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SUNLIGHT E·PRO

斯普莱环保
来自德国的废气处理专家

SUNLIGHT environment protection
Waste treatment expert from Germany

江苏斯普莱科技集团
JIANGSU SUNLIGHT TECHNOLOGY GROUP

扬州斯普莱(环保)机械制造有限公司
YANGZHOU SPRAY (ENVIRONMENTAL PROTECTION) MACHINERY CO.,LTD

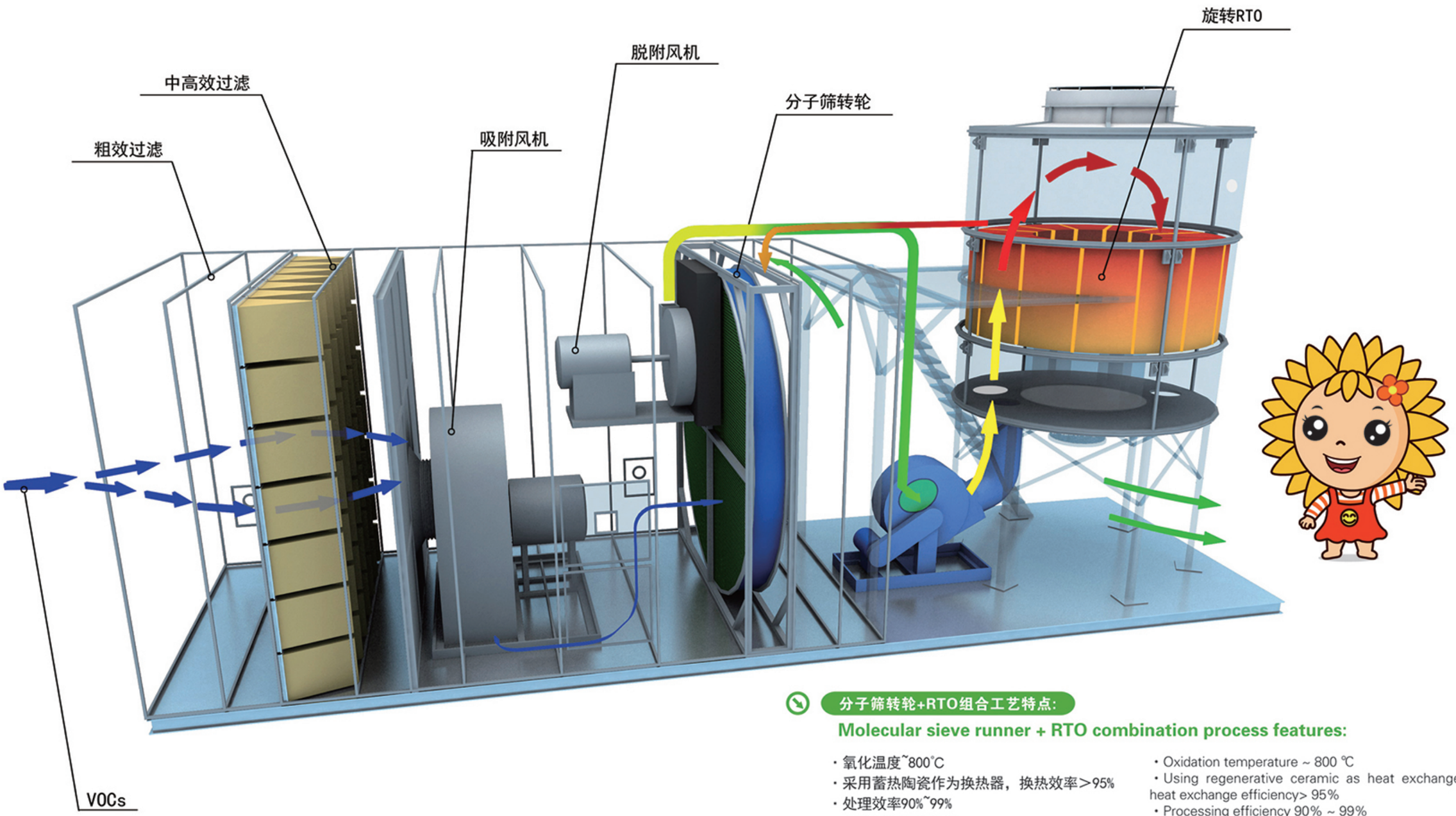
关于我们
ABOUT US

斯普莱科技集团——扬州斯普莱（环保）机械制造有限公司是一家集环保设备设计、制造、安装和技术咨询于一体的高新技术企业，专业提高高效环保系统解决方案。公司有近500名称职的员工，为了我们客户的未来开发着新技术和新工艺。项目团队拥有训练有素的工程师，技术员和专家，这些经过多种训练的人员规划，设计和建造先进的设备直至整个工厂的涂装工程。他们指导安装和调试整体工艺设备，提供培训和满足用户特殊需求维护服务。
我们的技术力量和对技术诀窍的掌握是我们革新发展的原动力，公司内不同领域的技术部门协同其他部门同时为您服务。

Sunlight Technology Group-Yangzhou SPRAY (ENVIRONMENTAL PROTECTION) Machinery Co.,ltd. is a Chinese and German joint venture enterprise that take up with fabricating and developing all kind of superficial painting equipment,with 500 employable staffs,who are developing new technology and new craft for the future of our users.The project team has the well-trained engineers, technicians and experts.Those persons passed many kinds of trainings plan, design and fabricate the advanced equipment and the painting engineering of the whole .They instruct the installation and shakedown of the overall process unit,offer training and satisfy the users special demand and maintenance service.
Our technical force and tetting hold of the technical knack is our driving force of innovation and development,It's our honor to make standard of country painting equipment,The technical departments of different domains in company cooperate with other ones service for you at the same time.

SPL型系列分子筛吸附浓缩转轮和蓄热式燃烧工艺（RTO）结合的VOCs系统

SPL series molecular sieve adsorption concentrator and regenerative combustion process (RTO)combined VOCs system



分子筛转轮+RTO组合工艺特点:

