



CHENGDU ROSUN DISINFECTION

New Oxidizing Biocide

Makes The
Rivers And Earth Cleaner
Helps Billions
Of People Be Healthier

1

Product Introduction

2

Product Mechanism

3

Product Advantages

4

Quality Assurance

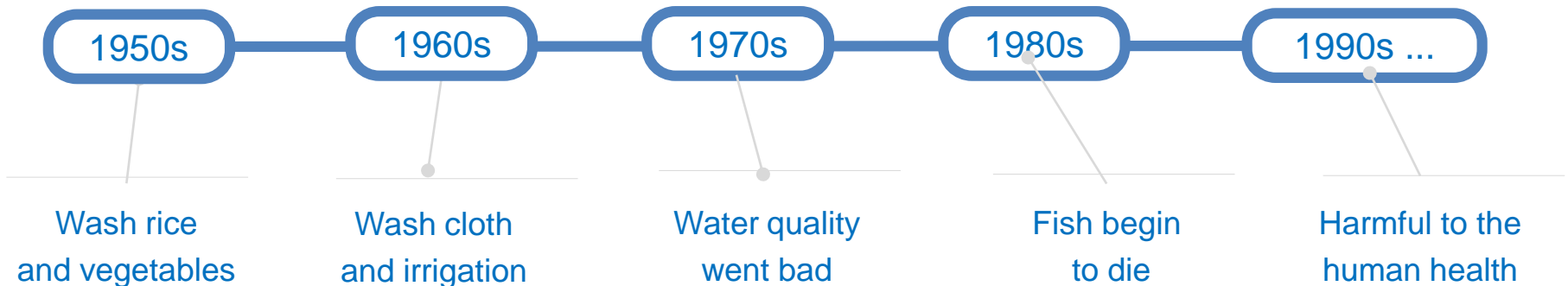
5

Application and Achievement

➤ **Outbreaks of a series of infectious disease in history because there is no disinfection**

- Outbreak of plague (Black Death) in the 14th century ,killing half the Europeans, it repeatedly broke out and didn't stop until the 18th century.
- In 1816, for the first time in human history, cholera pandemic broke out in Bangladesh and India.
- British cholera pandemic in 1831, affecting almost the half of the Eastern Hemisphere.
- Chicago cholera pandemic in 1885,claimed 90,000 lives.
- European Influenza (1917~1919) resulted in 50 million deaths.

➤ **Water quality situation**



The existing oxidizing biocide in the market

1. Chlorine Gas

2. Sodium Hypochlorite

3. Chlorine Dioxide

4. Hydrogen Peroxide

5. Etc.

What we can improve?

- *Purchase restriction
- *Safety issue
 - transportation, storage, operation
- *Poor performance in high pH range
- High level causing metal corrosion



Chlorine gas

- *Safety issue
 - transportation, storage, operation
- *Equipment maintenance complicated
- *Poor performance in high pH range
- * High level causing metal corrosion

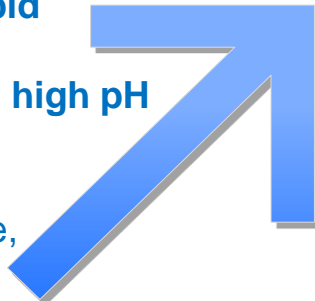


Chlorine dioxide

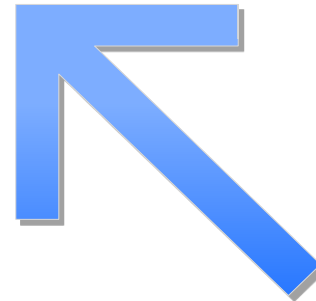


- *Active ingredient rapid decomposition issue
- *Poor performance in high pH range
- *Safety issue
 - transportation, storage, operation
- High level causing metal corrosion
- * Legionella bacteria control issue

