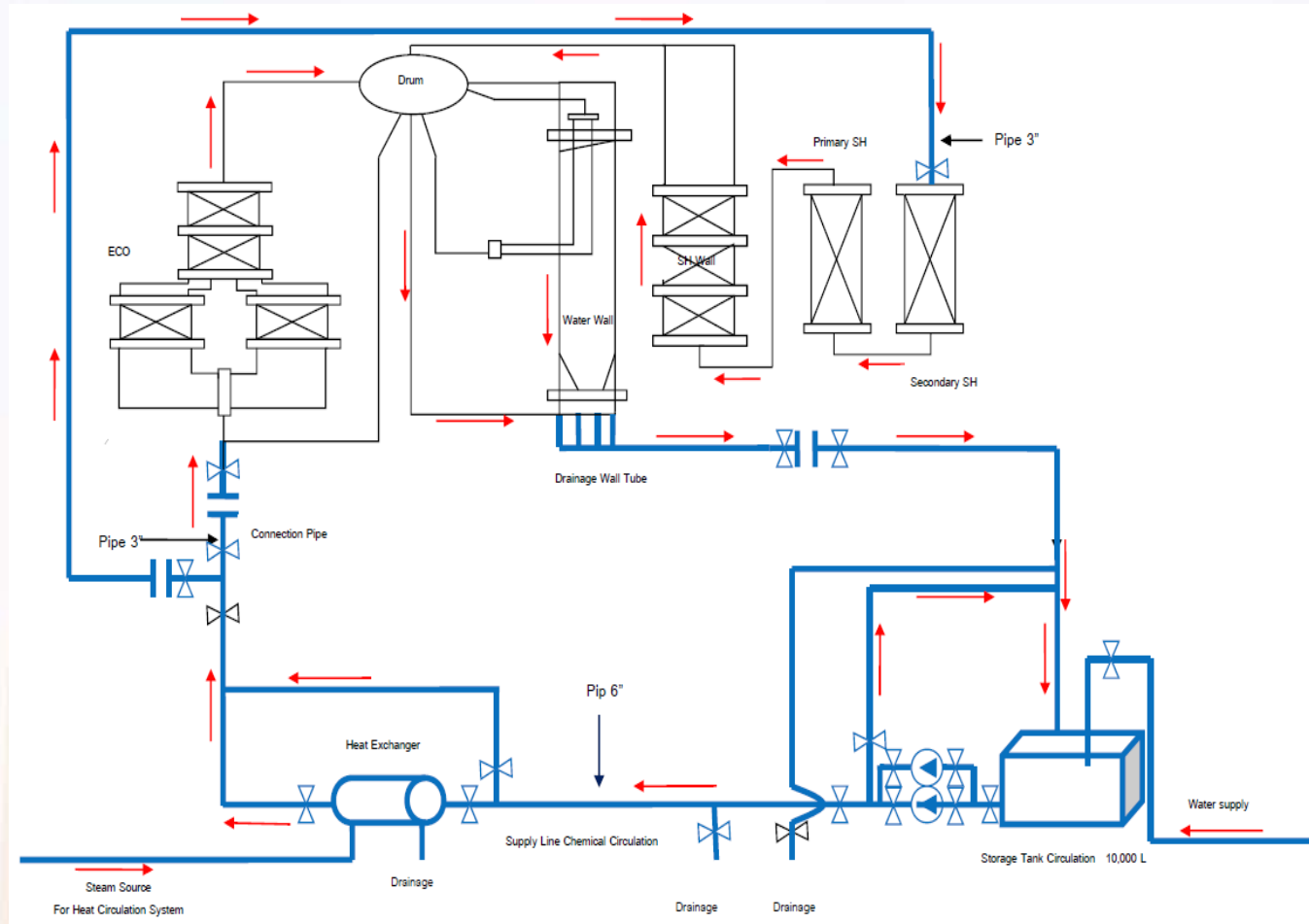
# MAIN EQUIPMENT

1. Circulation Tank
2. Circulation Pump
3. Heat exchanger
4. Main Distribution board
5. Pipe & Fitting
6. Temporary flanged





# CHEMICAL CLEAN DIAGRAM





## Process: 1 INSTALLATION



Set up accessories and connect the circulation tank and circulation pump with temporary equipment. Connect equipment with the water supply line. Checking electricity by the technicians from the industry. After the installation, Use a chemical circulation pump to leak test the system at the maximum discharge pressure to protect against the risk of chemical accidents.