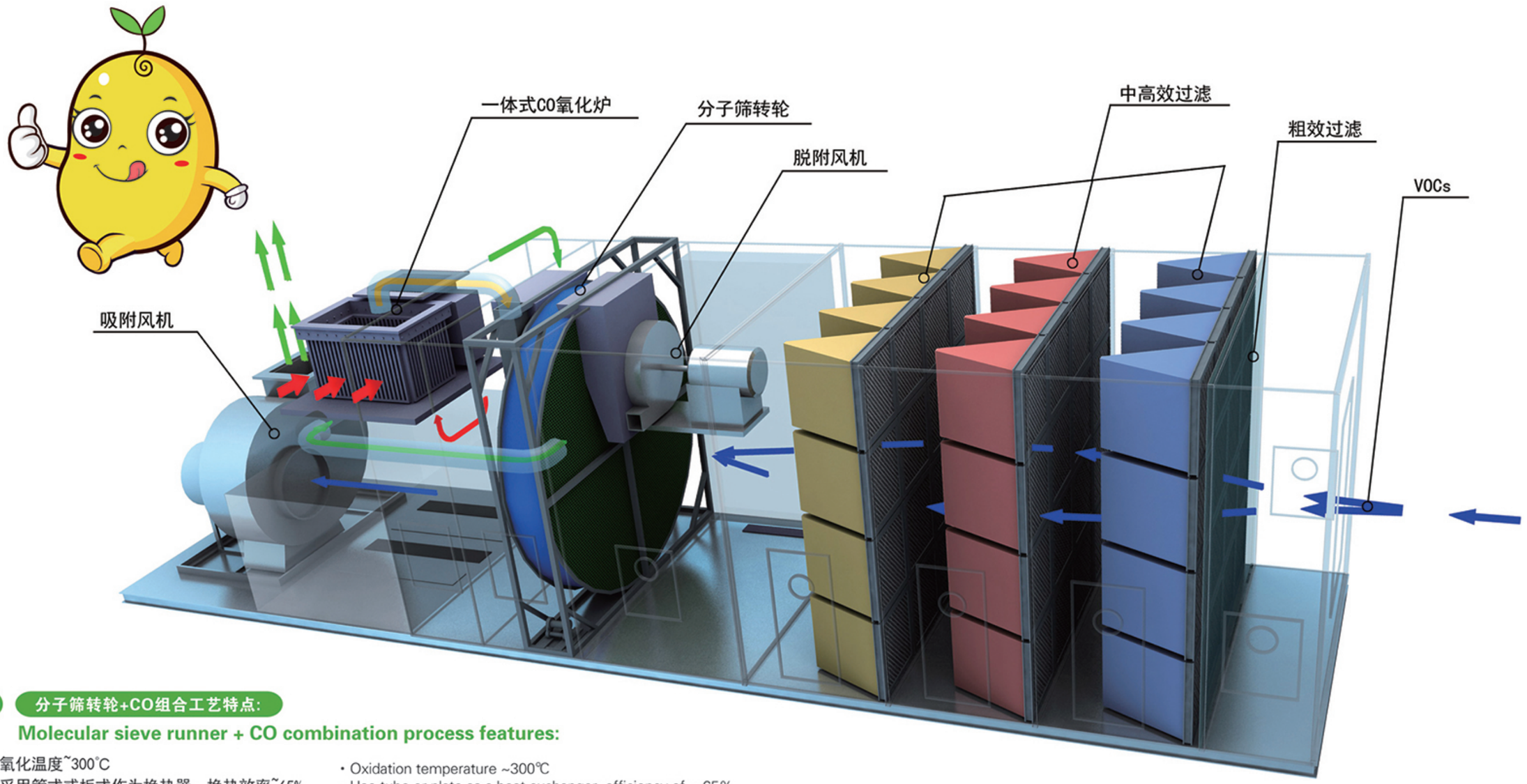
Molecular sieve runner + RTO combination process features:

- 氧化温度~800℃
- 采用蓄热陶瓷作为换热器，换热效率＞95%
- 处理效率90%~99%
- 占地面积相对适中
- 最高耐温~1000℃
- 可处理含硫、卤素等废气
- 适于连续运行

- Oxidation temperature ~ 800 ℃
- Using regenerative ceramic as heat exchanger, heat exchange efficiency> 95%
- Processing efficiency 90% ~ 99%
- Covers a relatively modest area
- The highest temperature ~ 1000 ℃
- Can handle sulfur, halogen and other emissions
- Suitable for continuous operation

SPL型分子筛吸附浓缩和催化燃烧工艺（CO）结合的VOCs系统

SPL molecular sieve adsorption concentration and catalytic combustion process (CO) combined VOCs system



分子筛转轮+CO组合工艺特点:

Molecular sieve runner + CO combination process features:

- 氧化温度~300℃
- 采用管式或板式作为换热器　换热效率~65%
- 处理效率90%~99%
- 占地面积相对较小
- 最高耐温~500℃
- 不能处理含硫、卤素等废气
- 适于间歇运行

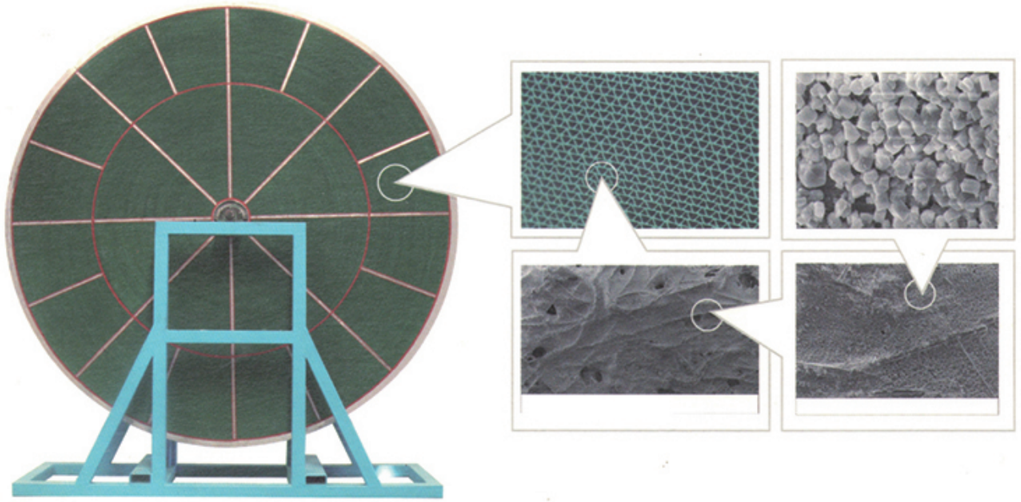
- Oxidation temperature ~300℃
- Use tube or plate as a heat exchanger, efficiency of ~ 65%
- Processing efficiency 90% ~ 99%
- The area is relatively small
- The highest temperature ~500℃
- Can not handle sulfur, halogen and other emissions
- Suitable for intermittent operation

SPL型系列分子筛吸附浓缩转轮装置概述

SPL series molecular sieve adsorption enrichment runner device summary

SPL型分子筛吸附浓缩转轮装置ZCR（Zeolite Concentrator Rotoe），是20世纪70年代后期发展起来的。SPL型分子筛吸附材料附着于蜂窝状多孔载体上制备而成的一种转动吸附设备。

SPL series Molecular sieve adsorption enrichment runner device ZCR,it was developed in the late 1970s.It is a rotating adsorption equipment made by SPL molecular sieve adsorption material attached to the porous honeycomb porous support.



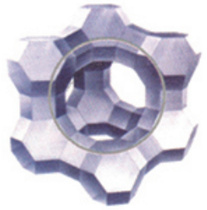
SPL型分子筛吸附浓缩转轮装置特点 Concentration runner features

随着国家环保政策法规日益严格，VOCs限制排放标准将提高，尤其在处理低浓度、大风量废气方面，SPL型分子筛吸附浓缩转轮装置为企业提供了经济合理、安全可靠的解决方案。

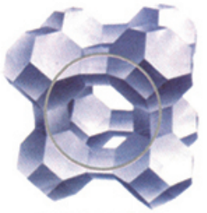
With the increasingly stringent national environmental protection policies and regulations, the emission standards for VOCs will be raised. In particular, SPL-type molecular sieve adsorption concentrator units provide a cost-effective, safe and reliable solution for enterprises in handling low-concentration and high-volume exhaust gases.

SPL型系列分子筛吸附浓缩转轮装置概述

SPL series molecular sieve adsorption enrichment runner device summary



X、Y型沸石晶胞
X, Y zeolite unit cell

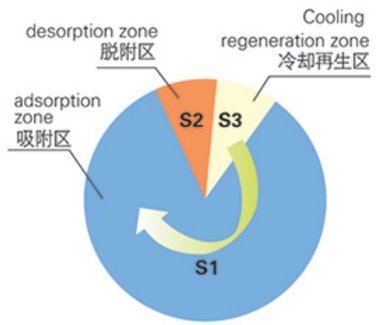


A型沸石晶胞
A-type zeolite unit cell

- SPL型分子筛吸附浓缩转轮所用的吸附材料，是人工合成的硅铝酸盐多孔晶体，也叫人造沸石，属于不可燃烧的无机多孔材料。
- SPL-type molecular sieve adsorption enrichment runner used in the adsorption material is a synthetic porous aluminosilicate crystal, also known as artificial zeolite, are non-combustible inorganic porous materials.

