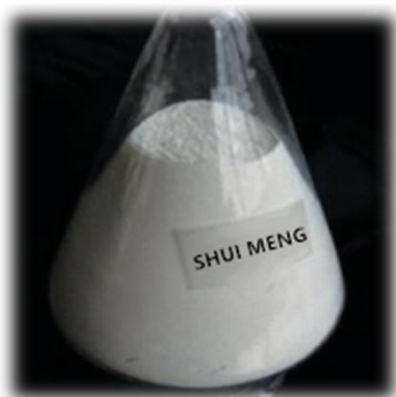




*A Brand of Sumiyoshi Engineering Pte Ltd*  
**Energy Division**



**SHUI MENG**  
**Flocculant**

**Specialized Solution For  
Wastewater & Sludge Treatment**

**A New High Effective Flocculant  
The World's Leading GREEN Product**



**Sumiyoshi Engineering Pte Ltd**  
**住吉エンジニアリング株式会社**

# THE PRODUCT

- ❑ Originally the patent of Shui Meng is from Japan. It is developed further by expert and technical team led by Mr. Liu Hongliang, academician of the Chinese academy of sciences.
- ❑ Shui Meng is an inorganic, natural and adsorbent flocculant. This new high effective flocculant is the leading product in the world.
- ❑ Shui Meng realized the harmless treatment of waste water and sludge. the precipitate/deposit is extremely stable, not easy to be broken up, and no worries about re-decomposed or re-dissolved. It is meaningful in environmental protection and ecological balance.

## Function

1. Absorption of heavy metal
2. Oxidation Catalysis
3. Motion agglutination
4. Ion exchange
5. Decreasing in the potential between suspend particles
6. Adjust pH value to 5-9 without the assistant of any neutralizer

# APPLICATION

❖ Shui Meng has the wide application prospects in wastewater treatment regardless of in organic or inorganic wastewater. Especially for the removal of heavy metal, desulfurization of wastewater, and sludge treatment etc.

1. Desulfurization wastewater in thermal power plant
2. Industrial wastewater treatment
3. Black-Odor water
4. River and Lake water
5. Sludge solidification / Soil improvement



# DESULFURIZATION WASTEWATER TREATMENT

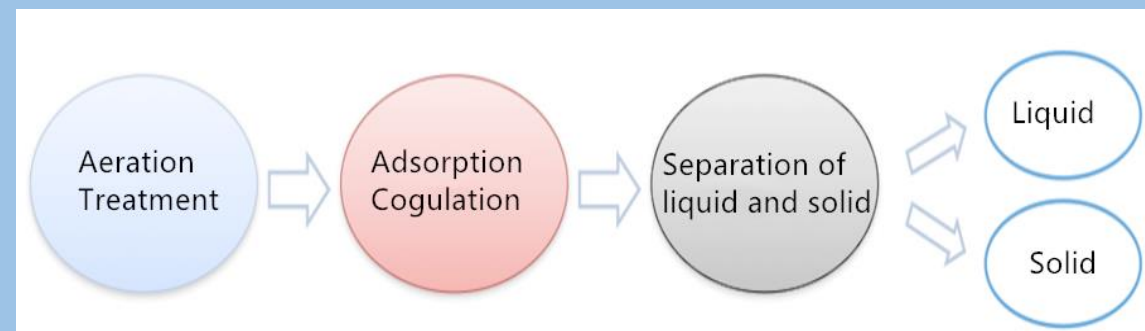


## Shui Meng Treatment

1. Replace traditional “Triple chamber chemical precipitation method”, and simplify the treatment process and save operation cost.
2. This technology adopts the system combination process of “Inorganic adsorption + Double membrane desalination“, which ensure the recovery rate of desulfurization wastewater more than 75%, and over 99% salt in the water are removed.
3. Achieve the requirement of zero liquid blowdown for desulfurization wastewater .

User can design/use own treatment equipment or modify existing treatment process according to Shui Meng's character and function.

### Shui Meng Integrated water treatment system



Water feeding system, Adsorption and coagulation system, Auto-dosing system, and Control panel.



