


產業報國
百年老廠
百億企業

A 110 BILLION WORTHY ENTERPRISE
A CENTURY-OLD FACTORY
INDUSTRIES SERVE THE COUNTRY



 Sanfeng Environmental Tech Co., Ltd.

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QUALITY CREATES EXCELLENCE



COMPANY PROFILE >>>



500+ Employees



36+ Acres Land Area



14+ Acres Plant Building Area

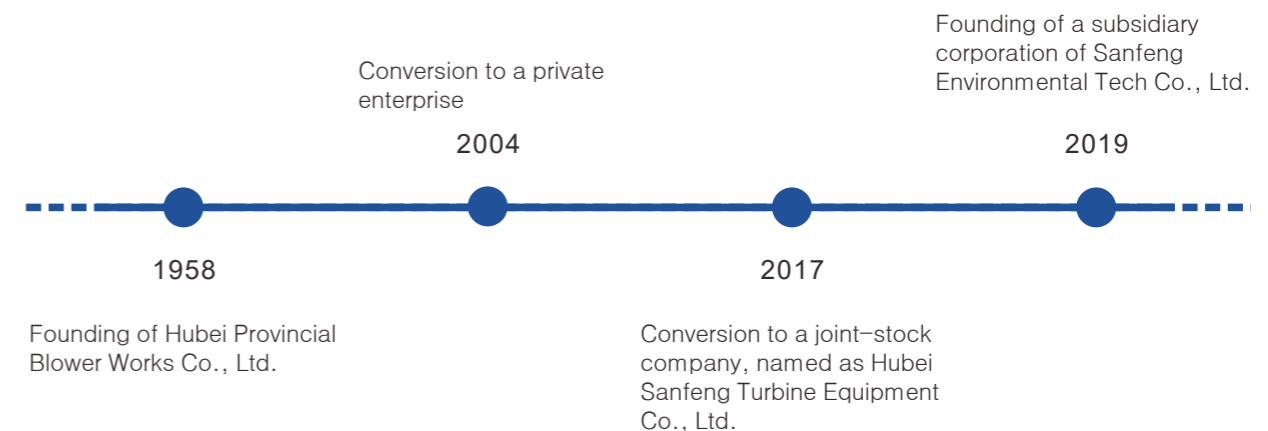


60+ Years History



Sanfeng Environmental Tech Co., Ltd. specializes in zero liquid discharge of industrial wastewater treatment based on Evaporation and Crystallization solutions. Sanfeng Tech brings the start-of-art technology, depth project experience, and application knowledge to industries, with more than 60 years of designing, engineering, fabrication, and project management to produce the evaporation and crystallization system including MVR system, MEE system, Freezing Separation, Drying system, Pretreatment, etc.

With our intimate understanding of the entire process of technology, we aim to be the partner for companies seeking a turnkey solution for their wastewater treatment needs.



MACHINING CAPACITY >>>

Sanfeng has more than 200 sets of various of advanced machining and testing equipment. Including five-axis linkage machining center, CNC planer type milling machining center, 10meter CNC horizontal lathe, 6.3meter CNC vertical lathe, X-ray monitoring equipment, spark direct-reading spectrometer, high-precision dynamic balancing machine, Zeiss coordinate measuring instrument and other advanced manufacturing and testing equipment.