- 尺寸均匀的孔道
- 较大的比表面积较大的吸附容量
- 孔径大小整齐均一
- 只通过分子直径比孔径小的分子有较强的选择性

- Uniform size Hole
- larger adsorption capacity than surface area
- Aperture size neatly uniform
- Only pass a smaller molecular diameter than the pore size ,there is a strong choice



有效分区 Effective partitioning

SPL型分子筛吸附浓缩转轮分为吸附区，脱附区，冷却区，转轮在各个区域连续运转。

SPL molecular sieve adsorption enrichment runner is divided into adsorption zone, desorption zone, cooling zone, the runner continuous operation in all regions.

高温脱附 High temperature desorption

吸附饱和后的分子筛进入脱附区，经高温热风进行脱附浓缩（根据工况不同，有不同的浓缩倍率）。

After adsorption of saturated molecular sieve into the desorption zone, desorption concentration through high temperature hot air (according to different conditions, have different concentration ratio).

冷却再生 Cooling regeneration

高温脱附后的区域由冷空气进行冷却再生，用于冷却的空气经加热后可以作为再生空气使用。

The area after the high temperature desorption is cooled and regenerated by cold air, and the air used for cooling can be used as regeneration air after being heated.

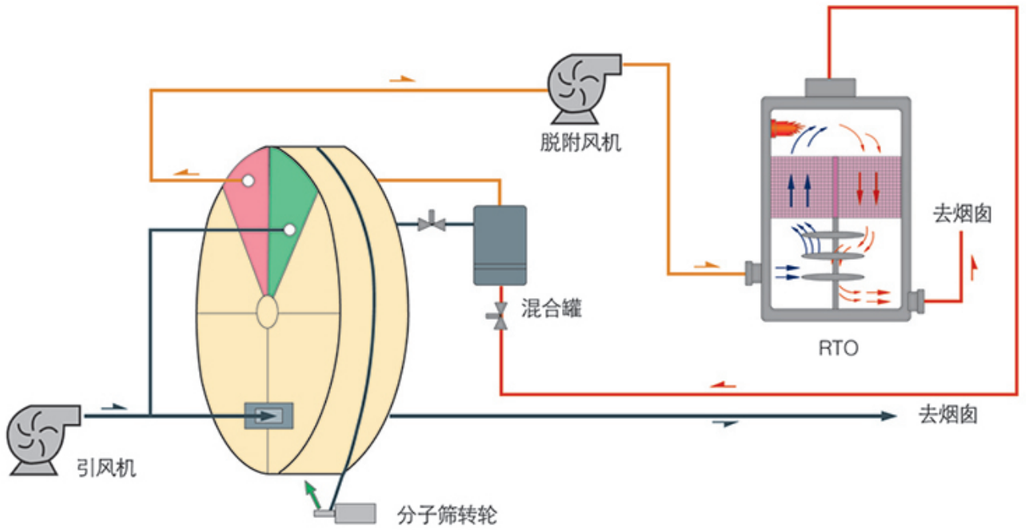
净化排放 Purify emissions

VOSs经过过滤装置等预处理之后，进入转轮吸附区被吸附净化排出。

VOSs after pretreatment filter device, into the runner adsorption area and discharge after adsorbed purification.

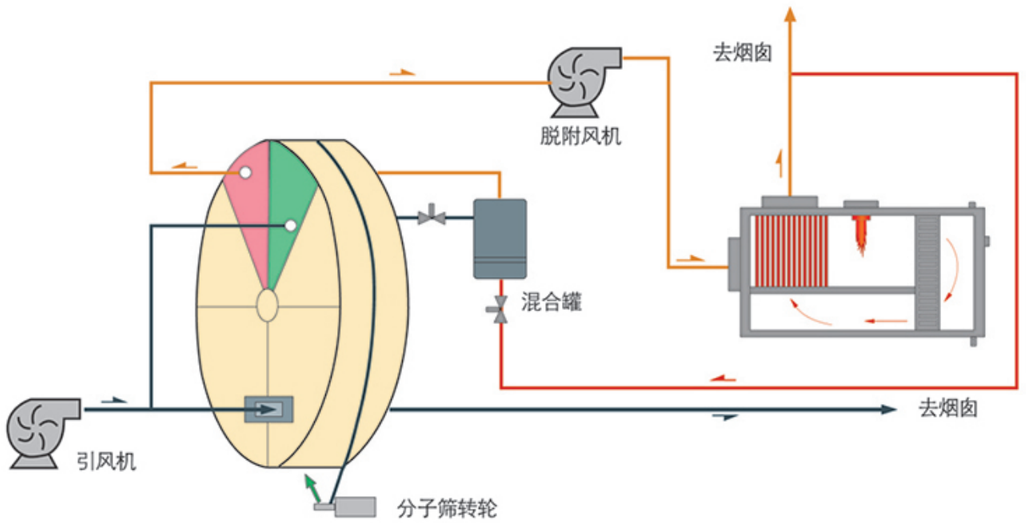
SPL型系列分子筛吸附浓缩转轮装置概述

SPL series molecular sieve adsorption enrichment runner device summary



SPL型系列分子筛吸附浓缩转轮和蓄热式燃烧工艺（RTO）结合的VOCs系统（A）

SPL series molecular sieve adsorption concentrator and regenerative combustion process (RTO)combined VOCs system(A)



SPL型分子筛吸附浓缩和催化燃烧工艺（CO）结合的VOCs系统(B)

SPL molecular sieve adsorption concentration and catalytic combustion process (CO) combined VOCs system(B)

SPL型系列分子筛吸附浓缩转轮装置概述

SPL series molecular sieve adsorption enrichment runner device summary

吸附特点 Adsorption characteristics

吸附选择性强：孔径大小整齐均一，离子型吸附剂，根据分子的大小及极性的不同进行选择性吸附。

Adsorption selectivity:Auniform aperture size, ionic adsorbent, depending on the size of the molecule and the polarity of the selective adsorption.

疏水特性 高si/AI比的疏水性分子筛不吸附空气中的水分子，对VOCs进行选择性吸附。

Hydrophobic properties:Hydrophobic molecular sieve with high Si / AI ratio does not adsorb water molecules in the air and selectively adsorbs VOCs.

吸附能力强 吸附容量大，单级吸附效率可达90~98%，在较高温度下仍然具有较强的吸附能力。

Strong adsorption capacity:Adsorption capacity, single-stage adsorption efficiency up to 90 ~ 98%, at higher temperatures still have a strong adsorption capacity.

耐高温、不燃特性 具有良好的热稳定性，脱附温度180~220，使用中耐热温度可达350.脱附彻底，VOCs浓缩倍率高。

High temperature, non-flammable properties:Has good thermal stability,desorption temperature 180 ~ 220, the use of heat-resistant temperature up to 350. Desorption thorough,high VOCs concentration rate.

适用范围 The scope of application

车船机械喷漆-甲苯、二甲苯、脂、醇；半导体清洗-IPA、醇、酮、胺；印刷干燥-甲苯、IPA、脂、酮；石油化学-芳香族、有机酸、醇；合成树脂-苯乙烯、醛、脂；液晶制造-醇、脂、胺；锂电池涂层电解液-NMP、脂、卤代烃；粘合剂涂层-酮、醇、甲苯.....