Sodium hypochlorite



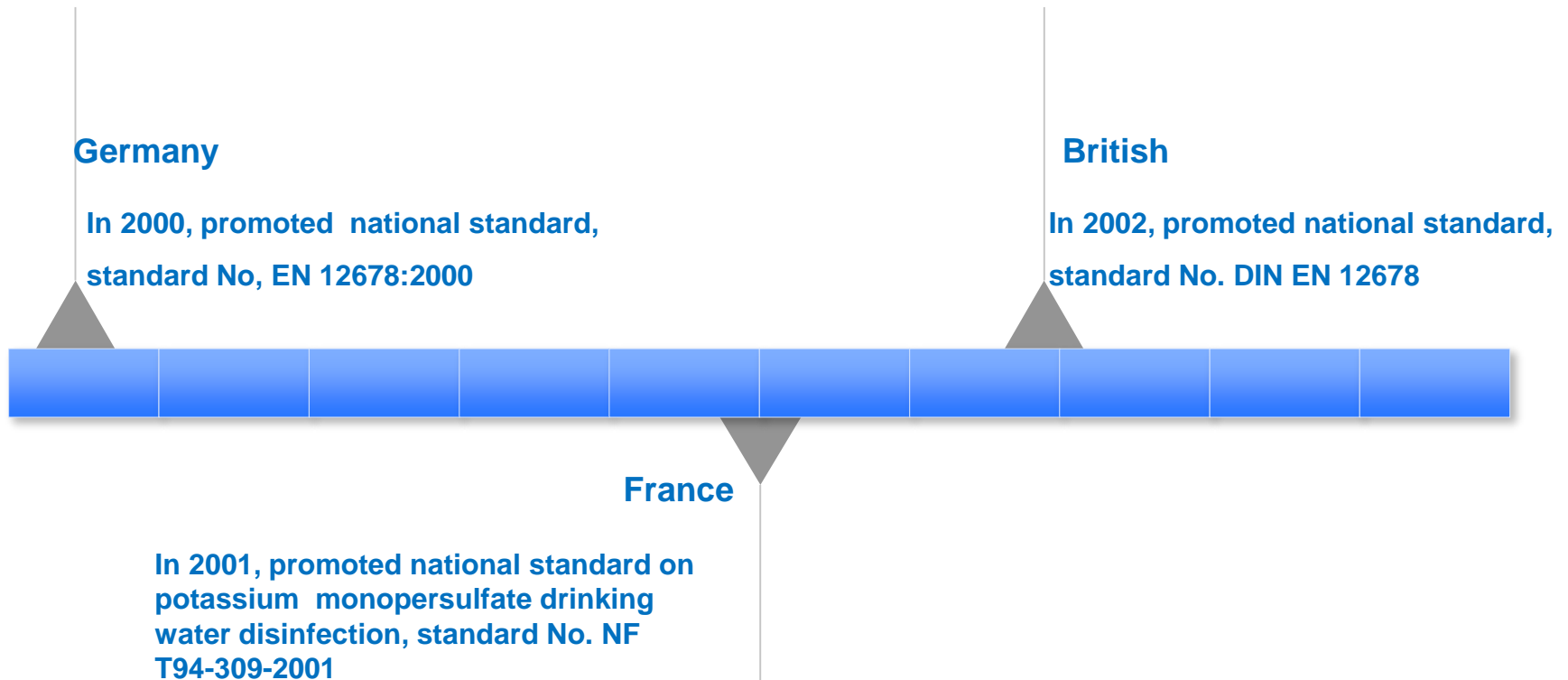
Hydrogen Peroxide



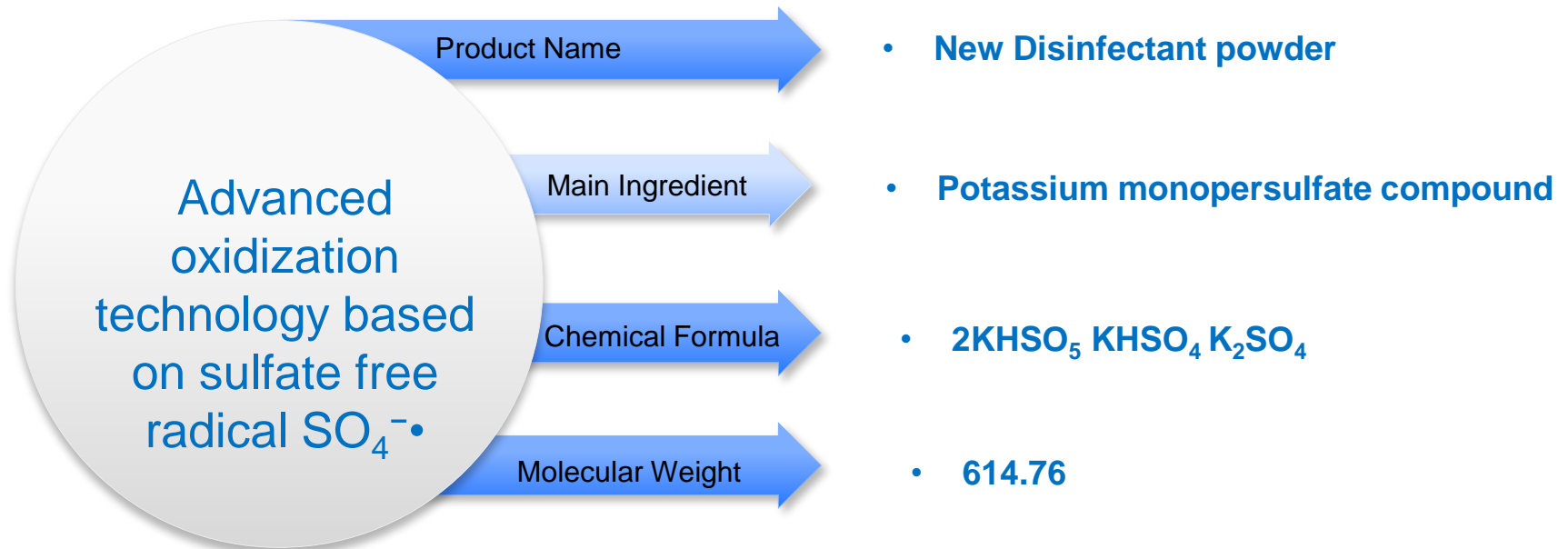
- *Stability problem
- *Safety
 - transportation, storage, operation