Specialized Titanium Plant



Five Axis Vertical Machining Center



Evaporator



Crystallizer



CNC Spinning Machine



6.3 m CNC Vertical Lathe



Automatic Welding



Skid/Modular Evaporator



3 * 8m CNC Milling Machine



CNC Floor Boring and Milling Machine



Three Coordinate Measuring Instrument

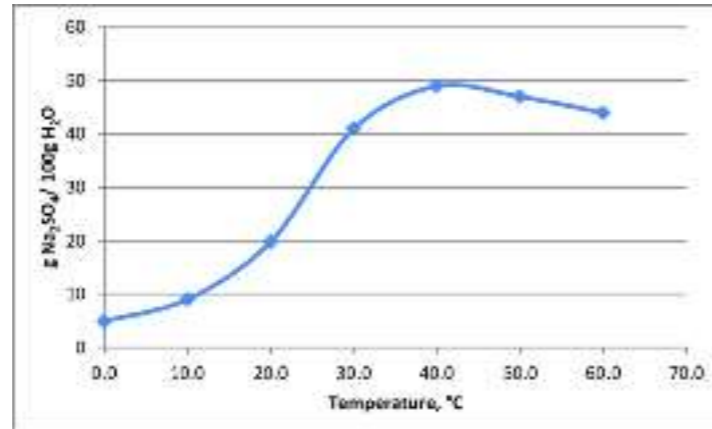


CNC Laser Cutter

FEASIBILITY STUDY



Analyze the feed and do the necessary experiment for the optimum process design.



Spectrometer

Organic Carbon Tester



Lab Overall



BOD Tester

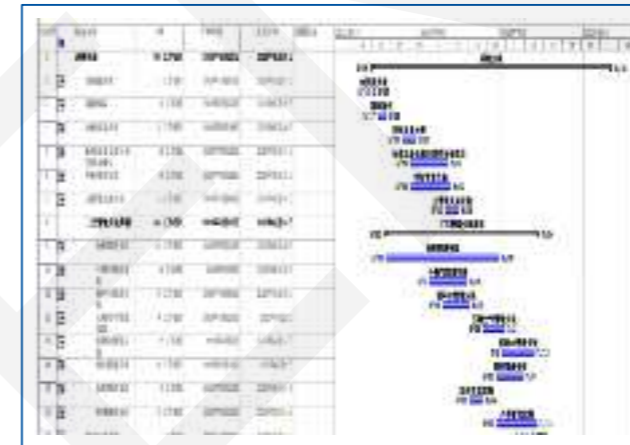


PROJECT SERVICE



Project Management & Technical Supervision

Sanfeng manages the project for the whole process, offers technical service and technical supervision remotely and at-site, and keeps optimizing the process design based on plenty of the actual running performance.



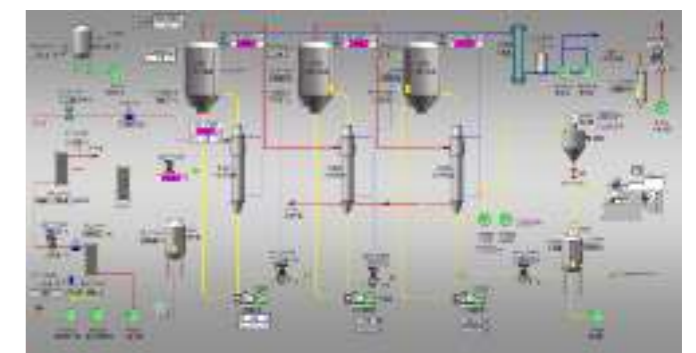
序号	工作任务 Content	开始时间 Start	完成时间 Complete	持续时间 Duration	备注 Remark
1	前期准备 Preparation	2020.1	2020.1	7	
2	设计、采购、安装、调试 Design, purchase, installation and debugging	2020.1	2020.1		前期设计、采购
3	试运行、验收、培训 Run-in, acceptance, training	2020.1	2020.1		
4	后期维护、故障排除、维修 After-sales maintenance, fault exclusion, repair	2020.1	2020.1		
5	设备维护、故障排除、维修 Equipment maintenance, fault exclusion, repair	2020.1	2020.1		
6	设备维护、故障排除、维修 Equipment maintenance, fault exclusion, repair	2020.1	2020.1		
7	设备维护、故障排除、维修 Equipment maintenance, fault exclusion, repair	2020.1	2020.1		
8	设备维护、故障排除、维修 Equipment maintenance, fault exclusion, repair	2020.1	2020.1		
9	设备维护、故障排除、维修 Equipment maintenance, fault exclusion, repair	2020.1	2020.1		

AUTOMATIC CONTROL



Senior automation engineers have customized a set of intelligent control systems for evaporation systems according to the characteristics of the different industries.

DCS control systems can also be selected according to the demand to help customers realize cross-platform use of software and set up the intelligent plant.