Automotive，boats and other machinery paint – toluene, xylene, grease, alcohol; semiconductor cleaning – IPA, alcohol, ketones, amines; printing drying – toluene, IPA, grease, ketone; petrochemical – aromatic, organic acids, alcohols; Ethylene, aldehydes, lipids; liquid crystal manufacturing – alcohol, grease, amine; lithium battery coating electrolyte – NMP, grease, halogenated hydrocarbons; adhesive coating – ketone, alcohol, toluene .....

SPL型分子筛吸附浓缩转轮规格
SPL molecular sieve adsorption concentration runner specifications

转轮直径 Runner diameter/mm	处理风量 Air handling capacity/m^3/h			转轮厚度 Runner thickness/MM
	2m/s	3m/s	4m/s	
1525	10000	16000	21000	400
1750	14000	21000	28000	
1950	17000	26000	35000	
2150	21000	32000	43000	500
2350	26000	39000	52000	
2650	33000	49000	66000	
2950	40000	61000	81000	
3250	49000	74000	99000	600
3550	59000	89000	118000	
3900	71000	107000	143000	
4250	85000	127000	170000	

产品定义 Product definition

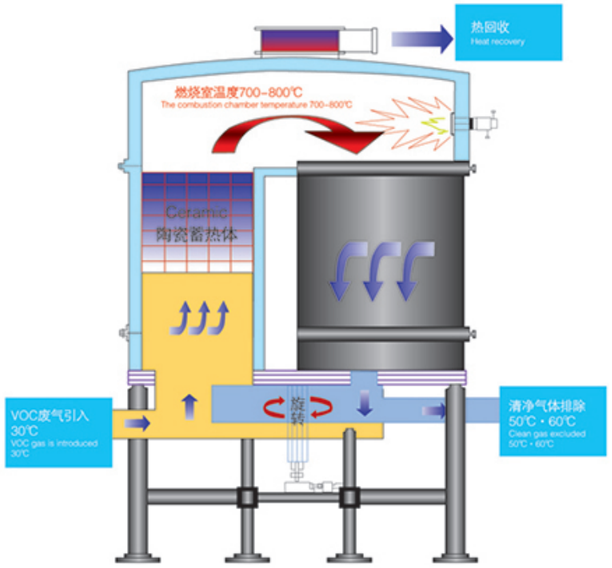
RTO是Regenerative Thermal Oxidizer的缩写，即为蓄热式热力焚化炉。

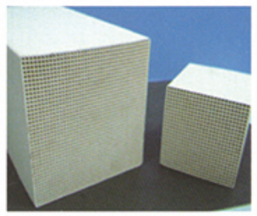
RTO is called Regenerative Thermal Oxidizer,it is a regenerative thermal incinerator.

旋转式RTO的技术优势 RTO's technical advantages

扬州斯普莱（环保）机械制作有限公司通过与国外环境研究所合作研究出目前世界上最先进的VOCs废气治理设备—旋转式蓄热燃烧炉（RTO），并获得多项专利。处理效率：RTO利用蜂窝陶瓷蓄热体循环储热和放热处理废气，排出低温清洁达标的气体，处理效率达到99%以上，废气浓度达到1350ppm时，就可维持自燃，不需另加能源，运行费用大大降低。

RTO use honeycomb ceramic heat storage and heat treatment of exhaust gas circulation,low temperature exhaust gas cleaning standards,processing efficiency is above 99%,the gas concentration reaches 1350ppm,can maintain spontaneous combustion without additional energy,operation cost is greatly reduced.





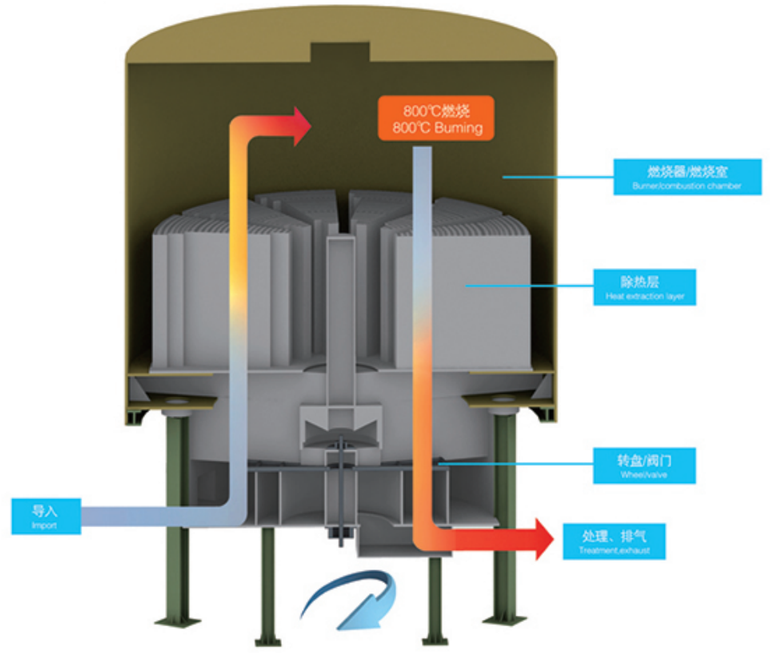
旋转式RTO的技术特点 RTO’s technical characteristics

工作原理/Working principle

有机废气（VOCs）通过废气收集装置将VOCs废气通过高压风机送入旋转式RTO系统中进行高温氧化分解，VOCs废气在800℃高温下完全分解为CO_2和H_2O（并放出大量热）。燃烧后的高温气体用蜂窝状陶瓷蓄热体把热能回收并存储，用在废气预热上，能回收的热量95%意思，固本设备是节能型设备。

Organic waste gas (VOCs) through the exhaust gas collection device to VOCs exhaust gas,directly into the rotary RTO system for high temperature decomposition. Using high pressure air blower to send RTO funny thermal oxidation equipment .VOCs exhaust at 800℃ under high temperature completely decomposed into CO2 and H2O (and emit a lot of heat).High temperature gas after combustion of a honeycomb ceramic regenerator heat recovery and storage,used in waste gas preheating,heat recovery above 95% solid,this equipment is energy-saving equipment.

原理图/Schematic diagram



旋转式RTO的系统特点 RTO’s electronic system characteristics

- 高效率/High Efficiency
- 低能耗/Low Energy Consumption
- 自动化/Automation
- 安全性/Safety

坚固环保和经济要求，以高效率、低效能、自动化和安全性设计为核心，保障方案达到环保要求。

Strong environmental protection and economic requirements,with high efficiency,low energy consumption,automation and safety design as the core,to ensure that the program to achieve environmental protection requirements.

SPL型有机废气吸附催化一体化

SPL adsorbing-catalyzing integration product to deal with the organic waste gas

概　述 General

吸附–催化燃烧法：此法综合了吸附法及催化燃烧法的优点，采用新型吸附材料(蜂窝状活性炭)吸附，在接近饱和后引入热空气进行脱附、解析，脱附后废气引入催化燃烧床无焰燃烧，将其彻底净化，热气体在系统中循环使用，大大降低能耗。具有运行稳定可靠、投资省、运行成本低、维修方便等特点，适用于大风量、低浓度的废气治理，是目前国内有机废气处理方法中较为成熟、实用的方法。

Adsorption–catalytic combustion:combined the advantage of adsorption and catalysis, use the the new type of adsorption material (active carbon) for desorption and precipitation by the hot air when it is nearly saturated. After desorption, the waste gas should be led into the catalytic combustion bed for flameless combustion to clean it thoroughly. The hot air could be recycled to decrease the energy consumption. It has the characteristic of steady operation, low investment and operation cost, easy maintenance etc. It is the more mature and practical way in domestic industry to deal with the waste gas with large air quantity and low density.