➤ Researchs of PMPS all over the world

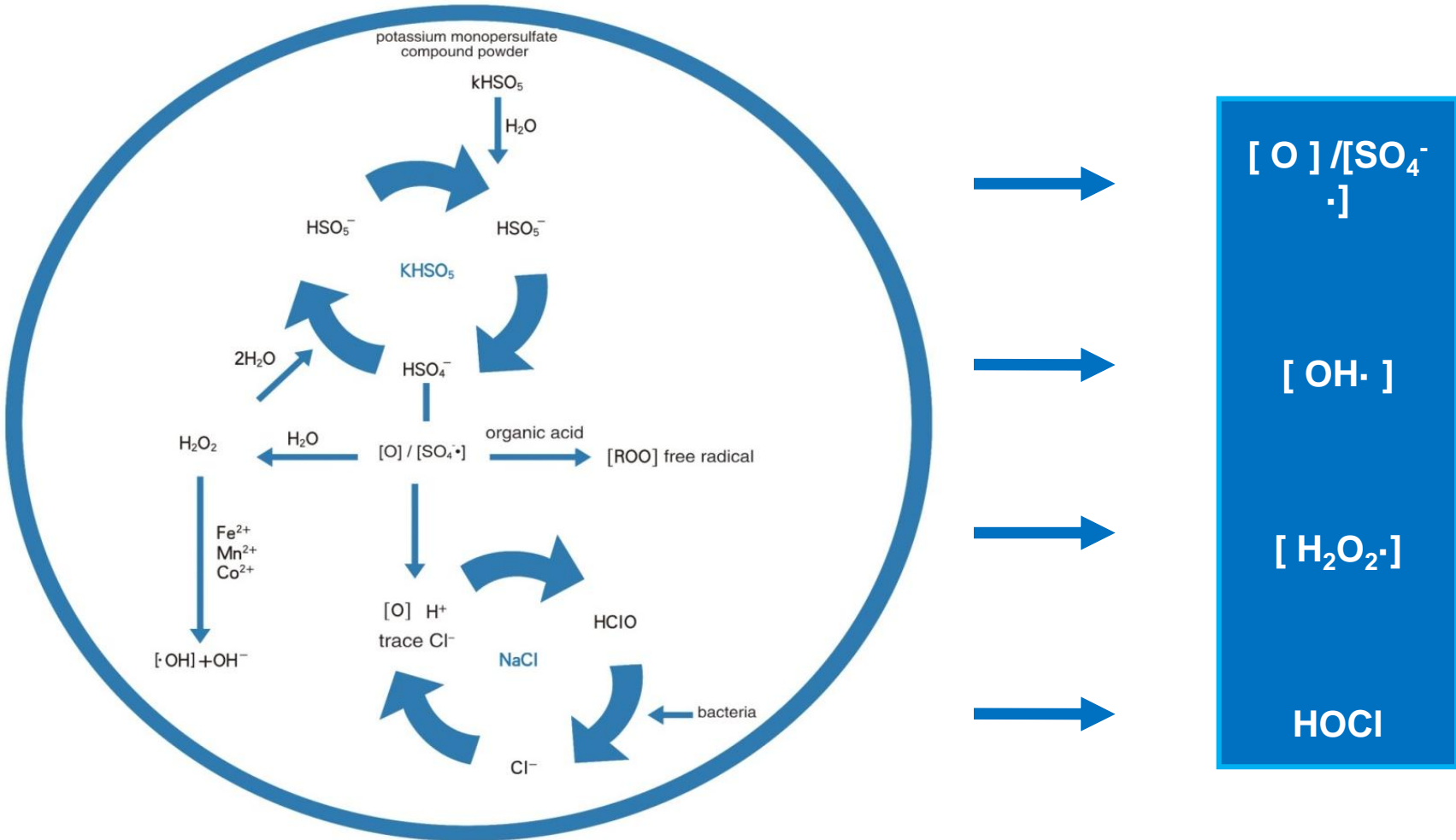
- Many European countries and the USA began production of products with potassium monopersulfate as main active ingredient and application researches on chemicals for human drinking water in the late 1980s. They successfully applied those products to aquiculture, drinking water of livestock and poultry, oxidization and disinfection of human drinking water. The standard as below.



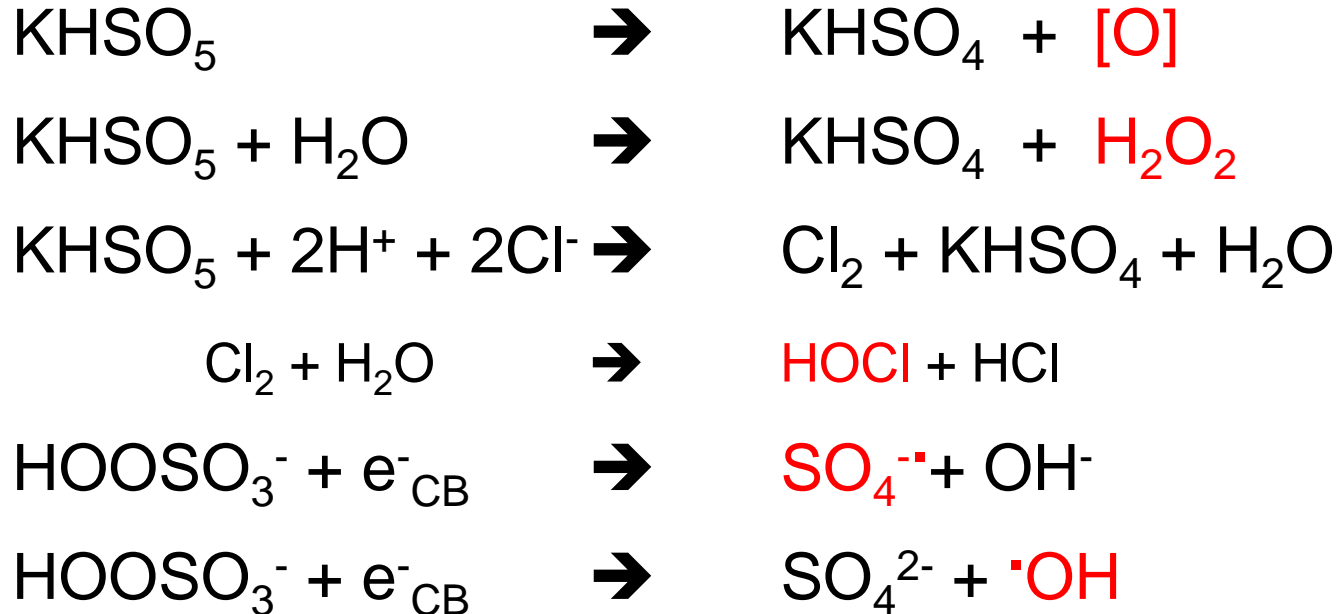
- **New innovative disinfectant powder**
- **A new generation of active oxygen disinfectant powder**
- **Potassium monopersulfate compound powder**