# ADVANTAGE OF SHUI MENG DESFULFURIAZTION WASTEWATER TREATMENT



Item	Shui Meng	Conventional Method	Remarks
Equipment	Only one	Need more chemical systems	Shui Meng will reduce investment cost of equipment
Process	Only one	3-4	Shui Meng replace 3-4 process of conventional method
Preparation	Don't need	Need to dissolve the chemical first	Shui Meng don't need extra equipment to dissolve chemical, save time
Agglutination Form	Hard	Soft	Hard form will reduce the water content in sludge
Operation Cost	Low	High	Shui Meng will save cost

## Main Saving:

1. Chemical Saving
2. Operation Cost Saving
3. Power Saving

# SITE REFERENCE

## DESFULFURIAZTION WASTEWATER TREATMENT

### ZIBO POWER PLANT 2 UNIT OF 150MW & 2 UNIT OF 350MW GENERATOR SETS

- ❑ Wastewater volume: 400 M3 daily
- ❑ Original Treatment process : Neutralization + Coagulation + Water Clarification
- ❑ Shui Meng system was installed in 2015
- ❑ Speed of coagulation improved 10 times.
- ❑ Save cost and Improve efficiency



Before Shui Meng Treatment		After Shui Meng Treatment	
Testing Item	Testing Result	Testing Result	Control Limit
pH	7.68	7.73	6 - 9
TSS	70722 mg/L	45 mg/L	70 mg/L
COD	893 mg/L	47 mg/L	150 mg/L
Ammonia	4.58 mg/L	4.26 mg/L	----
Chloride	12208 mg/L	12006 mg/L	----
Floride	6.93 mg/L	6.17 mg/L	30 mg/L
Sulfide	0.07 mg/L	No detected	1.0 mg/L
Total Nickel	1.51 mg/L	0.85 mg/L	1.0 mg/L
Total Zinc	6.66 mg/L	0.65 mg/L	2.0 mg/L
Total Mercury	0.0286 mg/L	0.0045 mg/L	0.05 mg/L
Total Cadmium	0.23 mg/L	0.08 mg/L	0.1 mg/L
Total Lead	3.80 mg/L	0.76 mg/L	1.0 mg/L
Total Chromium	0.02 mg/L	0.017 mg/L	1.5 mg/L

# INDUSTRIAL WASTEWATER TREATMENT



## Heavy Metal Wastewater

ITEM	BEFORE	AFTER
Zinc	2,5 mg/L	0.3 mg/L



ITEM	BEFORE	AFTER
Copper	550 mg/L	5.8 mg/L



ITEM	BEFORE	AFTER
Fluorine	2,000 mg/L	5 mg/L



ITEM	BEFORE	AFTER
Nickel	1,650 mg/L	3.2 mg/L





# INDUSTRIAL WASTEWATER TREATMENT

## Wastewater Treatment For Water Based Paint



Water-Based Paint Wastewater



After Shui Meng Treatment



The Filtrate Water After Treatment

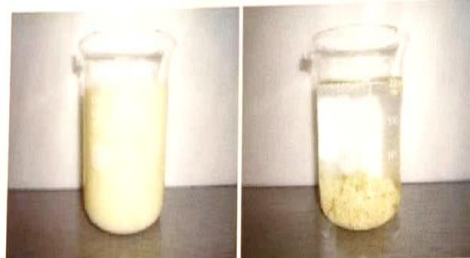
ITEM	UNIT	MEASUREMENT	
		BEFORE	AFTER
PH		8.8	7.1
COD	mg/L	2800	130
SS	mg/L	6100	8.1
Hexane Extract (Mineral)	mg/L	1.8	below 1
Hexane Extract (Plant)	mg/L	300	3.6

Treatment Result for Water-based Paint Wastewater

ITEM	UNIT	MEASUREMENT	
		BEFORE	AFTER
PH		7.9	6.8
COD	mg/L	9500	3300
SS	mg/L	3200	3.0
Hexane Extract (Mineral)	mg/L	12000	below 1
Hexane Extract (Plant)	mg/L	12000	27

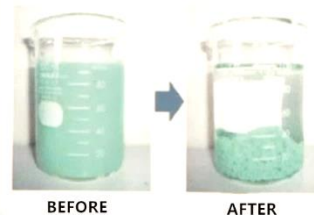
Treatment Result for Water solvent metalworking liquid

### Wastewater of Water-based paint for Car-washing



ITEM	BEFORE	AFTER
PH	7.7	7.1
SS	150 mg/L	7.5 mg/L
COD	1,800 mg/L	200 mg/L

### Sample: Wastewater of Water-based Paint

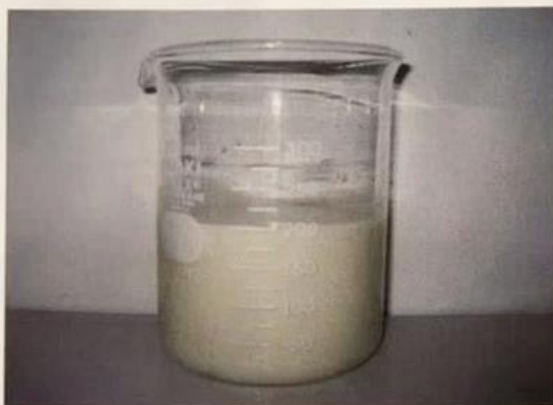


Wow!! The filtrate water can raise fish!