用　途 Function

大风量、低浓度、经济型喷漆废气处理

可处理苯类、酮类、醇类、醚类、烷类及其混合类有机废气，主要用于化工、机械、电子、电器、涂装、制鞋、橡胶、塑料、印刷及各种化工车间里挥发或泄漏出的有害有机废气的净化及臭味的消除，不宜采用直接燃烧法、催化燃烧法或吸附回收法处理有机废气。

Hight air volume,low density and economically treatment for painting waste gas

It can be used to treat those organic waste gas such as benzene, ketone, alcohol, ether, alkyl etc, and its mixed gas. It is mainly used to purify the organic waste gas and remove the stink evaporated or leaked from all kinds of workshops, such as chemical, mechanical, electronic, painting, shoes–manufacturing, rubber, plastic and print etc. It’s better not to deal with the organic waste gas by direct combustion, catalytic combustion or adsorption.

SPL型有机废气吸附催化一体化

SPL adsorbing-catalyzing integration product to deal with the organic waste gas

工作原理 Working principle

本净化装置是根据吸附（效率高）和催化燃烧（节能）两个基本原理设计的，即吸附浓缩—催化燃烧法。该设备采用双气路连续工作，设两个或多个吸附床可交替使用。一个催化燃烧室，先将有机废气用活性炭吸附，当快达到饱和时停止吸附操作，然后用热气流将有机物从活性炭上脱附下来使活性炭再生；脱附下来的有机物已被浓缩（浓度较原来提高几十倍）并送入催化燃烧室催化转化成CO_2和H_2O排出，当有机废气浓度达到2000mg/m^{3}以上时，有机废气在催化床可维持自燃，不用外加热，燃烧后的尾气一部份排入大气，大部份送往吸附床，用于活性炭的脱附再生。这样能满足燃烧和脱附所需的热能，达到节能的目的，再生后的活性炭可用于下次吸附；在脱附时，净化操作可用另一个吸附床进行，既适合于连续操作，也适合于间断操作。

This purifying system is designed according to two basic principles, adsorption (high efficiency) and catalysis (energy–saving), that is, adsorption––catalytic combustion. The system can be run continuously by double gas lines. There are two absorption beds which could be used both interchangeably, and one combustion chamber for catalysis. The organic gas would be absorbed firstly by the active carbon, while it is almost saturated, then stop absorbing. The organism would be absorbed from the active carbon by the hot gas and the active carbon could be regenerated. After absorbed, the organism is already concentrated (the thickness is improved to several dozens of times than the original) and sent to the combustion chamber to be catalyzed into CO_2 and H_2O which would be discharged. If the thickness of organic waste gas is over 2000mg/m^3, self–combustion could be kept on the catalysis bed without heating. After combusted, some part of the exhaust gas would be discharged into the atmosphere, most of them would be sent to the absorption beds for the desorption and regeneration for active carbon. In this way the energy could be got for combustion and desorption so that the energy is saved. The active carbon after regenerated could be used again. During desorption, the purifying could be operated with another absorption bed. It is suitable for both continuous and intermittent operation.

性能特点 Performance

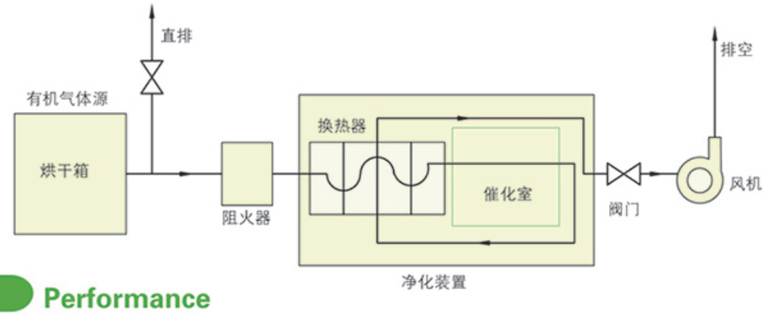
1、采用吸附浓缩+催化燃烧组合工艺。整个系统实现了净化、脱附过程封闭循环，与回收类有机废气净化装置相比，无须配备压缩空气等附加能源，运行过程不产生二次污染，设备投资及运行费用低。
2、设备占地面积小、采用新型的活性炭吸附材料—蜂窝状活性炭。与粒状相比具有优越的动力学性能，极适合于大风量下使用。
3、催化燃烧室采用陶瓷蜂窝体的贵金属催化剂，阻力小，活性高。当有机蒸汽浓度达到2000PPm以上时，可维持自燃。
4、耗电量小。由于床层阻力小，用低压风机就可以，不但耗电少而且噪音小。有机物催化燃烧前，需启动电加热，当有机物在催化床开始催化燃烧时，其燃烧热足以维持其反应所需的温度，此时电加热自行停止，起动电加热时间大约1小时左右。
5、吸附有机物废气的活性炭床，可用催化燃烧后的废气进行脱附再生，脱附后的气体再送催化燃烧室进行净化，不需外加能量，运转费用低，节能效果显著。

1.By the combined technology with adsorption––catalytic combustion, purifying and adsorption are recycled in the total system. Compared with the purifying system by recovering the organic waste gas, the additional power is not required to be equipped, such as the compressed air. There is no secondary pollution during the process. Lower investment and running cost.
2.Occupying small area, using the new type of active carbon adsorption material––compared with the grainy carbon, the cellular structure active carbon has more better dynamic performance, it is very suitable for the situations with large gas capacity.
3.Noble metal catalyst with the cellular structure is used for the catalytic combustion chamber with smaller resistance and higher activity. If the thickness of organic gas is over 2000PPm, self–combustion could be kept.
4.Due to the small resistance of catalysis bed, just equipped with the fans with lower pressure so that the power consumption is small and the noise is lower. The electric heating should be started for catalytic combustion. When the organic substance is burned in the catalytic bed, the temperature could be kept by the calorie from its combustion for the reaction. At this moment the electric heating would be stopped automatically. The electric heating will last about one hour.
5.The active carbon bed could be desorbed and regenerated with the exhaust gas after catalytic combustion. The gas after desorbed would be sent to the catalytic combustion chamber for purifying without additional heating, the cost for running is lower with the significant effect of energy–saving.

SPL型系列有机气体催化装置（BCO）

SPL type organic gas catalytic system with (BCO)

工艺流程示意图 Technical process diagram



性能特点 Performance

1、操作方便：设备工作时，实现自动控制。

2、能耗低：设备启动，仅需15～30分钟升温至起燃温度，加热完成后只有风机工作时耗电。

3、安全可靠：设备配有阻火除尘系统、防爆泄压系统、超温报警系统，自动检测系统。

4、阻力小，净化率高：采用世界上最先进的贵金属钯、铂浸渍的蜂窝状陶瓷载体催化剂（也可用颗粒状）。

5、余热可回收利用：余热可返回烘道，降低原烘道消耗热能；也可以作其它方面的热源。

6、占地面积小：设备基础无特殊要求。

7、使用寿命长：催化剂一般更换周期为4年，载体可再生。

1.Operated easily: it could be controlled automatically while it’s running.

2.Low power consumption: it will take only 15～30 minutes to reach the ignition temperature after started. After heating only the power is only consumed by fan .

3.Safety and reliability: it is equipped with flame arrester and dust removing system, anti-explosion and pressure relief system, alarming system for over temperature and auto testing system.

4.Small resistance, high purification rate: cellular structure ceramic catalyst dipped by the most advanced precious metals such as the palladium and platinum, as well as in the shape of granular.

5.The waste heat could be recovered: the waste could be returned to drying tunnel to decrease its consumption, as well as the heat source for others.

