GFC 波纹催化剂 GFC corrugated catalyst

产品特点 Product Features

- 波纹成型，通体具有活性
- 高强度玻璃纤维，重量非常轻
- 应用温度范围大：300℃ -450℃
- SO2 氧化率低
- 脱硝效率高，可达 90% 以上
- 氨逃逸 <3ppm
- 抗堵塞性好
- 催化剂内部压降很低
- 比表面积大
- 抗中毒效果非常好
- 催化剂生产时间短
- 模块化组装，具有互换性

- Ripple forming, the whole body has activity
- High strength fiberglass, very lightweight
- Wide application temperature range: 300 ℃ -450 ℃
- Low SO2 oxidation rate
- High denitrification efficiency, reaching over 90%
- Ammonia escape<3ppm
- Good anti clogging performance
- The pressure drop inside the catalyst is very low
- Large specific surface area
- The anti poisoning effect is very good
- Short catalyst production time
- Modular assembly with interchangeability



GFC 波纹催化剂技术参数

Technical parameters of GFC corrugated catalyst

波纹催化剂 Ripple catalyst							
规格型号 Specification and model	GFC-15	GFC-20	GFC-25	GFC-30	GFC-40	GFC-50	GFC-75
嵴底长度 /mm Ridge base length	16	15	9.5	8.5	7.5	4.8	3.6
壁厚 /mm Wall thickness	0.9	0.9	0.6	0.4	0.4	0.3	0.3
高度 /mm Height	9	6.6	5.5	4.5	3.4	2.8	1.8
比表面积 /m^2/m^3 Specific surface area	458	596	660	772	1048	1250	1600
开孔率 /% Porosity	77	70	76	80	75.5	75	74
使适用行业 Make applicable industries	燃煤、工业窑炉 Coal fired and industrial kilns		燃油、燃气等低尘气体 Low dust gases such as fuel and gas		燃气及无尘气体 Gas and dust-free gas		



钢铁行业 Steel industry
- 焦化 Coking
- 球团 Team
- 烧结机 Sintering machine
- 轧钢 Rolling steel

Non-ferrous metal 有色金属
- 锂盐 Lithum salt
- 铬酸盐 Chromate
- 氧化铝 Aluminum oxide
- 炼硅 Silicon refining
- 炼锌 Zinc smelting
- 镁业 Magnesium industry

市政行业 Municipal industry
- 垃圾焚烧 Garbage incineration
- 生物质 Biomass
- 废液焚烧 Waste liquid incineration
- 燃气供暖锅炉 Gas heating boiler

Steel industry 交通行业
- 燃气轮机 Gas turbine
- 柴油机 Diesel engine
- 船舶 Ship

建材行业 Building materials industry
- 玻璃 Glass
- 耐火材料 Refractory materials
- 水泥 Cement
- 造纸 Paper making
- 陶瓷 Ceramics
- 石灰窑 Lime kiln

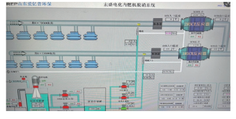
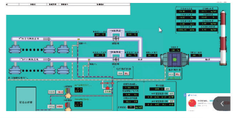
Petroleum/Chemical Industry 石油 / 化工
- 草酸生产 Oxalic acid production
- 硝酸生产 Production of nitric acid
- 不锈钢酸洗 Stainless steel pickling
- 催化剂辊道窑 Catalyst roller kiln
- 石油催化裂化（FCC）重油提取 Oil catalytic cracking (FCC) heavy oil extraction
- WSA 湿法制酸 WSA wet acid production