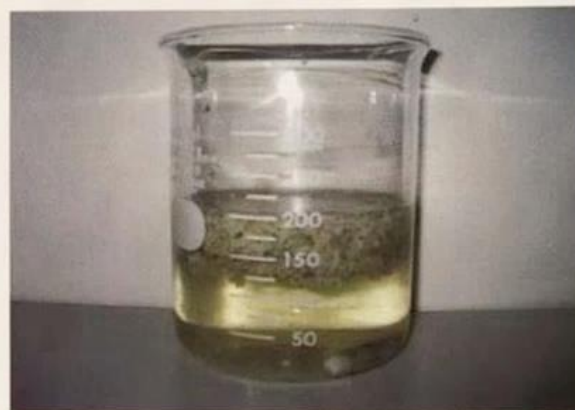


# INDUSTRIAL WASTEWATER TREATMENT

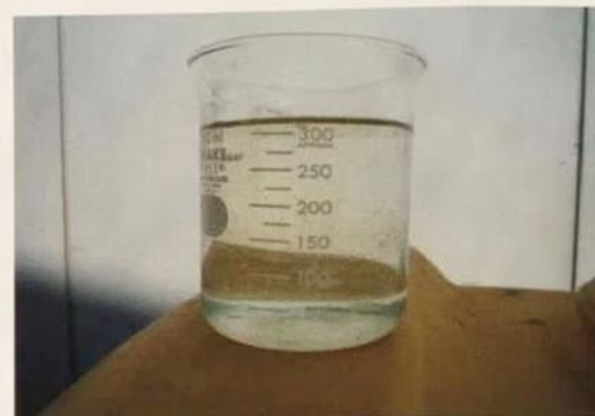
## Water-Soluble Metalworking Liquid



Original Wastewater



Treatment by Shui Meng



The Filtrate Water After Treatment

## Grinding Wastewater



ITEM	BEFORE	AFTER
PH	10.4	6.8
SS	> 1,000 mg/L	10 mg/L
COD	2,100 mg/L	90 mg/L
Hexane	-	< 0.5 mg/L

## Dye Wastewater



## Emulsion Wastewater



# INDUSTRIAL WASTEWATER TREATMENT

## Purl and Paper Industriail Wastewater



ITEM	UNIT	MEASUREMENT		REMOVAL RATE
		BEFORE	AFTER	
PH		4.1	6.7	-
COLOR	°C	2000	70	97%
TURBIDITY	°C	230	4.1	98%
TSS	mg/L	170	4.5	97%
TOC	mg/L	520	160	69%
COD	mg/L	710	200	72%
TANNIC ACID	mg/L	80	7.0	91%
LIGNIC ACID	mg/L	380	5.9	84%
T- N	mg/L	34	9.2	73%
T- P	mg/L	19	0.1	99%

# MALODOROUS BLACK RIVER WATER TREATMENT

Once river water is contaminated by sewage, restaurant wastewater, car wash water, and bath water etc., many pollutants such as organic matter and ammonia nitrogen will decompose at the role of anaerobic bacteria. During this process, such stunk materials like hydrogen sulfide, ammonia and mercaptan are produced and caused water malodorous and black.