MVR COMPRESSOR >>>

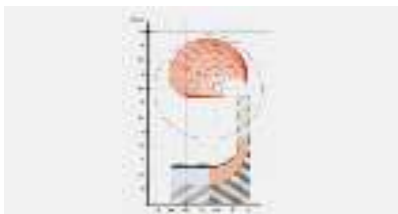
MVR compressor is the core of the MVR evaporation system, the technical performance and production level highly affect the operation of the whole system. In Sanfeng, the advanced ternary flow impeller design and excellent five-axis machining center ensure the good performance and timely delivery of the compressor.

FEATURES & ADVANTAGES

- ◆ Direct drive
- ◆ Low energy consumption
- ◆ Small volume
- ◆ Easy installation
- ◆ Convenient for maintenance
- ◆ Long maintenance-free period

3D DESIGN >>>

Clear 3D drawings guide the designing, installation, and commissioning.



One-dimensional Design



3D Modeling



CFD Analysis



Direct-drive compressor



Impeller Machining



Impeller Detection



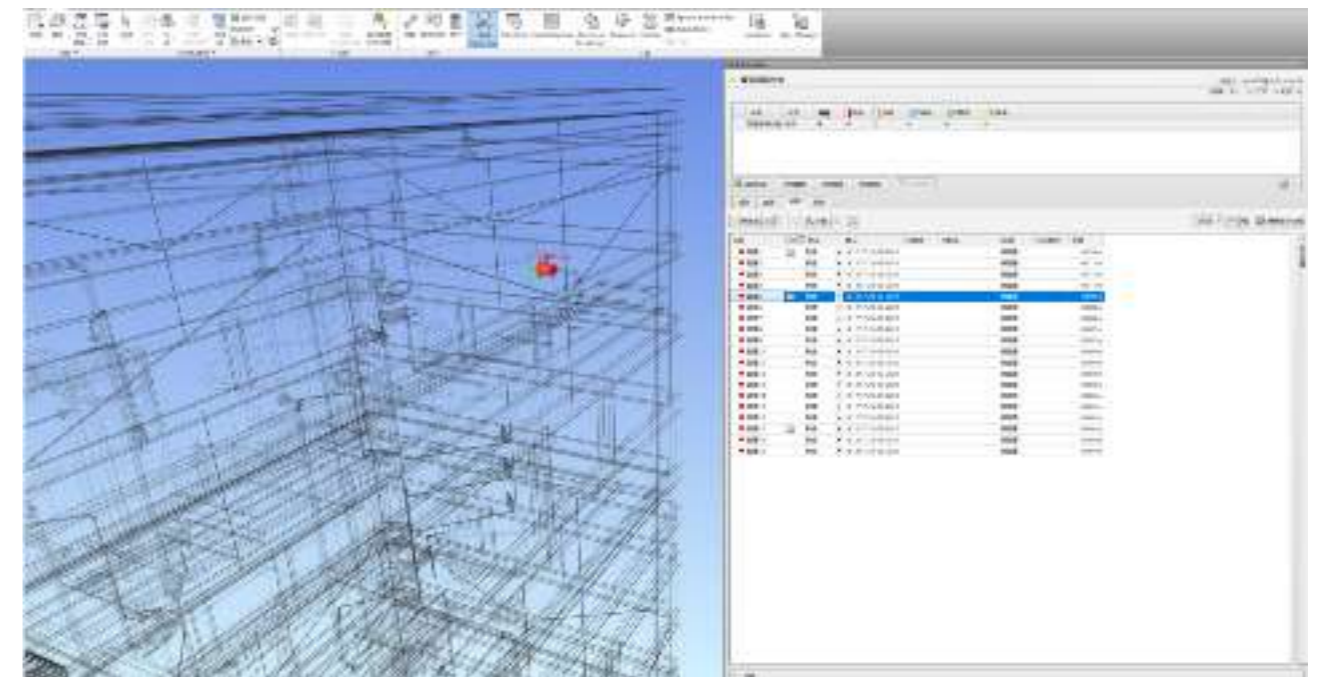
Performance Test



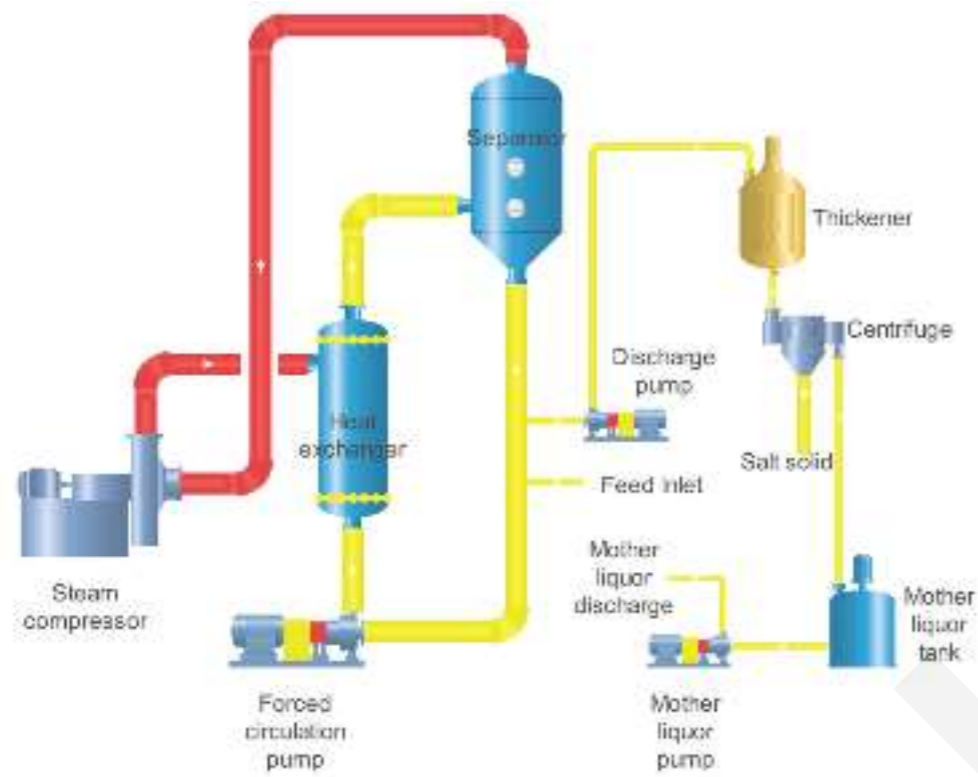
Impeller High Precision Dynamic Balancing Test



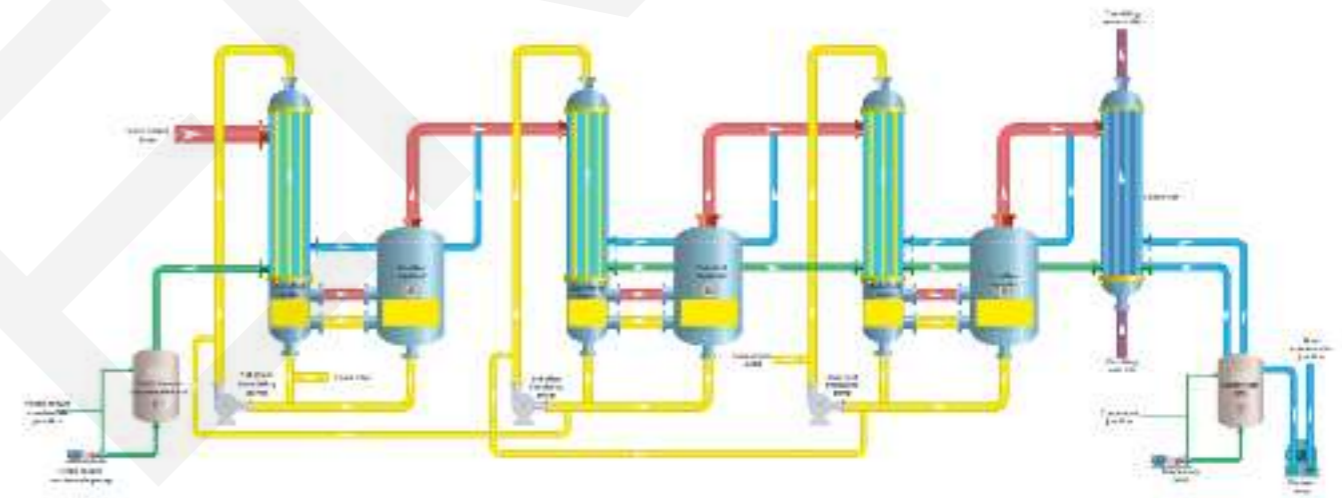
Impeller Overspeed Test



MVR Evaporator



Multi Effect Evaporator (MEE)