6.Small area: no special requirement for the foundation.

7.Long service life: generally the catalyst would be replaced by 4 years, its carrier could be regenerated.

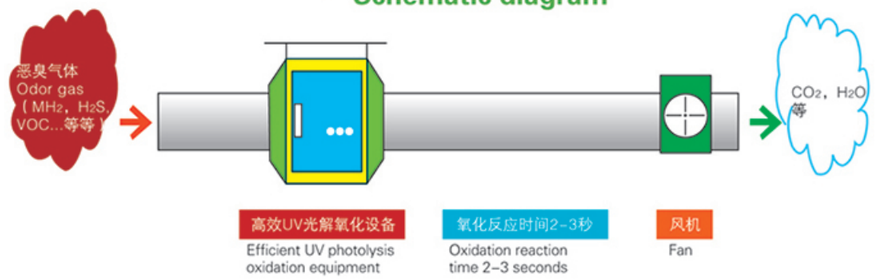
参数及标准 Parameter and standards

产品型号 type		5—100	5—200	5—300	5—500	5—800	3F—1000	3F—1200	3F—1500	3F—2000
处理废气（m^3/h）treated exhaust gas（m^3/h）		1000	2000t	3000	5000	8000	10000	12000	15000	20000
废气浓度范围 density scope of the exhaust gas		200~10000mg/m^3（混合废气1/4爆炸下限mixed waste gas, 1/4 low explosive limit）								
处理废气类型 type of the exhaust gas		苯、酮、醇、醛、酚、醚、脂、烷等有机混合气体 The mixed organic waste gas of benzene, ketone, alcohol, ester, ether, phenol, and alkyl etc								
预热温度 pre-heat temperature		200~300℃								
净化效率 purifying efficiency		≥97%								
起动总功率KV total starting power KV		40	66	72	84	159	198	240	279	336
风机 fan	型 号 type	Yx9—355c	Yx9—356.3c	Yx9—356.3c	Yx9—356.3c	Yx9—358c	另选	另选	另选	另选
	风量(m^3/h) air quantity	3585	5737	6984	7857	10646	14000	18000	20000	26000
	全压(mmH_2O) total pressure	176	182	188	238	242	190	190	200	200
	功率(KW) power	4	5.5	5.5	11.5	15	22	30	37	45

SPL型光氧催化废气处理设备

SPL light oxygen catalytic exhaust gas treatment equipment

废气分子光解氧化说明示意图 Exhaust gas molecules photolytic oxidation Schematic diagram



技术原理 Technical principle

SPL-系列恶臭气体UV高效光解废气净化设备采用的大功率高能紫外线发射管，光子能量分别为742 KJ/mol和647 KJ/mol。要裂解切断污染物质分子的分子键，就要使用发出比污染物质分子的结合能强的光子能。

SPL-series odor gas UV high efficiency photolysis exhaust gas purification equipment used in high-power high-energy UV emission tube, photon energy 742 KJ / mol and 647 KJ / mol. To break the molecular bonds that cut off contaminants molecules, it is necessary to use photon energies that emit more binding energy than the contaminating molecules.

概　述 General

1）本产品利用特制的高能高臭氧UV紫外线光束照射工业废气，裂解恶臭/工业废气如：氨、三甲胺、硫化氢、甲硫氢、甲硫醇、甲硫醚、二甲二硫、二硫化碳和苯乙烯，硫化物H_2S、VOC类，苯、甲苯、二甲苯等的分子链结构，使有机或无机高分子恶臭化合物分子链，在高能紫外线光束照射下，降解转变成低分子化合物，如CO_2、H_2O等。

2）利用高能高臭氧UV紫外线光束分解空气中的氧分子产生游离氧，因游离氧所携正负电子不平衡所以需与氧分子结合，进而产生臭氧。$UV + O_2 \rightarrow O- + O*$(游离氧)$O + O_2 \rightarrow O_3$(臭氧),众所周知臭氧对有机物具有极强的氧化作用，对工业废气及其它刺激性异味有立竿见影的清除效果。

3）恶臭/工业废气利用排风设备引入到本净化设备后，净化设备运用高能UV紫外线光束及臭氧对工业废气进行协同分解氧化反应，使工业废气物质其降解转化成低分子化合物、水和二氧化碳，再通过排风管道排出室外。

4）利用高能UV光束裂解工业废气中细菌的分子键，破坏细菌的核酸（DNA），再通过臭氧进行氧化反应，彻底达到脱臭及杀灭细菌的目的。

High-energy high-ozone UV light beam irradiation industrial emissions,cleaving stench / industrial waste gas,for example:Ammonia, trimethylamine, hydrogen sulfide, methylthiohydrin, methyl mercaptan, methyl sulfide, dimethyl disulfide, carbon disulfide and styrene, sulfide H_2S, VOCs, benzene, toluene, xylene and other molecular chain structure,let organic or inorganic polymer malodor compound molecular chain, under the irradiation of high-energy ultraviolet light beam, degradation into low molecular compounds, such as CO_2, H_2O and so on.

Use high energy and high ozone UV light beam decomposition of oxygen in the air to produce free oxygen, due to the free oxygen carried by the imbalance of positive and negative electrons so need oxygen molecules combine to produce ozone.$UV + O_2 \rightarrow O- + O*$ (free oxygen) $O + O_2 \rightarrow O_3$ (ozone), it is well-known that ozone has a strong oxidation effect on organic matter and has an immediate effect of removing industrial exhaust gas and other irritating odors.

SPL型光氧催化废气处理设备

SPL light oxygen catalytic exhaust gas treatment equipment

Exhaust equipment into the purification equipment, the purification equipment uses high-energy UV ultraviolet light beam and ozone to perform synergistic decomposition oxidation reaction on the industrial exhaust gas to convert the industrial waste gas substance into low molecular weight compounds, water and carbon dioxide, and then exhaust outdoor through the exhaust duct.

Use high-energy UV beam cracking industrial waste gas in the molecular bond, destroy bacteria nucleic acid (DNA), and then through the oxidation reaction of ozone, and thoroughly achieve the purpose of deodorization and kill bacteria.

性能优势 Performance advantages

1）**高效除恶臭**：能高效去除挥发性有机物（VOC）、无机物、硫化氢、氨气、硫醇类等主要污染物，以及各种恶臭味，脱臭效果大大超过国家1993年颁布的恶臭污染物排放标准（GB14554-93）和1996年颁布的《大气污染物综合排放标准》(GB16297-1996)。

2）**无需添加任何物质**：只需要设置相应的排风管道和排风动力，使恶臭/工业废气通过本设备进行脱臭分解净化，无需添加任何物质参与化学反应。

3）**适应性强**：SPL-系列恶臭气体（工业废气）UV高效光解废气净化设备可适应高浓度，大气量，不同工业废气物质的脱臭、净化处理，可每天24小时连续工作，运行稳定可靠。

4）**运行成本低**：SPL-系列恶臭气体（工业废气）UV高效光解废气净化设备无任何机械动作，无噪音，无需专人管理和日常维护，只需定期检查，设备能耗低，风阻极低＜50pa,可节约大量排风动力能耗。

5）**设备占地面积小，自重轻**：适合于布置紧凑、场地狭小等特殊条件，设备占地面积＜1平方米/处理10000m³/h风量。

6）**优质进口材料制造**：防火、防腐蚀性能高，设备性能安全稳定，采用不锈钢材质，设备使用寿命在十五年以上。

7）**环保高科技专利产品**：采用国际上最先进技术理念，通过专家及我公司工程技术人员长期反复的试验，开发研制出的，具有完全自主知识产权的高科技环保净化产品可彻底分解工业废气中有毒有害物质，并能达到完美的脱臭、净化效果，经分解后的工业废气，可完全达到无害化排放，不产生二次污染，同时达到高效消毒杀菌的作用。

8）防爆认证产品：设备具有安全、防爆特性，已通过国家防爆电器产品质量监督检验中心的Ex防爆合格认证，能广泛应用于采油(气)田、石油化工、制药等防爆要求高的行业。

1.Efficient removal of malodor: Efficient removal of volatile organic compounds (VOC), inorganic substances, hydrogen sulfide, ammonia, mercaptans and other major pollutants, as well as a variety of malodors, deodorizing effect greatly exceeded the country in 1993 promulgated the odor pollutants Emission Standard (GB14554-93) and "Integrated Emission Standard of Air Pollutants" (GB16297-1996) promulgated in 1996.