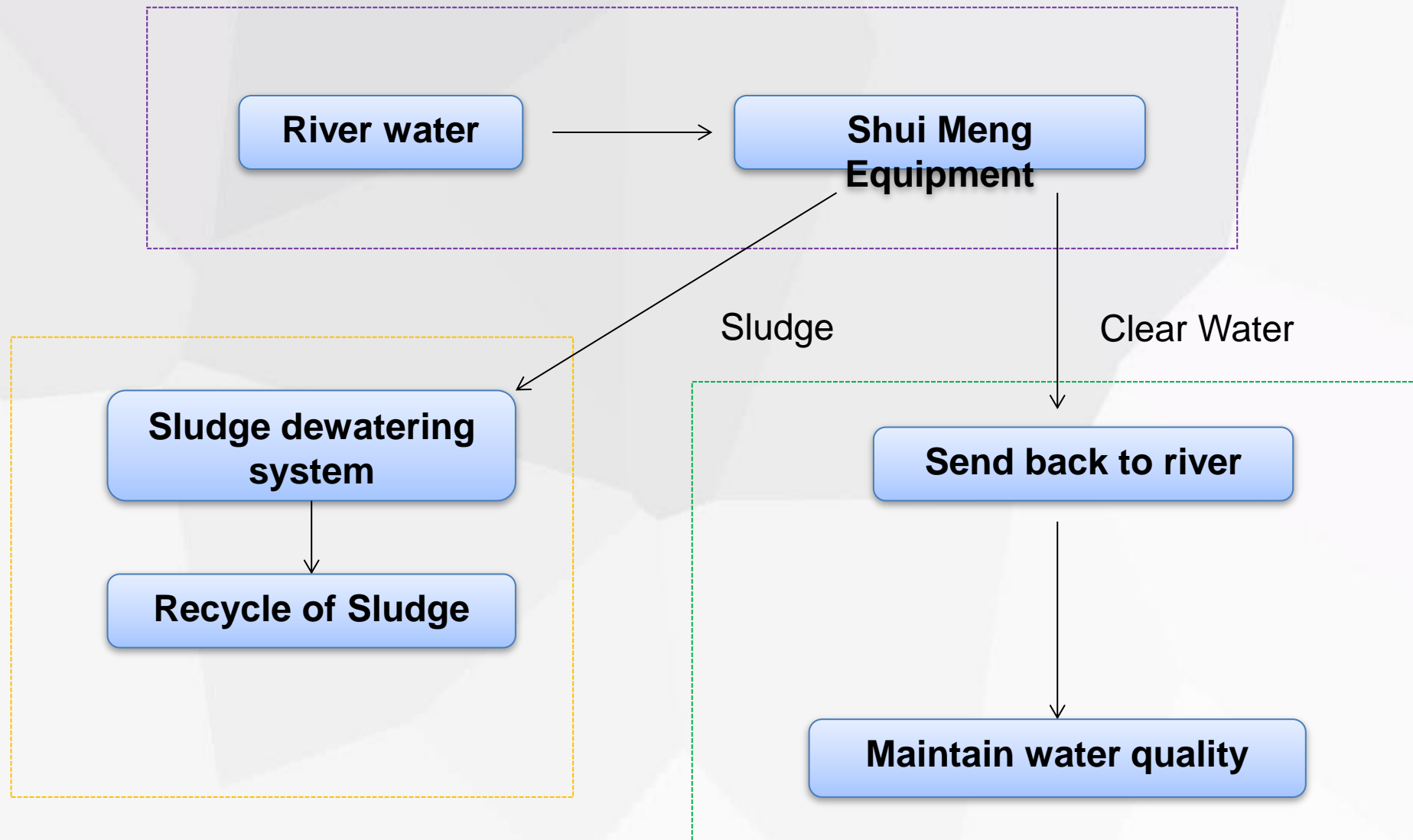
Comparing Table



ITEM	MEASUREMENT RESULT (mg/l)	
	BEFORE	AFTER
Appearance	Black Green, Turbid	Clear and Transparent
COD	301	60.4
Ammonia	16.1	7.1
TSS	289	20
Dissolved Oxygen	0	2.4
Transparence	5cm	50cm



# MALODOROUS BLACK RIVER WATER TREATMENT



## SHUI MENG TREATMENT PROCESS

# MALODOROUS BLACK RIVER WATER TREATMENT

**Nearby Beijing New Airport**  
**Total length 4.6km**  
**Volume: 2000M3 per day**  
**Sewage water**  
**With treatment of Shui Meng**



**Heibei Beidaihe Resort**  
**Total length 5.8km**  
**Volume: 6000M3 per day**  
**Wastewater from seafood processing plant nearby**  
**With treatment of Shui Meng**



**Nearby Beijing Gongyi west bridge**  
**Total length 3.5km**  
**Volume: 3000M3 per day**  
**Sewage water**  
**With treatment of Shui Meng**