## Process: 2 ACID CLEAN



The acid clean process removes rust and slag by adding *THERMOLOID: INHIBITOR + THERMOLOID: CS.804[Acid]* for the Stream drum and wall tube. Adjusting pH 0.8-2.0 and continuing circulation for 10-16 hrs. Analyze the samples every 30 minutes as follows acid concentration, pH, conductivity, hardness, water flow rate, turbidity, and iron concentrations. Maintain acid concentrated at 2.0 -5.0%. After the completion, start a drain and neutralize with alkali chemical by *Sodium Hydroxide* pH is 7.0 to a sewer. Cleaning superheats by adding *THERMOLOID: INHIBITOR* first. And adding *THERMOLOID: CS.7009 [Acid]*. Repeating the acid clean process. After ending the process. Start Draining the system shall be filled with nitrogen and maintain positive pressure.







## Process: 3 PASSIVATION



The passivation process makes a film for coating the materials from oxidation reactions. Fill up the water by slowly adding *THERMOLOID: 7009 [Acid]* 0.2% continue circulation for 2 hours or the iron content in rinse water drops down and becomes uniform. Adjust pH by adding passivator *THERMOLOID: 6003[Base]* into the system during circulation and check the pH of the solution until it achieves a pH of 9.0-11.5. Continue circulation for 6 hours.







## Process: 4 INSPECTION



Isolate the system temporary cleaning for visual inspection was found satisfactory of magnetite formation on the wall surface.

- No, rust in The steam pipe.
- Well of passivation surface.
- Corrosion Rate < 2 mg/cm<sup>2</sup>/hr.





# ALKALI

## BOIL OUT BOILER

C.S. Chemical Service [Thailand] is proud to present our special method. Alkali Boil out Boiler Chemical cleaning is a method for removing grease & oil from the pipe surface. And remove scale and rust for the last step. This method prefers a new boiler or new tube.





# ALKALI CHEMICAL CLEAN PROCESS



## INSTALLATION

Mobilization to the working area. Set up accessories and connect the pipe system with a circulation tank, circulation pump and temporary equipment



## DEGREASING

Remove grease & oil from the pipe surface by adding Surfactant and Continue circulation for 8 hrs.]



## ACID CLEAN

Uses an acid chemical for abrasive descaling. Chemical cleaning programs based on the type of slag



## PASSIVATION

Uses a passivation chemical to protect the pipe from oxidation reactions



## INSPECTION

Check the slag condition inside the pipe.





## Process: 1 INSTALLATION



Set up accessories and connect the circulation tank and circulation pump with temporary equipment. Connect equipment with the water supply line. Checking electricity by the technicians from the industry. After the installation, Use a chemical circulation pump to leak test the system at the maximum discharge pressure to protect against the risk of chemical accidents.







## Process: 2 DEGREASING



The degreasing process removes grease & oil from the pipe surface by adding *THERMOLOID: Detergent 0.05%* with demine water and heating up the temperature to 60-85°C. Continue circulation for 8 hrs. Analyze the conductivity, pH, temperature, and Grease & Oil laboratory.