➤ **New innovative disinfectant powder core mechanism**

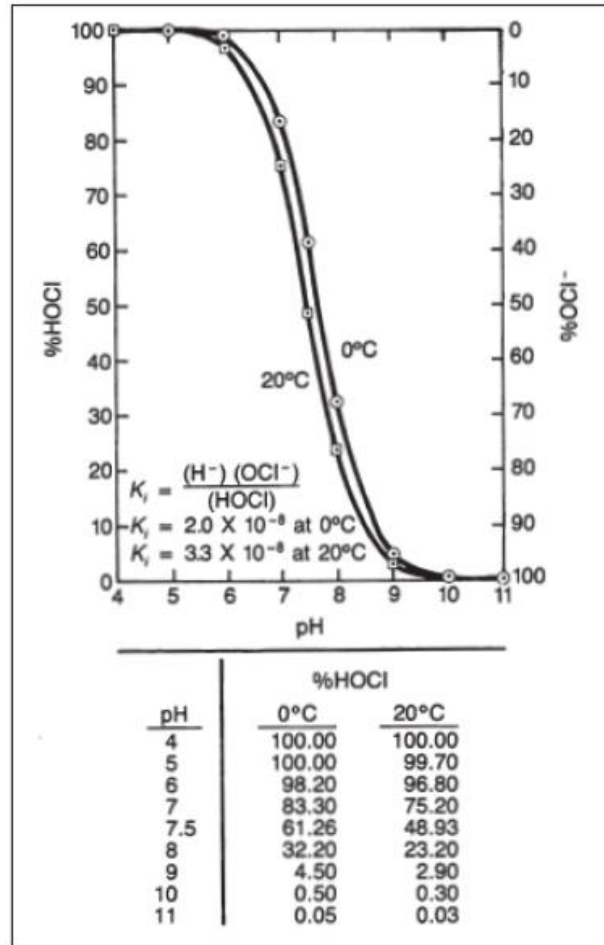


➤ **New innovative disinfectant powder core mechanism**

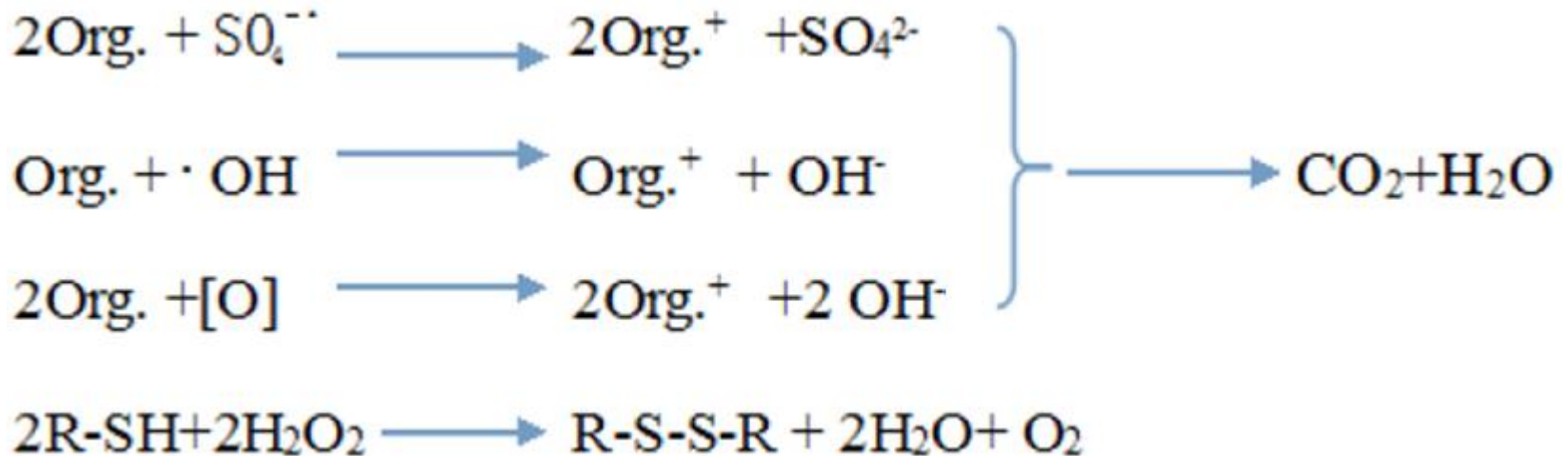


Oxidizing Agent	F_2	$\text{OH}\cdot$	$\text{SO}_4^{\cdot-}$	O_3	H_2O_2	MnO_2	HClO	ClO_2
Oxidation Potential	3.06	2.80	2.5-3.1	2.07	1.77	1.68	1.63	1.50

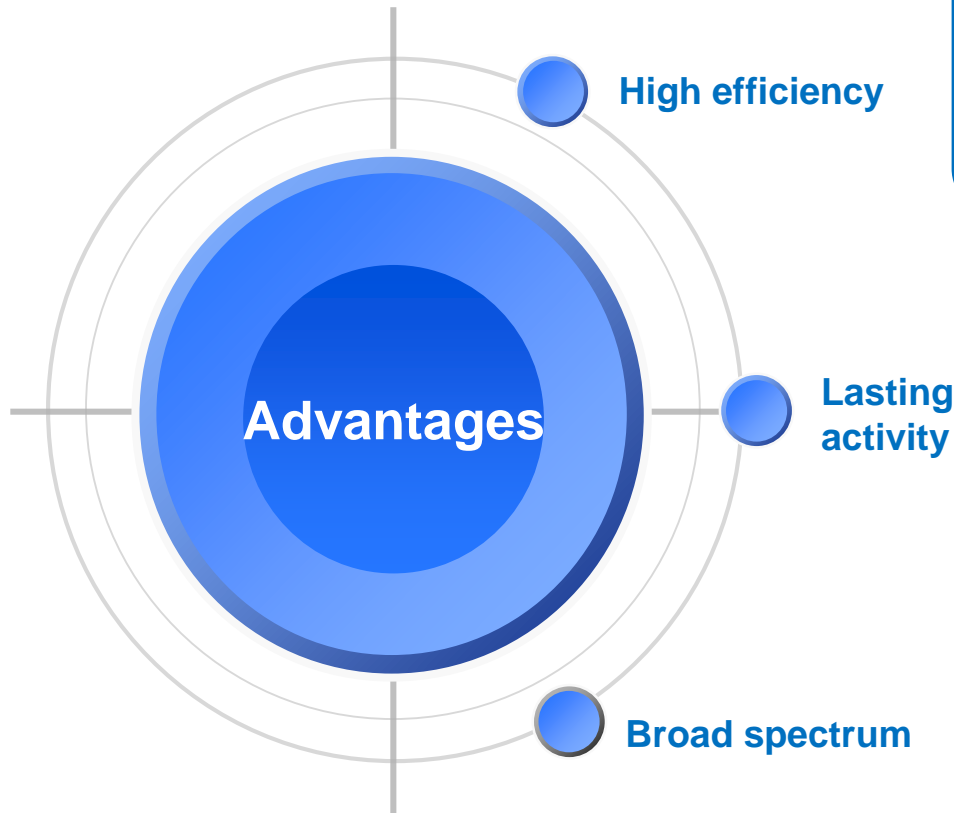
➤ pH effected to conventional oxidizing biocide (sodium hypochlorite)