Performance Table of Partial Gas Turbine Exhaust Ultra Low Emissions

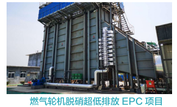
部分燃气轮机尾气超低排放业绩表

客户单位名称 Customer unit name	供货范围 Scope of supply	投运时间 Operation time
山东济矿民生热能有限公司 Shandong Jikuang Minsheng Thermal Energy Co., Ltd	催化剂 Catalyst	2017
中国华电科工集团有限公司 China Huadian Technology&Industry Group Co., Ltd	氨区系统 Ammonia zone system	2018
PTT 公共有限公司 PTT Public Limited Company	催化剂 Catalyst	2018
中海石油（中国）有限公司湛江分公司 CNOOC (China) Co., Ltd. Zhanjiang Branch	全套装置 Complete device	2020
浙江天地环保科技股份有限公司 Zhejiang Tiandi Environmental Protection Technology Co., Ltd	催化剂 Catalyst	2021
金能科技股份有限公司 Jinneng Technology Co., Ltd	催化剂 Catalyst	2022
上海智生环保技术工程有限公司 Shanghai Zhisheng Environmental Protection Technology Engineering Co., Ltd	催化剂 Catalyst	2022
广东应天环保设备有限公司 Guangdong Yingtian Environmental Protection Equipment Co., Ltd	催化剂 Catalyst	2023
山东中拓新能源有限公司 Shandong Zhongtuo New Energy Co., Ltd	催化剂 Catalyst	2023
浙江石油化工有限公司 Zhejiang Petrochemical Co., Ltd	催化剂 Catalyst	2023
中海石油（中国）有限公司深圳分公司 CNOOC (China) Limited Shenzhen Branch	全套装置 Complete device	2024
中海石油（中国）有限公司深圳分公司 CNOOC (China) Limited Shenzhen Branch	全套装置 Complete device	2024
乌兰察布市雄伟光大新材料有限公司 Ulanqab Xiongwei Guangda New Materials Co., Ltd	催化剂 Catalyst	2024
海南义达惠供应链管理有限公司 Hainan Yidahui Supply Chain Management Co., Ltd	全套装置 Complete device	2024

业绩案例 Performance Case


中海油澄洲岛终端燃气脱硝项目


燃气轮机脱硝超低排放 EPC 项目（15mg/Nm³,15%O₂）


中海油高栏模琴项目


澄洲终端厂 Typhoon73 型和 UGT6000 型燃气轮机燃气轮机组低碳排放 SCR 脱硝项目

AIREP 爱亿普环保
AIR Environmental Protection



致力于为客户提供稳定可靠、节能高效的环保产品和技术服务
Committed to providing customers with stable, reliable, energy-saving and efficient environmental protection products and technical services

燃气轮机尾气超低排放解决方案

SCR catalyst for gas turbon

爱亿普官方网站 | 爱亿普微信公众号 | 爱亿普抖音号

山东爱亿普环保科技股份有限公司
Shandong AIREP Environmental Technology Co., Ltd.
地址：山东省淄博市桓台县城东寿济路前毕工业园
QianBi Industrial Park,Suozhen,Huantai,Zibo,Shandong,China.
联系电话（TEL）：0533-8795869 400-688-6286
传真（FAX）：0533-8101987
邮箱（Email）：airep.sd@airep.cn
公司官网（WEB）：www.airep.cn














●爱亿普环保成立于 2012 年，专注于烟气氮氧化物治理，是具备脱硝催化剂研发、生产、脱硝系统集成的国家高新技术企业、国家专精特新小巨人企业、工信部环保装备制造业规范条件企业、山东省瞪羚企业。

主营业务：SCR 蜂窝脱硝催化剂、SCR 板式脱硝催化剂、SCR 分子筛脱硝催化剂、SCR 波纹脱硝催化剂；烟气脱硝系统设计及集成；高温除尘脱硝一体化产品及设备等。

●生产能力：SCR 蜂窝脱硝催化剂 10000m³/ 年；板式催化剂 6000m³/ 年；波纹板催化剂 1000m³/ 年；高温分子筛催化剂 1000m³/ 年。目前在电力、钢铁、水泥、玻璃、化工、内燃机、船舶、分布式能源等领域完成脱硝项目千余个，是中石化、中石油、中海油系统入网合格供应商、中国烟气污染治理创新联盟会员单位。

●公司以科技创新为驱动，年度研发投入占比 6.5% 以上，申请了 40 余项专利技术。现有自主专利产品可涵盖温度从 150℃低温到 600℃高温烟气条件下的脱硝需求，并可提供 50 孔、60 孔及更高孔数的高效整体成型催化剂。公司经过多年的技术积累，在脱硝催化剂领域已经形成了自己独特的技术优势，具备丰富的技术储备，掌握了高效全面的脱硝催化剂生产技术。公司自主研发的低温脱硝催化剂技术、中温脱硝催化剂技术、高温脱硝催化剂技术、一氧化碳脱除技术、高温除尘脱硝一体化等技术已经成功应用于钢铁冶金、水泥建材、电力、玻璃、生物质发电等多个行业。

AIREP Environmental Protection was established in 2012, focusing on the treatment of nitrogen oxides in flue gas. It is a national high-tech enterprise with the research and development, production, and integration of denitrification catalysts, a national specialized and new small giant enterprise, a standardized enterprise for environmental protection equipment manufacturing by the Ministry of Industry and Information Technology, and a gazelle enterprise in Shandong Province.