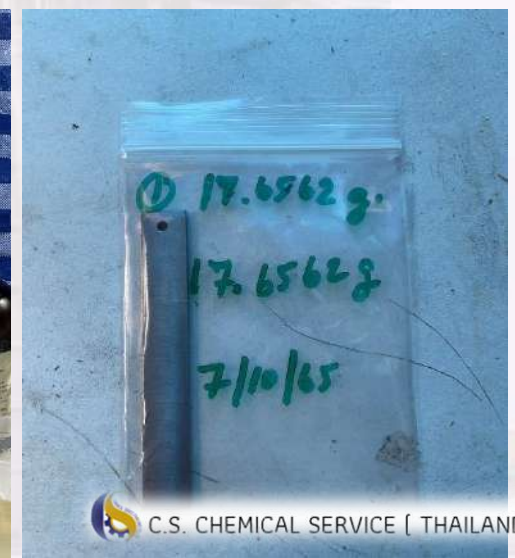




## Process: 3 ACID CLEAN



The acid clean process removes rust and slag by adding *THERMOLOID: INHIBITOR + THERMOLOID : CS.804[Acid]* for the Stream drum and wall tube. Adjusting pH 0.8-2.0 and continuing circulation for 10-16 hrs. Analyze the samples every 30 minutes as follows acid concentration, pH, conductivity, hardness, water flow rate, turbidity, and iron concentrations. Maintain acid concentrated at 2.0 -5.0%. After the completion, start a drain and neutralize with alkali chemical by *Sodium Hydroxide* pH is 7.0 to a sewer. Cleaning superheats by adding *THERMOLOID : INHIBITOR* first. And adding *THERMOLOID : CS7009 [Acid]*. Repeating the acid clean process again. After ending the process. Start Draining the system shall be filled with nitrogen and maintain positive







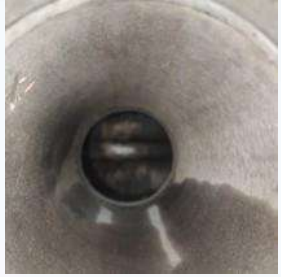
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The passivation process makes a film for coating the materials from oxidation reactions. Fill up the water by slowly adding *THERMOLOID : CS7009 [Acid]*. 0.2% continue circulation for 2 hours or the iron content in rinse water drops down and becomes uniform. Adjust pH by adding passivator *THERMOLOID : 6003[Base]* into the system during circulation and check the pH of the solution until it achieves a pH of 9.0-11.5. Continue circulation for 6 hours.







## Process: 5 INSPECTION



Isolate the system temporary cleaning for visual inspection was found satisfactory of magnetite formation on the wall surface.

- No, rust in The steam pipe.
- Well of passivation surface.
- Corrosion Rate < 2 mg/cm<sup>2</sup>/hr.







ItalThai Engineering Co., Ltd



ITALTHAI  
ENGINEERING

VS

Before

After

BEFORE CLEANING



AFTER CLEANING







B. Grimm Power [AIE-MTP]Ltd.



**B.GRIMM**  
SINCE 1878

BEFORE CLEANING



**VS**

Before

After



AFTER CLEANING







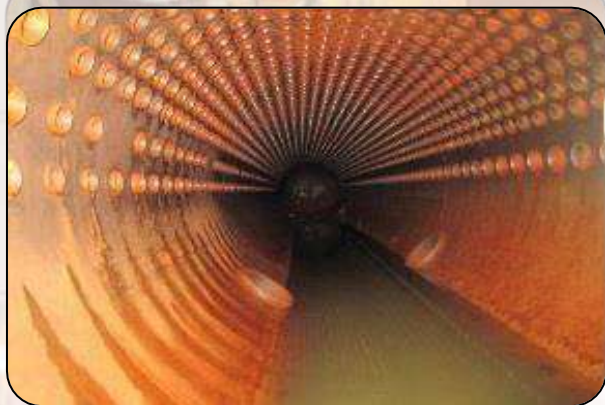
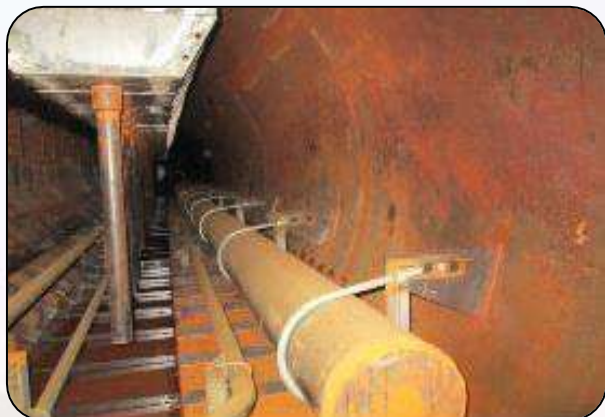
# Mitr Phol Bio-power [ Phu Khieo ]