Main reaction to kill microbial



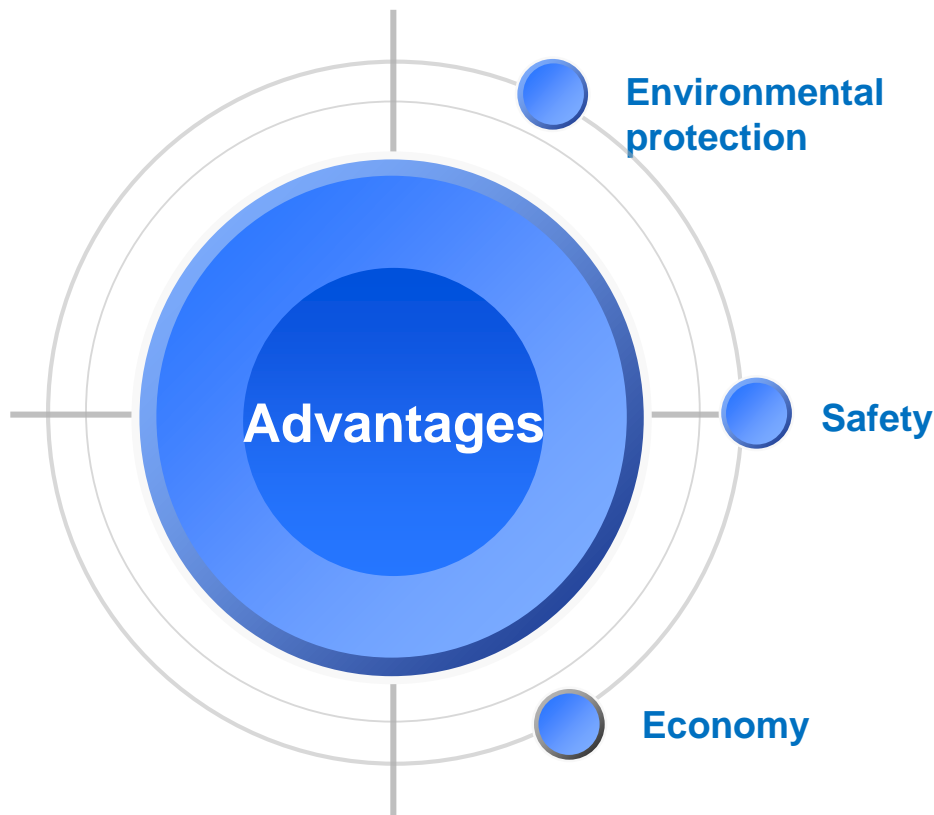
- Increase the permeability of cell membrane
- Cause the Enzymes and nutrients lose
- Oxidation the amino acid in protein
- Cause disturbance to enzyme system, affect its metabolism



- Continuously produce active ingredients, sterilization rate for 72 h over 99.9%.
- Can work well in pH range 6-9

- Release active oxygen continuously, sterilize up to 72 h.

- Many active ingredients make this product have super broad-spectrum sterilization effect, the antibacterial spectrum includes bacteria, viruses, fungi, bacteria spores, protozoa, algae spores, etc.



- Rosun disinfectant powder can reduce and prevent the production of harmful substances that may lead to carcinogenesis, teratogenesis and mutagenesis, such as organic chloride.

- This product is a powder disinfectant, so there is no danger during the production, transportation, storage and application which liquid chlorine caused.

- Low disinfectant consumption, and higher equipment cost-effective, longer service life and low maintenance cost.

➤ Certificates



**ISO 9001 QUALITY
MANAGEMENT SYSTEM
CERTIFICATE**



**ISO 14001 ENVIRONMENTAL
MANAGEMENT SYSTEM
CERTIFICATE**



**OHSAS 18001 OCCUPATIONAL
HEALTH AND SAFETY
MANAGEMENT SYSTEM
CERTIFICATE**

➤ Test result

1

Toxicity



The acute toxicity LD50 of this disinfectant to mice is 5000mg/kg, and based on the grades of acute toxicity of chemicals, it is low toxicity; by 90000mg/kg solution, the acute toxicity LD50 to mice is more than 5000 mg/kg, and based on the grades of acute toxicity of chemicals, it has no toxicity.

3



Mouse sperm shape abnormality

210mg/kg, 840mg/kg, 2100mg/kg tests were done to test the disinfectant mouse sperm shape abnormality, and the result shows negative.

2

Micronuclei of polychromatic erythrocytes of mouse bone marrow



210mg/kg, 840mg/kg, 2100mg/kg tests were done to test the disinfectant on the micronuclei of polychromatic erythrocytes of mouse bone marrow, and the result shows negative.

4

Subacute toxicity

According to 420mg/kg, 840mg/kg, 1400mg/kg rat test, no obvious toxic symptom detected. During the whole test period, there is no rat death. There is no abnormal change of rat weight, body rate in the three dose groups, and histopathology test results indicate no tested high dose group causes toxic damage change.