FEATURES & ADVANTAGES

- ◆ No steam requested
- ◆ Less cooling water consumption
- ◆ Low energy consumption and cost
- ◆ Less land space
- ◆ Fully automatic and less labour cost
- ◆ Suitable for limited steam supply project

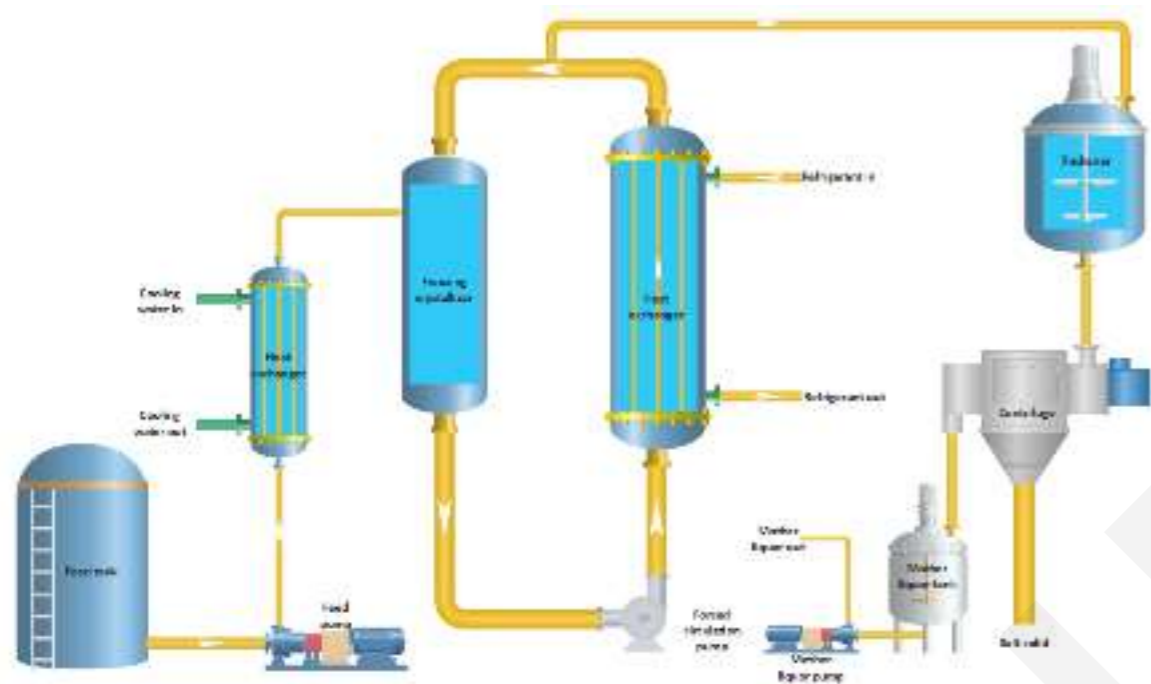


FEATURES & ADVANTAGES

- ◆ Low noise
- ◆ Less investment cost
- ◆ Low electricity consumption
- ◆ Big operation range
- ◆ Suitable for sufficient steam supply project

TECHNICAL PROCESS >>>

Freezing Crystallization



SYSTEM

Crystallization system is designed with crystallizer, condenser, axial flow pump, and necessary pumps and tanks.