# SLUDGE SOLIDIFICATION /SOIL IMPROVEMENT

**Shui Meng can be used for all kind of sludge solidification and soil quality improvement.**



## Character

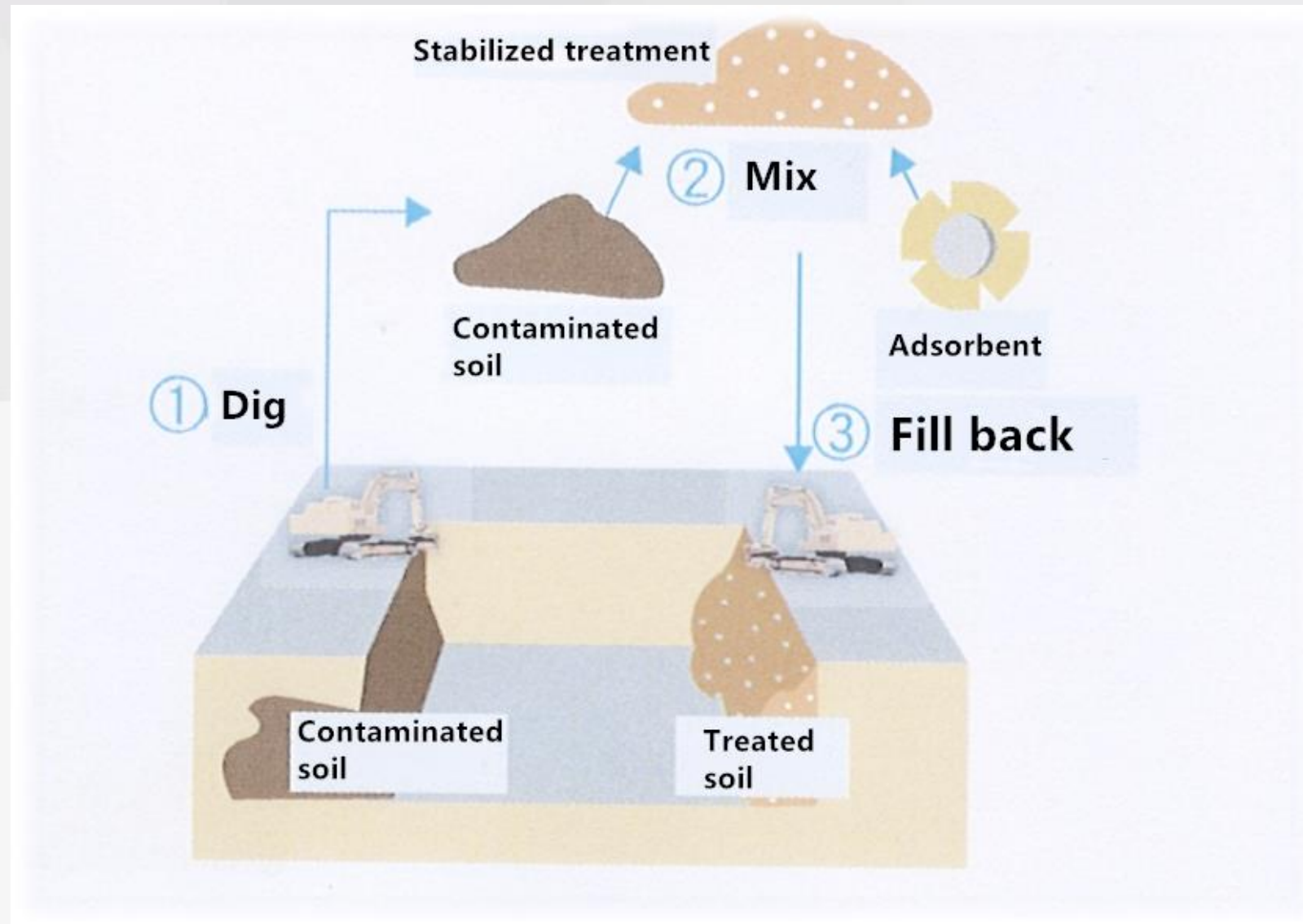
- ◆Regardless of soil type (Organic or inorganic)
- ◆Remove Odor    ◆Fast to harden
- ◆Harmless treatment of heavy metal, SGS certified
- ◆Don't increase volume
- ◆Good treatment result. Water content in sludge dropped 50%. (small partical, It has water retention, air permeability and water permeability)



After treatment, soil can plant



# SLUDGE SOLIDIFICATION / SOIL IMPROVEMENT



Sludge Hardening Process

# PRODUCTION BASE



- ❖ Currently there have three production lines to produce Shui Meng, annual capacity achieve 30,000 metric tons.







**Sumiyoshi Engineering Pte Ltd**  
**住吉エンジニアリング株式会社**



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