Main business: SCR honeycomb denitrification catalyst, SCR plate denitrification catalyst, SCR molecular sieve denitrification catalyst, SCR corrugated denitrification catalyst; Design and integration of flue gas denitrification system; Integrated products and equipment for high-temperature dust removal and denitrification.

Production capacity: SCR honeycomb denitrification catalyst 10000m ³/year; Plate catalyst 6000m ³/year; Corrugated plate catalyst 1000m ³/year; High temperature molecular sieve catalyst 1000m ³/year. At present, we have completed over a thousand denitrification projects in the fields of electricity, steel, cement, glass, chemical engineering, internal combustion engines, ships, distributed energy, etc. We are a qualified supplier for Sinopec, PetroChina, and CNOOC systems and a member of the China Smoke Pollution Control Innovation Alliance.

The company is driven by technological innovation, with an annual R&D investment of over 6.5%, and has applied for more than 40 patented technologies. The existing independent patented products can cover the denitrification needs under flue gas conditions ranging from low temperature of 150 ℃ to high temperature of 600 ℃ , and can provide efficient integral forming catalysts with 50, 60, and higher pore numbers. After years of technological accumulation, the company has formed its own unique technological advantages in the field of denitrification catalysts, with rich technical reserves and mastery of efficient and comprehensive denitrification catalyst production technology. The company's independently developed low-temperature denitrification catalyst technology, medium temperature denitrification catalyst technology, high-temperature denitrification catalyst technology, carbon monoxide removal technology, high-temperature dust removal and denitrification integration technology have been successfully applied in multiple industries such as steel metallurgy, cement building materials, power, glass, biomass power generation, etc.










SCR 蜂窝脱硝催化剂

SCR honeycomb denitrification catalyst

核心技术优势 Core technological advantages

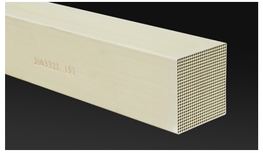
●全新优质原材料生产，杜绝使用废旧再生料，保证催化剂内在品质，性能稳定，使用寿命长。
●催化剂选型根据烟气条件非标定制，国际权威数据库验算支持。
●适用温度窗口宽（150℃ -600℃ ）
●高比表催化剂反应速率快，氨逃逸率低，不产生二次污染。
●强度高，机械寿命可达 10 年。
●催化剂模块可根据项目要求非标定制，交付周期短。

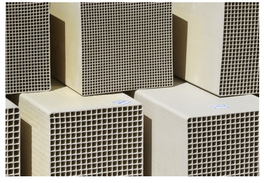
●Production of brand new high-quality raw materials, eliminating the use of waste recycled materials, ensuring the intrinsic quality, stable performance, and long service life of catalysts.
●Catalyst selection is customized according to non-standard flue gas conditions and supported by international authoritative databases for verification.
●Applicable temperature window width (150 ℃ -600 ℃)
●High specific surface catalyst has a fast reaction rate, low ammonia escape rate, and does not produce secondary pollution.
●High strength, with a mechanical lifespan of up to 10 years.
●The catalyst module can be customized according to project requirements and has a short delivery cycle.

产品特点 Product Features

- 整体成型，通体具有活性
- 具有自主知识产权
- 适应温度范围广（200~450℃ ）
- 脱硝效率高，可达 90% 以上
- SO_2 氧化率 <1%
- 氨逃逸率 <3ppm
- 催化剂化学寿命 >24000h
- 耐磨损，机械寿命 >10 年
- 模块化组装，具有互换性

- Integrated molding, with activity throughout the body
- Possess independent intellectual property rights
- Suitable for a wide temperature range (200-450 ℃)
- High denitrification efficiency, reaching over 90%
- SO_2 oxidation rate<1%
- Ammonia escape rate<3ppm
- Catalyst chemical life>24000h
- Wear resistant, mechanical life>10 years
- Modular assembly with interchangeability