2.No need to add any substance: only need to set the appropriate exhaust pipe and exhaust power, odor / industrial exhaust through the device deodorization decomposition purification, without adding any substance to participate in chemical reactions.

3.Strong adaptability: SPL-series of malodorous gases (industrial waste gas) UV high efficiency photolysis exhaust gas purification equipment can adapt to high concentration, air volume, different industrial exhaust gas deodorization, purification treatment, 24 hours a day can work continuously, stable and reliable operation.

4.Low operating costs: SPL-series of odor gas (industrial waste gas) UV efficient photolysis exhaust gas purification equipment without any mechanical action, no noise, no special management and routine maintenance, only for regular inspections, the device low energy consumption, Low <50pa, can save a lot of exhaust energy consumption.

5.Equipment covers an area of small, light weight: suitable for compact layout, small space and other special conditions, equipment covers an area of <1 square meters / handling air volume of 10000m3/h.

6.Made of high-quality imported materials: fireproof, anti-corrosion performance, safe and stable equipment

SPL型光氧催化废气处理设备

SPL light oxygen catalytic exhaust gas treatment equipment

performance, the use of stainless steel, equipment life of more than fifteen years.

7.Environmental protection high-tech patent products: Adopting the most advanced technology concepts in the world, through the long-term and repeated experiments by experts and our engineers and technicians, the high-tech environmental protection purification products with complete independent intellectual property rights can completely decompose the toxic substances in industrial waste gas harmful substances, and can achieve the perfect deodorization, purification effect, after the decomposition of industrial emissions, can be completely discharged harmless, does not produce secondary pollution, while achieving efficient disinfection role.

8.Explosion-proof certified products: The equipment is safe and explosion-proof. It has passed the Ex Explosion-Proof Certification of the National Explosion-Proof Electrical Products Quality Supervision and Inspection Center and can be widely used in industries requiring high explosion-proof capacity such as oil and gas fields, petrochemicals and pharmaceuticals.

参数及标准 Parameters and standards

型号 type	建议处理风量（m³/h) Recommended treatment of air flow	设备尺寸（长宽高） Equipment size (length, width and height)	设备内部配置 Equipment internal configuration	功率（KW) Power	电压(V) Voltage	风阻(Pa) Wind resistance
SPL-2000	500~3000	1000*1100*600	7组UV光解发生器1组控制箱、二组二氧化钛光触媒、不锈钢光触媒上塑外壳 7 groups UV photolysis generator control box, two groups of titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	1.05	220	≤250
SPL-5000	3000~7000	1000*1100*1100	16组UV光解发生器1组控制箱、二组二氧化钛光触媒、不锈钢光触媒上塑外壳 16 groups UV photolysis generator control box, two groups titanium dioxide photocatalyst, stainless steel Photocatalyst plastic shell	2.4	220	≤250
SPL-10000	7000~12000	2000*1100*1100	32组UV光解发生器、2组控制箱、四组二氧化钛光触媒、不锈钢光触媒上塑外壳 32 groups UV photolysis generator, 2 groups control box, four groups titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	4.8	220	≤250
SPL-15000	12000~17000	2000*1100*1600	48组UV光解发生器、2组控制箱、六组二氧化钛光触媒、不锈钢光触媒上塑外壳 48 groups UV photolysis generator, two groups control boxes, six groups titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	7.2	220	≤250
SPL-20000	17000~22000	2000*1100*2100	64组UV光解发生器、4组控制箱、八组二氧化钛光触媒、不锈钢光触媒上塑外壳 64 groups of UV photolysis generator, 4 groups of control box, eight groups of titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	9.6	220	≤250
SPL-25000	22000~27000	2000*1100*2600	80组UV光解发生器、4组控制箱、十组二氧化钛光触媒、不锈钢光触媒上塑外壳 80 groups UV photolysis generator, 4 groups control box, ten groups titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	12	220	≤250
SPL-30000	27000~32000	3800*1100*1600	96组UV光解发生器、4组控制箱、十二组二氧化钛光触媒、不锈钢光触媒上塑外壳 96 groups UV photolysis generator, 4 groups control box, twelve groups titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	14.4	220	≤250
SPL-35000	32000~37000	2400*1100*2600	112组UV光解发生器、6组控制箱、十六组二氧化钛光触媒、不锈钢光触媒上塑外壳 112 groups UV photolysis generator, 6 groups control box, sixteen groups titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	16.8	220	≤250
SPL-40000	37000~42000	3800*1100*2100	128组UV光解发生器、8组控制箱、二十组二氧化钛光触媒、不锈钢光触媒上塑外壳 128 groups UV photolysis generator, 8 groups control box, twenty groups titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	19.2	220	≤250
SPL-50000	42000~55000	4000*1100*2600	160组UV光解发生器 8组控制箱、二十四组二氧化钛光触媒、不锈钢光触媒上塑外壳 160 groups UV photolysis generator, 8 groups control box, Twenty-four groups titanium dioxide photocatalyst, stainless steel photocatalyst plastic shell	24	220	≤250

参数及标准 Working principle

型　号 TYPE	SPL-R-8	SPL-R-10	SPL-R-12	SPL-R-14
外形尺寸 Outer dimension(MM) (L×W×H)	4530×2200×2120	5060×2200×2120	5590×2200×2120	6130×2200×2120
房内尺寸Internal dimension(MM) (L×W×H)	2140×1900×1970	2670×1900×1970	3200×1900×1970	3740×1900×1970
房门尺寸 Door dimension(MM) (W×H)	1900×1970	1900×1970	1900×1970	1900×1970
工作温度 Working temperature	450~500（℃）			
耗气量 Gas consumption （NM³/炉）	25-30	30-35	35-40	40-45
运行噪声 Running noise(DB)	<70			
总耗电量 Total power consumption(KW/H)	5			
随机风管 Radom air pipe(M)	2			

注：外形尺寸未包括燃烧机，本数据仅供参考，由于产品的不断改进，数据会有所变化，恕不另行通知。

Remark: the above data is for reference only,and it is subject to any change according to the improvement of the products,without prior notice.