APPLICATION

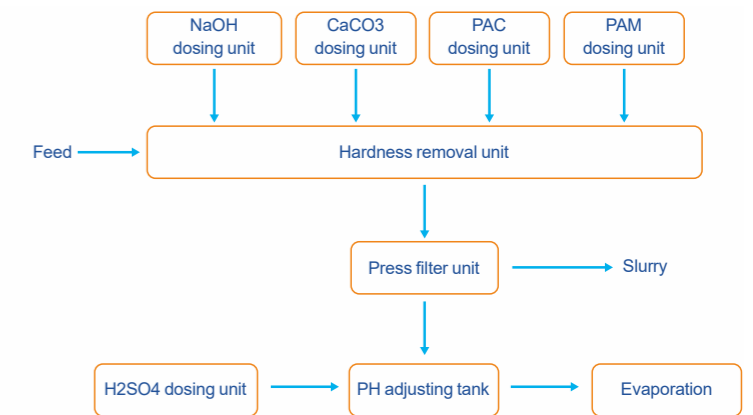
Separate sodium sulfate from the solution
Separate salt from the mixed solution
Recover the valuable by-product

TECHNICAL PROCESS >>>

Pretreatment

In order to avoid blocking and scaling in the evaporation system, some pretreatment should be done prior to the evaporation system.

- ◆ Degasification
- ◆ Oxidation
- ◆ Softening
- ◆ Flocculation



Drying system

3 MAIN TYPE

- ◆ Solid with 6~10% moisture
- ◆ Solid moisture less than 5%
- ◆ Solid moisture less than 1%

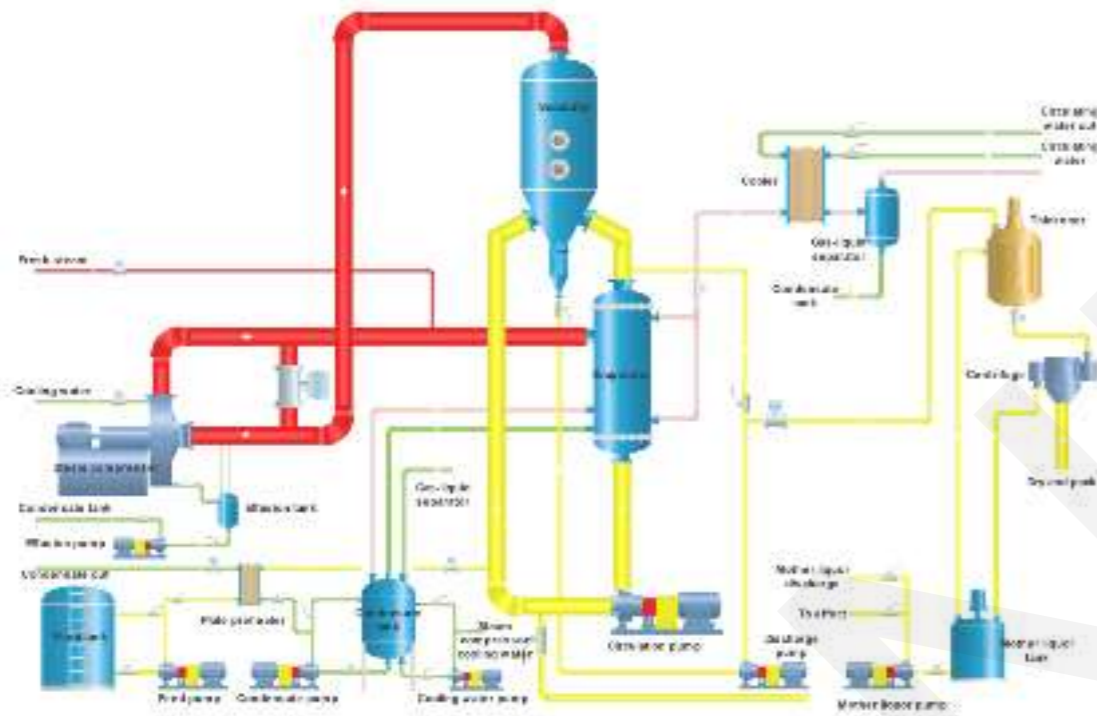


TECHNICAL PROCESS >>>

Zero Liquid Discharge (ZLD)

Zero Liquid Discharge technology is used to recover the water from the industrial stream and recover the valuable salt from the wastewater for the industrial wastewater treatment.