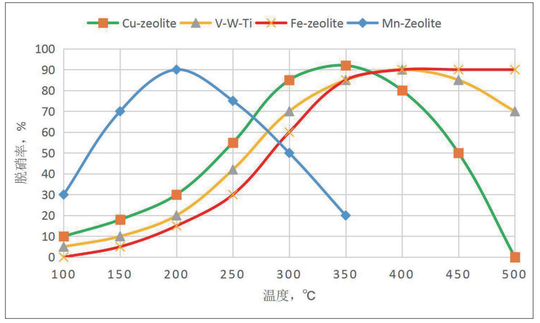
蜂窝脱硝催化剂参数

Parameters of Honeycomb Denitrification Catalyst

规格型号 Specification and model	AIREP-13	AIREP-16	AIREP-18	AIREP-20	AIREP-22	AIREP-25	AIREP-30	AIREP-35	AIREP-40	AIREP-50	AIREP-60	AIREP-90
截面尺寸 /mm Dimension Dimension	150	150	150	150	150	150	150	150	150	150	150	150
孔数 /K Number of holes	13	16	18	20	22	25	30	35	40	50	60	90
节距 /mm Pitch	11.2	9.2	8.2	7.4	6.7	5.9	4.9	4.2	3.7	3	2.5	1.8
内壁厚 /mm Inner wall thickness	1.6	1.2	1.1	0.9	0.9	0.8	0.65	0.6	0.5	0.45	0.4	0.3
孔径 /mm Aperture	9.6	8	7.1	6.5	5.8	5.1	4.3	3.6	3.2	2.5	2.1	1.33
比表面积 /m^2/m^3 Specific surface area	290	364	409	460	499	567	686	791	914	1121	1331	1915
开孔率 /% Porosity	70	73	72	74	72	72	73	72	73	71	69	64
使适用行业 Make applicable industries	水泥 Cement	燃煤电厂、工业窑炉 Coal fired power plants, industrial kilns				玻璃、焦化、钢铁 Glass, coking, steel		燃气锅炉、燃气轮机、燃气燃油内燃机 Gas boilers, gas turbines, gas fuel internal combustion engines				

新型分子筛脱硝催化剂

New molecular sieve denitrification catalyst






我公司自主研发了耐高温性能优良且具有较好低温活性的分子筛脱硝催化剂。该催化剂活性温度窗口宽（300~600℃），氮氧化物脱除效率达到 90% 以上，在水蒸气和 SO_2 存在的条件下仍然可以保留良好的活性。目前，我公司研发的燃气分布式能源脱硝系统已经在江苏某数据中心等多个天然气分布式能源站脱硝项目中成功应用，NOx 排放浓度达到 20mg/Nm3 以下的近零排放指标。

Our company has independently developed a molecular sieve denitrification catalyst with excellent high-temperature resistance and good low-temperature activity. The catalyst has a wide active temperature window (300-600 ℃), with a nitrogen oxide removal efficiency of over 90%. It can still maintain good activity in the presence of water vapor and SO2. At present, the gas distributed energy denitrification system developed by our company has been successfully applied in multiple natural gas distributed energy station denitrification projects, including a data center in Jiangsu. The NOx emission concentration has reached the near zero emission standard of 20mg/Nm3 or below.

我公司自主研发的分子筛催化剂与传统钒钛基催化剂的对比如下：

The comparison between our independently developed molecular sieve catalyst and traditional vanadium titanium based catalyst is as follows:

性能 Performance	V-W-Ti 催化剂	Cu-Zeolite	Fe-Zeolite	Mn-Zeolite
活性温度范围 Active temperature range	180~420	150~480	280~600	120~300
NOx 转化效率 NOx conversion efficiency	中温效率高 High efficiency at medium temperature	中低温效率高 High efficiency at medium and low temperatures	高温效率高 High temperature efficiency	低温效率高 High low-temperature efficiency
抗高温性能 High temperature resistance performance	不耐高温，超过 420 度长时间迅速失活 Not resistant to high temperatures, quickly deactivated after exceeding 420 degrees for a long time	耐高温，高温下选择性差 High temperature resistance, poor selectivity at high temperatures	高温性能高 High temperature performance	抗耐高温性能差 Poor resistance to high temperatures
耐硫性 sulfur tolerance	耐硫性好 Good sulfur resistance	耐硫性差 Poor sulfur resistance	耐硫性一般 Moderate sulfur resistance	耐硫性差 Poor sulfur resistance