SPR-R型热洁炉系统
SPR-R hot cleaning furnace system

概　述 General

热洁炉,又称为涂层剥离装置，是我公司拥有自主知识产权创新的高科技环保产品。主要用于处理喷涂行业挂具，油漆工装上已固化的漆膜，金属部件上的各种涂层等。由于采用了我公司独创的热能回收装置和空气洗涤装置及热能大循环装置，各性能指标在国内外同行业产品中均处于领先地位，完全符合中国GB16297-1996《大气污染物综合排放标准》规定允许排放浓度要求。热洁炉超脱于传统上人们用的手工清理法、焚烧法、化学清理法、高压水清理法带来的成本高、有毒性、给操作者造成伤害、工件变形大、造成环境污染等问题。使用热洁炉不但成本低，劳动强度小，工件变形小，而且无毒性，无污染，由PLC控制的五重保护，保证了热洁炉运行的安全。

Hot clean furnace, also known as coating peeling device,We have independent intellectual property right and innovation of the high-tech environmental protection products. Mainly used in processing hanging fixture in spraying industry , paint film has formed on tooling, metal parts on the various coating, etc. Due to use our unique thermal energy recovery device,air washing device and heat energy circulation device, various performance indicators are in a leading position in the domestic and foreign products,accord with China GB16297-1996 < atmospheric pollutants comprehensive discharge standards> the permission of the concentration requirements. Hot furnace detach from traditional manual cleaning method,burning method, chemical cleaning method, high pressure water cleaning method which brings the high cost and the toxic,operator hurted,the workpiece deformation and environmental pollution. Use clean hot furnace not only low cost,the labor intensity is also small, the deformation small and non-toxic, no pollution, controlled by PLC , those five heavy protections, ensure the safely operation of hot clean furnace.

工作原理 Working principle

待处理的工件，在炉腔内被高温加热到分解温度并保持足够长的时间，工件上涂层在高温分解下释放出的可燃有害气体，进入废气燃烧室，经过二次然烧，在近千度的高温下被完全分解，产生的热能再经过热能交换器换至炉腔内二次使用，被高温分解完成的气体，经过高压水舱内高压水清洗后达标排放。从排气管排出的仅是二氧化碳和水蒸汽组成的无色、无毒、无味的混合气体。工件上的有机物经过处理后成粉状的无机物，掉入炉腔底部，少量残留灰尘可用刷子清除或清水冲洗干净。

The workpiece which need to be processed,is heated to a high temperature in the oven cavity to the decomposition temperature and keep long enough,Coating of the workpiece release flammable pyrolysis gases under the high temperature,go into the waste gas combustion chamber,through secondary combustion, is complete decomposition at nearly one thousand degree high temperature,the produced heat energy is changed to oven cavity by heat exchanger for secondary use,the gas which is complete decomposed by high temperature,will be exhaust standardly after washed by high-pressure water in the high-pressure water tank.The gas which mistured with water vapor and carbon dioxide exhaust from exhaust gas duct ,the gas is colorless, non-toxic and odorless.Organic matter on the workpiece become powdery inorganic substances after treated,fall into the bottom ash collection tray,small amount of residual dust and use brush or water washing,then it will be clean.

产品用途 Product function

1、清理去除喷涂挂具、夹具上不断加厚的涂层，而不改变挂具的机械 性能。
2、清理钢铁件、钣金件、铝制品零部件表面不合格油漆或粉未涂层。而工件不变形无损伤。
3、清除水帘喷漆柜的过滤网、地面格栅、通风管道、风机叶轮粘附漆层。
4、清理去除电线、电缆、变压器、电机、印刷滚轮上的树脂及粘附有机物。
5、清理去除发动机、曲轴、箱体、活塞环等零部件上油脂、油污等有机物。

1.Remove the coating layer of hanging tool and plating rack, and not change the mechanical performance of hanging tool.
2.Remove the unqualified paint and powder coating layer on steel,sheet metal part, aluminum parts, and the workpiece without distortion and harm.
3.Remove the adhesive layer on filter of water curtain spray cabinet, ground row grid,air Conduct,impeller of fan.
4.Remove the adhesive organics on wire,cable,transformer,motor,resin on printing roller.
5.Remove the oil,grease on motor,bent axle,piston ring and other spare parts.

概　述 General

本设备以物化与生化的结合的主体工艺，以化学反应（包括芬顿氧化等）为辅助工艺，处理涂装废水。本设备为专业定制设备，无固定型号尺寸，针对不同类型的涂装废水需要针对性设计、制作。

This equipment main process is a combination of biochemical and physico-chemical,Chemical reactions (including Fenton oxidation, etc.) as a secondary process,solving painting waste water.This equipment is customized,no fixed dimensions,different painting waster water,need different design and produce.

工作原理 Working principle

废水收集至综合废水调节池，均化水质、水量后由泵提，调节ph后进行混凝沉淀，上清液再经过混凝气浮，去除大部分污染物后的废水进入生化池进行厌氧、好氧反应。生化池出水经沉淀过滤后达标排放。

Waste water is collected to the comprehensive waste water regulation pool,will lift by bump after homogenized water quality and capacity,Coagulating sedimentation after adjusting ph,The supernatant through flotation,waste water remove most contaminants entering the biochemical pool,then do anaerobic and aerobic reactor.Biochemical tank discharge water standardly after filtered.

用　途 Function

适用于处理涂装废水，涂装废水主要来自于预脱脂、脱脂、表调、磷化、钝化等车身前处理工序；阴极电泳工序和中涂、喷面漆工序，涂装废水中含有树脂、表面活性剂、重金属离子、颜料等污染物，特别是其中的电泳废水、喷漆废水成份复杂，浓度高，可生化性差。

Use for treating the painting waste water,painting waste water mainly from the pre-degreasing, degreasing, table transfer, phosphate, passivation treatment step and other car body pretreatment process;Cathodic electrodeposition processes, middle painting,surface painting process and paint waster water containing coating resins, surfactants, heavy metals, pigments and other pollutants,especially for electrophoretic waste water, painting waste water with complex composition, high concentrations and poor biodegradability.

SPL型系列涂装水处理设备
SPL series Painting Water Treatment Equipment

特　点 Working principle

1、先进性：技术可靠，选用目前先进成熟技术或已有成功经验的治理技术。针对废水水质特点，采用适当的处理措施达到预期的处理效果。
2、实用性：因地制宜、设计合理。选用适当、合理的高程控制，尽量减少废水的提升，降低工程造价和运行成本。
3、可靠性：尽量精简、优化设备，选用国内外知名品牌。装置运行稳定可靠，采用时间自动控制，各工艺运转得到有效监控，处理出水稳定达标，便于维护管理。
4、高性价比：精心设计，做到投资省，运行费用低，工程性能优良。
5、高安全性：强化风险事故防范措施，做到布局合理、环境协调、功能完善。

1.Advanced: technology is reliable, advanced and mature,we use the successful experience of the existing control technology.According to waste water features, use appropriate action to achieve the desired treatment effect.
2.Practicality:local conditions, reasonable design. Select appropriate and reasonable elevation control, to minimize the upgrade of waste water, reduce project cost and operating costs.
3.Reliability:as concise as possible, optimizing the equipment, selected domestic and international famous brands. Device is stable and reliable,use the automatic time control, monitor each process running efficiently, treated water compliance and stability, easy maintenance and management.
4.Cost-effective: well-designed, so save investment, low operating costs, excellent engineering performance.
5.High security:Strengthen risk accident prevention measures to achieve a reasonable layout, environmental and functional.

参数及标准 Parameters and standards

出水执行《污水综合排放标准》（GB8978-1996）
Emission Standards "Integrated Wastewater Discharge Standard" (GB8978-1996)

污染物 Pollutants	PH	色度（稀释倍数） chroma(dilution)	悬浮物SS suspended solids SS	化学需氧量（COD） chemical oxygen	石油类 petroleum	氨　氮 ammonia nitrogen	磷酸盐（以P计） phosphate(P)	元素磷 elemental phosphorus
一级标准 Primary standard	6—9	50	70	100	5	15	0.5	0.1
二级标准 Secondary standard	6—9	80	150	150	10	25	1	0.1
三级标准 Level 3 standard	6—9	—	400	500	20	—	—	0.3