ZLD for brine treatment normally consists of brine pre-concentration and evaporation/crystallization process to turn the brine into highly purified water and solid product for disposal or for salt recovery.



SYSTEM

Evaporation & Crystallization

MVR Evaporation
MEE Multi-Effect Evaporation
Freezing Crystallization

Pretreatment

Hardness removal
Fluoride removal
SS removal

Drying

6~10% moisture drying system
5% moisture drying system

MVR SKID-MOUNTED SYSTEM >>>

Entire MVR system

- ◆ Preheater
- ◆ Evaporator
- ◆ Separator
- ◆ MVR Compressor
- ◆ PLC System
- ◆ Pumps
- ◆ Valves and Sensors
- ◆ Pipeline
- ◆ Steel Structure



Application

RO Reject/Concentrate Water
Landfill Leachate
PCT Effluent in Waste Management Center
Incineration Effluent in Waste Management Center

Capacity

0.5 TPH 1 TPH 1.5 TPH

After Treatment

Discharge the concentrated slurry

Optional

Option 1: Electrical steam generator system skid
Option 2: CIP system skid
Option 3: Solid-liquid separation system skid
Discharge the solid not the slurry



Other Application?

Customized design according to the feed specification, utility supply and treatment requirement is available.

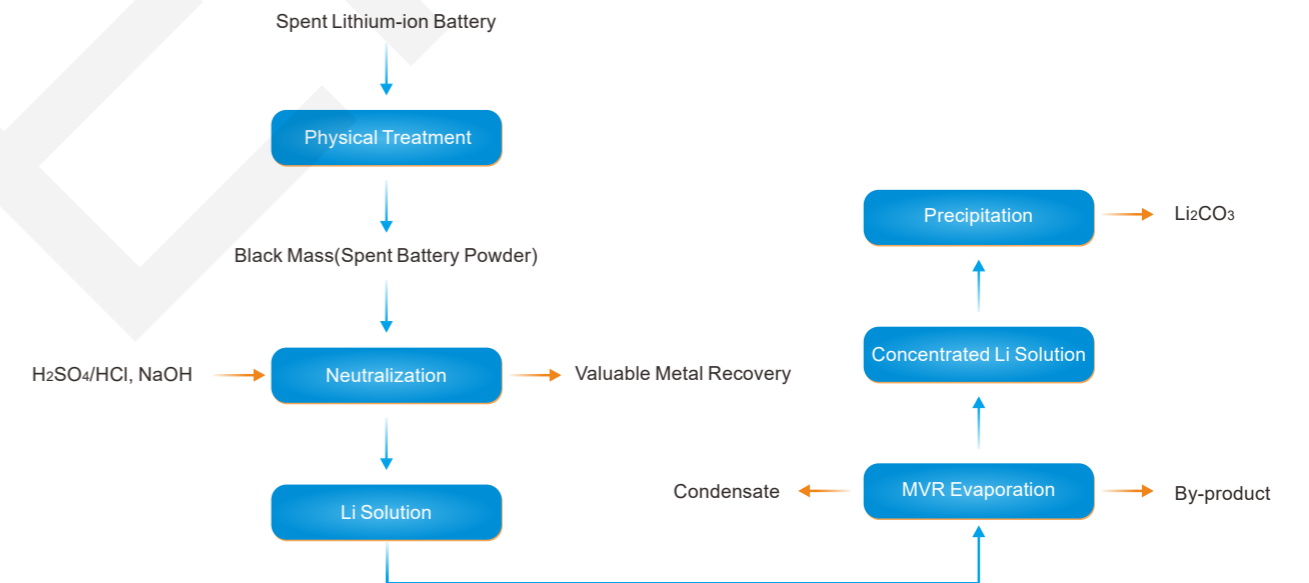
APPLICATION >>>

Zero Liquid Discharge	New Energy Industry	Evaporation Concentration
<ul style="list-style-type: none"> Waste Management Center Landfill Leachate Chemical Plant Wastewater Mine Water Desulfurization Wastewater Steel Plant Wastewater 	<ul style="list-style-type: none"> Lithium Carbonate LFP Battery NCM & NCA Battery Spent Battery Recycling Wastewater treatment 	<ul style="list-style-type: none"> Food Concentration (CSL, Sweetener, etc.) Bavary Concentration Tobacco Concentration Chemical Stream Concentration

New Energy Industry

As the rapidly development of the new energy industry, saving the spent lithium-ion battery's environmental affective, meanwhile recovering the valuable reusable metal and recycling the Li-ion from the used lithium battery becomes more meaningful and economical.