MITR PHOL

VS

BEFORE CLEANING



Before

After



AFTER CLEANING







## EGCO : Plant Ladkrabang Power Plant.

BEFORE CLEANING



VS

Before

After



AFTER CLEANING







Double A [1991] Public Co., Ltd

BEFORE CLEANING



**Double A**

**VS**

Before

After



AFTER CLEANING







Nakornphet Sugar Co., Ltd



VS

BEFORE CLEANING



Before

After



AFTER CLEANING





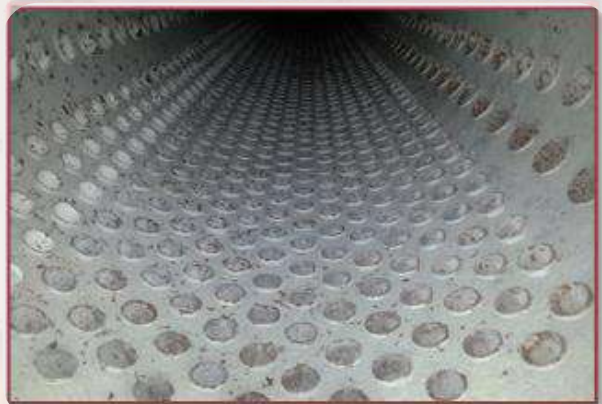


Banpong Sugar Co., Ltd



VS

BEFORE CLEANING



Before



After

AFTER CLEANING







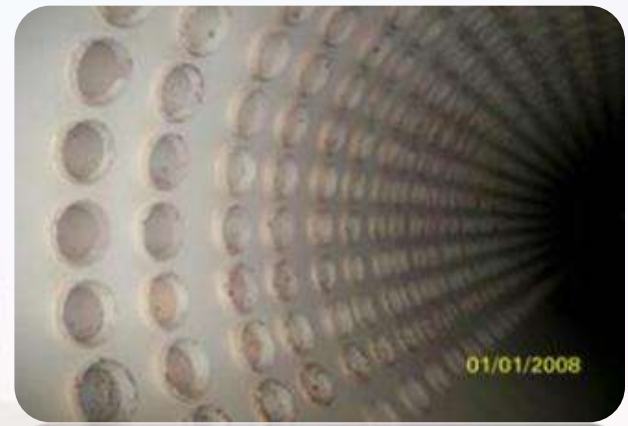
Singburi Sugar Co., Ltd



MITR PHOL

VS

BEFORE CLEANING



Before

After



AFTER CLEANING

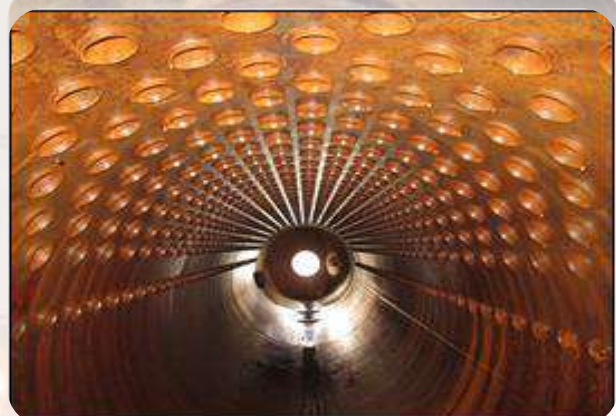






# Thai Roong Ruang Sugar Group

BEFORE CLEANING



THAI ROONG RUANG  
SUGAR GROUP

*Lin*

VS

Before

After



AFTER CLEANING







# Mahawang Sugar Co., Ltd



## VS

BEFORE CLEANING



Before

After



AFTER CLEANING







## Our Clients

Our clients in Thailand.







# Our Clients

Our clients in Thailand.



MITR PHOL







## C.S. CHEMICAL SERVICE [THAILAND] CO., LTD.

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