➤ **Rosun disinfectant powder ICW-1**



Rosun ICW-1

- Application area : Industrial Circulation Water Disinfection
- Achievement :

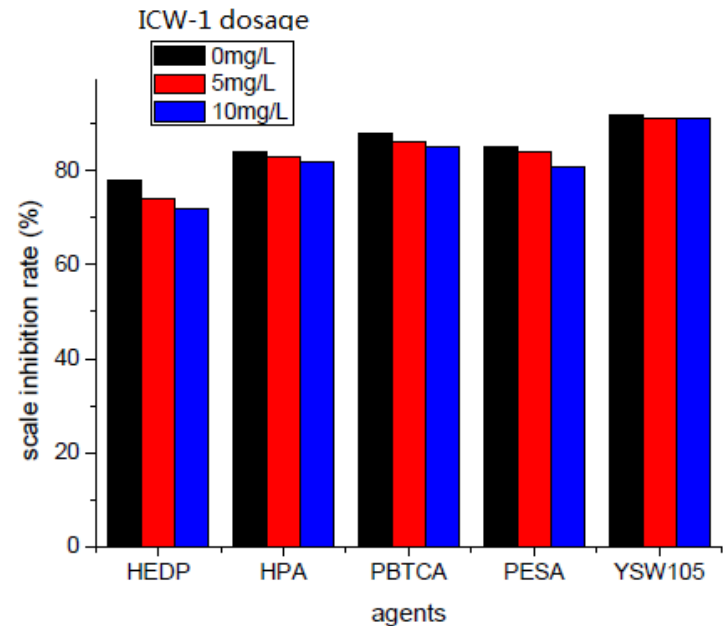
Our clients come from almost all the provinces of China, such as Beijing, Shanghai, Jiangsu province, Zhejiang province, Sichuan province, Xinjiang province...

- Some company name as below:
 - ❖ China Natural GAS Guangyuan Co.,Ltd
 - ❖ Xinjiang Markor Chemical Industry Co.,Ltd
 - ❖ China Natural GAS Guangan Co.,Ltd
 - ❖ Petro China Dushanzi Petrochemical Company
 - ❖ ...and so on.

➤ Rosun disinfectant powder ICW-1

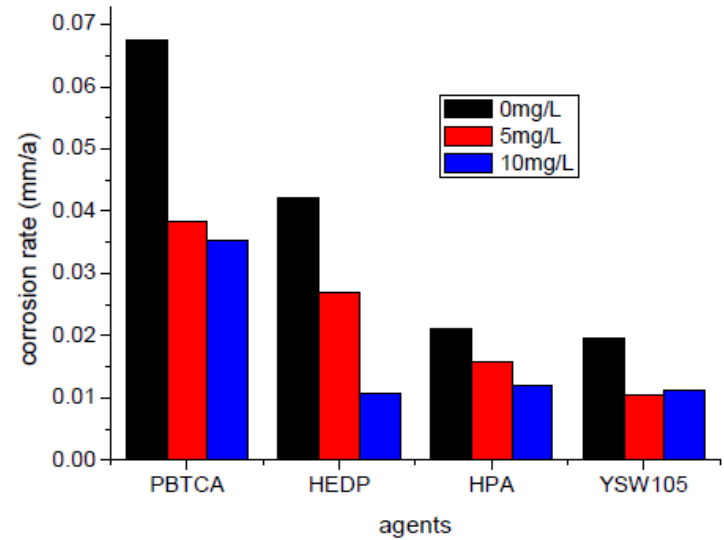
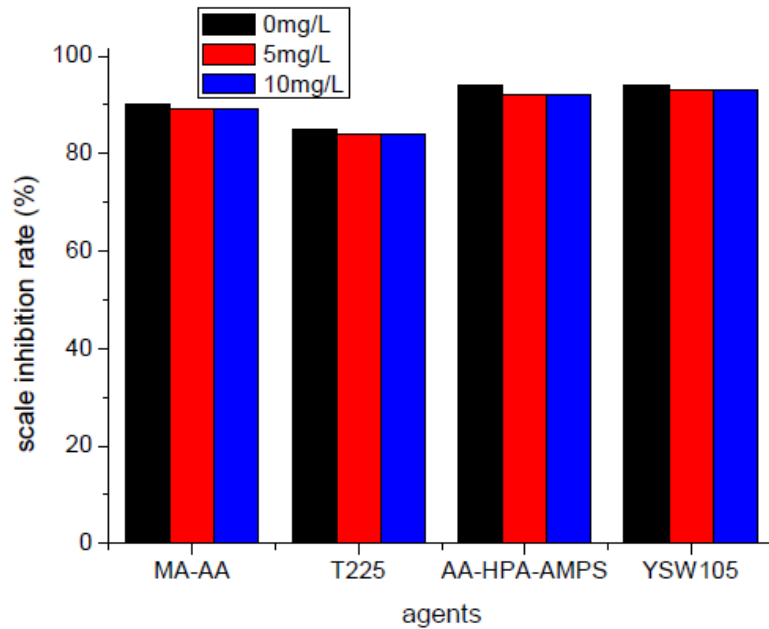
Compatibility with scale/corrosion inhibitors

Item	Data
Ca ²⁺ (mg/L)	145
Total Hardness(mg/L)	225
Total Alk(mg/L)	199
Cl ⁻ (mg/L)	23.3
SO ₄ ²⁻ (mg/L)	67.4
Conductivity (μ s/cm)	871
TDS (mg/L)	506
pH	8.02



➤ Rosun disinfectant powder ICW-1

Compatibility with scale/corrosion inhibitors



➤ Rosun disinfectant powder ICW-1

Compatibility with scale/corrosion inhibitors

Chemical	Dosage mg/L	Sterilizing %		
		1h	24h	48h
PBTCA	20	99.99	99.99	99.97
HEDP	20	99.98	99.99	99.99
HPA	20	99.84	99.99	99.99
PESA	20	99.97	99.99	99.99
T225	10	99.97	99.99	99.93
MA-AA	10	99.96	99.99	99.10
PO ₄ ³⁻	2.5	99.95	99.99	99.99
Zn ²⁺	2.5	99.96	99.99	99.99
YSW105	100	99.94	99.99	99.99

Initial bacteria count 9.6×10^6 cfu/ml ICW-1 Dosage 10 ppm

Achievement

➤ **Rosun ICW-1 recommended dosage**

- Application area : Industrial Circulation Water microbiological control
- Achievement :

Our clients come from almost all the provinces of China, such as Beijing, Shanghai, Jiangsu province, Zhejiang province, Sichuan province, Xinjiang province...



Rosun ICW-1

Industrial Circulation Water Use	Recommend dosage	Dosing intervals	Instructions for use	Remark
Normal use	10g/m ³	Twice a month	Dissolve the powder and dose solution into the cooling system for at least lasting 15~20 minutes	Use with the non-oxidizing biocide alternatively



Active Oxygen residue monitoring

DPD test method :

DPD will react rapidly with the active ingredients (Active Oxygen [O], Hydrogen Peroxide [H₂O₂], Hydroxyl Free Radical [OH], Hypochlorous Acid [HClO] etc.) and turn red.