What's more, the market of lithium battery recycling becomes prosperous.



CASE

Feed: Lithium Sulfate and Sodium Sulfate

System: MVR Evaporation

Concentrated Li Concentration: 0.9%

Waste Management Center

The hazardous waste management center is generally composed of: Physical & Chemical Treatment Plant; Incineration Plant; Sewage/Effluent Treatment Plant; Landfill Plant; Solidification Plant; as well as Landfill Leachate Treatment Plant.

Different effluent should be treated with different ZLD solutions.

CASE

COD: 30000 – 50000 mg/L
Concentration: 5% ~ 10%
System temperature rise: 20 °C



FGD Wastewater Industry

Due to its serious pollution, fuel gas desulfurization wastewater (FGD) from the power plant is generally treated with multiple wastewater treatment processes. The treatment of fuel and gas desulfurization (FGD) wastewater is mainly divided into 3 steps: pretreatment, evaporation concentration, and dry.

CASE

COD: 186 mg/L
Sulfate: 49900 mg/L
Chloride: 28600 mg/L



Landfill Leachate Industry

Many processes can be used in the treatment of landfill leachate. The choice of treatment process depends on the standard of discharge that must be achieved, the efficiency of the process, removal rates of pollutants, as well as installation, operation, and maintenance. The main treatment options include: Bio technology, membrane technology, and thermal evaporation technology

CASE

COD: 30000 – 50000 ppm
Inlet concentration: 5%
Boiling temperature: 20 °C



Pharmaceutical Industry

In the pharmaceutical industry, a large amount of pharmaceutical intermediate wastewater will be produced during the pharmaceutical process. Due to the characteristics of high COD, high salinity, high chroma, complex composition, and non-degradability, direct discharge of these wastewaters will cause serious damage to the environment.

CASE

Steam Stripper Unit
MVR Evaporation Unit



Mine Water

During the mining process, groundwater is in contact with rock formations, and with the influence of human activities, a number of physical, chemical and biochemical reactions occur, thus the mine water quality has significant industry characteristics.

Mine water contains much higher TDS content than normal surface water, and a large portion of it is sulfate.



CASE

MVR Evaporation & Crystallization
Freezing Crystallization
Fluid Bed Dryer

Pesticide Industry



CASE

Concentration: 12~15%
System temperature rise: 18 °C
COD: 5000-8000 mg/L

Chemical Plant Wastewater

Chemical plant wastewater has complex composition, more impurities, higher COD, ammonia nitrogen and hardness, therefore, it is necessary to find a more complete process route for treatment and choose a suitable process according to the characteristics of wastewater to finally achieve the standard discharge.

CASE

Pretreatment
MVR Evaporation & Crystallization



Printing & Dyeing Industry

CASE

System temperature rise: 18 °C
Concentration: 22%
COD: 10000-12000 mg/L



SERVICES AND GUARANTEE >>>



Technical Support

Sanfeng has a professional technical team with abundant experience to provide lifelong technical counselling services for customers.



Turnkey Project Services

Sanfeng provides turnkey service, from engineering design, fabrication, installation, and commissioning, providing technical supervision and project management to ensure the project is implemented on schedule.



Custom Return Visit

Sanfeng visits the project site regularly after hand over the system to do the technical support, check the operation status and solve the running problems.



Spare Parts

Sanfeng has established users' archives to provide various types of spare parts and wearing parts to ensure a steady quality level and well-running condition.

Project Management

Project management throughout the whole process of the projects. There are professional project managers to responsible for the projects and professional construction teams to escort the project.



Professional After-sales Team

Sanfeng has a professional after-sales team to respond to customers within 24 hours and offers technical remote service and site service, which guarantees the well running of the system.