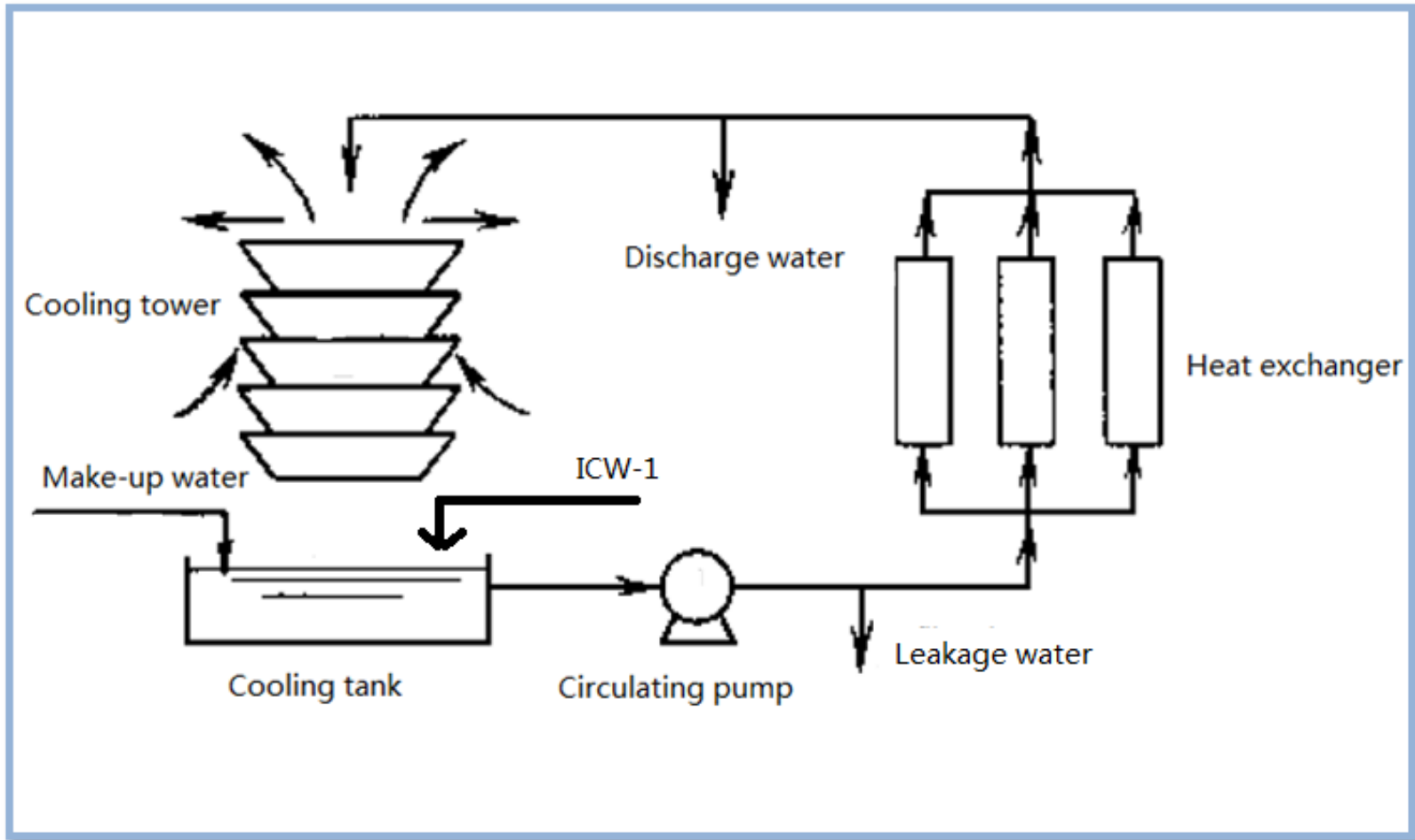
Steps:

1. Get a clean colorimetric cylinder and fill in the water to be tested to the scale mark.
2. Pour the measuring reagent in it and get the dissolved completely by shaking
3. Compare the color of solution with colorimetric card (put cylinder 2cm above), the corresponding color indicates residue content of Active ingredients (mg/L)



DPD Spectrophotometer

Application Example



Yanshan Petro-Chemical Industry Corporation-one of the



- Beijing Yanshan Company, is one of the biggest petrochemical joint ventures directly under the China Petroleum group.

Circulating water situation

Circulating water flow rate (Ton/hour)	Retain water volume (Ton)	Cooling Cycle	ICW-1 Dosage (Kg/once)	Dosing interval
40000	15000	3.5	150	Every 3 days

Test Report

- Test institution: Yanshan petrochemical company
- Test Category: Bactericidal capability test
- Test Result:

Name	Reaction Time(h)	Concentration(mg/L)	Sterilizing rate (%)
Rosun Disinfectant Powder ICW-1	4	10	99.99
	24	10	99.99
	48	10	99.99
	72	10	99.99

编号: 2009W-086

中国石油化工集团公司水处理药剂评定中心

检 验 报 告

样品类别	水处理药剂			
委托单位	成都润兴消毒药业有限公司			
样品名称	单过硫酸氢钾杀菌剂			
检验类别	杀菌性能			
检验依据	GB/T22595-2008 标准			
样品外观	白色粉末状	收样日期	2009年11月16日	
样品批号	/	完成日期	2009年12月25日	
试验菌种	自来水富集培养			
试验浓度	10ppm, 30ppm (以商品浓度计)			

杀菌性能评价


时间, h	浓度, ppm	杀菌率%	浓度, ppm	杀菌率%
4	10	99.99	30	99.99
24	10	99.99	30	99.99
48	10	99.99	30	99.99
72	10	99.99	30	99.99

起始菌数: 2.2×10^7 个/ml

备 注:

批准日期: 2009年12月29日

编制人: 孙华 审核人: 张建设 批准人: 樊大勇



地址: 北京市昌平区兴寿山凤凰寺路15号 联系电话: (010) 69341927 (F) 邮政编码: 102300

注: 1. 检验报告由本中心“评定中心”盖章生效;
2. 检验报告由本中心编制、审核、批准人签字(盖章)生效;
3. 检验报告由本中心修改或复印无效;
4. 本中心和检测机构均不承担法律责任;
5. 本中心和检测机构均不承担法律责任, 本中心和检测机构“评定中心”盖章, 并由本中心盖章。

PetroChina Dushanzi Petrochemical Company-one of the world-scale enterprise



Circulating water situation

Circulating water flow rate (Ton/hour)	Retain water volume (Ton)	Cooling Cycle	ICW-1 Dosage (kg/once)	Dosing interval
27,000	9,000	4	135	Every 4 days

PetroChina Dushanzi Petrochemical Company-Makeup water quality

	Item	Unit	Figure
1	PH		7.8
2	Conductivity	us/cm	913
3	Total Alkalinity	ppm	116.24
4	Calcium	ppm	164.46
5	Total Chloride	ppm	111.10
6	Total Iron	ppm	1.81
7	Silicon	ppb	8710

Test Report

- Test institution: PetroChina Dushanzi Petrochemical Company
- Test Category: Bactericidal capability test
- Test Result:

Name	Dosage(mg/L)	After dosing (h)	Bacteria count (CFU/ml)	Untreated bacteria(CFU/ml)	Sterilizing rate (%)
Rosun Disinfectant Powder ICW-1	15	4	100	1.5*10 ⁵	100
		8	30		100
		12	80		100
		24	0		100
		48	150		100
		72	2.9*10 ³		99.98

D/QR 11.004

独山子石化公司研究院防腐研究中心
杀菌性能评定报告

委托单位	天云精细化工厂		
报告编号	SJX2008-04-001	作业时间	2008年4月15日
作业名称	润兴消毒粉杀菌性能评定		
样品来源	天云精细化工厂	取样方法	Q/SY DS 04 075-2007
分析方法	Q/SY DS 04 075-2007		

受天云精细化工厂委托,对成都润兴消毒药业有限公司生产的润兴消毒粉进行异养菌杀菌效果的评定试验,现将评定的情况与结果报告如下:

一、试验药剂与菌种
1. 药剂:独山子天云精细化工厂提供。
2. 菌种:试验菌种为一般异养菌,取自炼油厂循环水系统的水样。

二、试验内容和方法
1. 根据要求,以炼油厂循环水系统的水样中异养菌为对象,润兴消毒粉杀菌剂投加浓度为15mg/L, pH为现场自然值的条件下进行杀菌。
2. 试验的基本方法:按独石化公司企业标准(Q/SY DS 04 075-2007)中有关规定进行。
3. 炼油厂循环水系统水样的异养菌精偏低,因此我们在试验前进行了富集和培养,将异养菌含量提高到10⁶-10⁷个/ml,这样更有利于考察药剂的效果。
4. 试验菌液在委托要求的药剂浓度下在30℃恒温培养一定时间后,测定存活菌数,计算其杀菌率。

三、评定结果

药剂对异养菌杀菌情况					
药剂名称	药剂浓度	作用时间(h)	存活菌数(个/ml)	对照菌数(个/ml)	杀菌率(%)
润兴消毒粉	15mg/L	4	100	1.5×10 ⁶	100.00
		8	30		100.00
		12	80		100.00
		24	0		100.00
		48	150		100.00
		72	2.9×10 ³		99.98

四、结果讨论
由评定结果可以看出,润兴消毒粉杀菌剂投加浓度为15mg/L时,杀菌效果很好。此评定结果只对来样负责。

报告: 杨明强 审核: 吕慧 签发: 孔刚琴

日期: 2008年4月15日 日期: 08年4月15日 日期: 2008年4月15日

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Huaneng Changchun Thermal Power Plant- 2*350MW Units



Circulating water situation

Circulating water flow rate (Ton/hour)	Retain water volume (Ton)	Cooling Cycle	ICW-1 Dosage (Kg/once)	Dosing interval
20000	10000	4	100	Every 6 days

Test Report

- Test institution: Huaneng Changchun Thermal Power Plant
- Test Category: Bactericidal capability test
- Test Result:

ICW-1 Dosage (mg/L)	Total bacterial count (CFU/mL)	Sterilizing rate	Control Bacteria
0	1.6×10^5	—	$< 1.0 \times 10^5$
10	8×10^2	99.5%	

Remark: After dosing 72 hours

Tianfu Thermal Power Plant - 263.55MW



Circulating water situation

Circulating water flow rate (Ton/hour)	Retain water volume (Ton)	Cooling Cycle	ICW-1 Dosage (Kg/once)	Dosing interval
5700	4400	4.5~5.5	35	Every 5 days

Test Report

- Test institution: Tianfu Thermal Power Plant
- Test Category: Bactericidal capability test
- Test Result:

ICW- 1 Dosage (mg/L)	Total bacterial count (CFU/mL)	Sterilizing rate	Control Bacteria
0	1.7×10^5	—	1.0×10^5
10	7×10^3	96%	

Remark: After dosing 96 hours

Application Cases

- ❖ Huaneng Thermal Power Plant In Changchun
- ❖ China Natural GAS Guangyuan Co., Ltd
- ❖ Sinkiang Markor Chemical Industry Co., Ltd
- ❖ Petro China Dushanzi Petrochemical Company
- ❖ Sichuan Hebang Corporation Limited
- ❖ Chengdu Weifu Industrial Co., Ltd.
- ❖ Yanshan Petrochemical Company
- ❖ Sichuan Shuncheng Chemical Co. Ltd.
- ❖ Beijing Sihuan Pharmaceutical Company
- ❖ Chengdu Weifu Company
- ❖ ...etc.

Thank you

Chengdu Rosun Disinfection Pharmaceutical Co., Ltd

Makes The Rivers And Earth Cleaner , Helps Billions Of People Be Healthier

