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德州懿丰环保有限公司

Dezhou Yifeng Environmental Protection Co., Ltd

蜂窝载体产品系列
Honeycomb substrate series

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公司简介

Company profile



德州懿丰环保有限公司

德州懿丰环保有限公司专注于汽油和柴油排气催化剂的研发、生产和销售，拥有多年的行业经验。主要产品包括催化剂、陶瓷载体、金属载体、三元催化转化器、蛭石膨胀衬垫、金属波纹管、柴油颗粒过滤器、柴油排气催化剂以及废气催化剂等。公司厂区面积达到2000平方米，配备先进的生产加工设备，可根据客户需求定制产品。

我们通过自主创新并引进国内外先进技术，持续吸收精湛工艺，确保汽油车和柴油车发动机排气净化装置（催化反应器）的多样性和高质量。公司已建立完善的现代化质量管理体系，产品通过了GB/T19001-2016/ISO9001:2015国际质量管理体系认证。我们按照国际标准精心配料，生产高质量浆料，所有设备和技术均符合国家标准。

公司拥有专业的研发和质量管理团队，始终坚持环保理念，专注于废气排放治理。作为一家荣获科技型中小企业称号的企业，我们真诚期待与所有关心和支持环保事业发展的伙伴们携手共进，共同创造更加绿色、蓝天的美好未来。



Dezhou Yifeng Environmental Protection Co., Ltd.

Dezhou Yifeng Environmental Protection Co., Ltd. specializes in the research, development, production, and sales of gasoline and diesel exhaust catalysts, with extensive industry experience. Our main products include catalysts, ceramic substrates, metal substrates, three-way catalytic converters, vermiculite expansion gaskets, metal flexible pipe, diesel particulate filters, diesel exhaust catalysts, and waste gas catalysts. The company's facility covers 2,000 square meters and is equipped with advanced production and processing equipment, enabling us to offer customized products tailored to customer needs.

We foster innovation by integrating advanced technologies from both domestic and international sources, continuously refining our craftsmanship to ensure the diversity and high quality of exhaust purification systems for gasoline and diesel engines. The company has established a modern quality management system, and our products are certified under the GB/T19001-2016/ISO9001:2015 international quality management standards. We produce high-quality slurry according to international standards, with all equipment and technology meeting national standards.

With a dedicated R&D and quality management team, we are committed to environmental protection and exhaust emission control. As a recognized science and technology-based small and medium-sized enterprise, we sincerely look forward to collaborating with those who share our commitment to environmental development, working together to create a greener and more sustainable future.

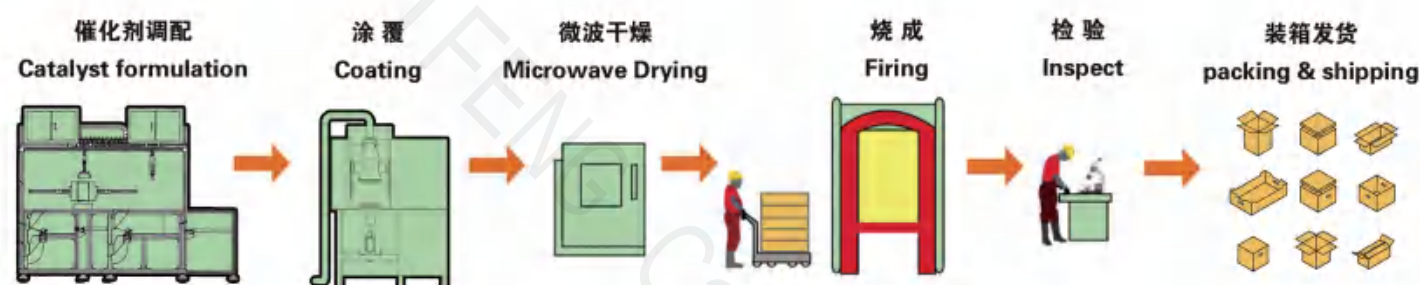
技术研发

TECHNICAL RESEARCH AND DEVELOPMENT

我司已经建立了标准化实验室，集检测和研发于一体，专注于改善产品性能并确保产品的稳定。配有专业设备进行山品涂敷、清洁、活化，确保催化剂的附着力与活性。拥有高端化学技术人才研发制备催化剂溶剂。致力于为客户供最优质的产品。

Our company has established a standardized laboratory that integrates both testing and R&D functions, focusing on improving product performance and ensuring product stability. The laboratory is equipped with specialized equipment for product coating, cleaning, and activation, ensuring optimal adhesion and catalytic activity of the catalysts. We also have a team of highly skilled chemical experts dedicated to the development and preparation of catalyst solvents. Our commitment is to provide customers with the highest quality products.

生产工艺流程 Production process flow

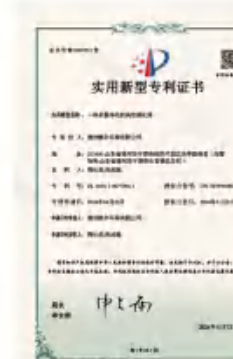
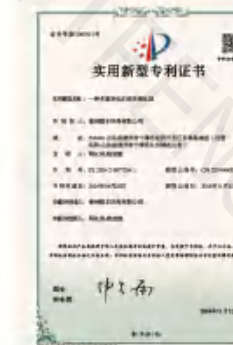
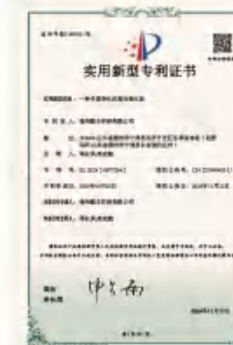
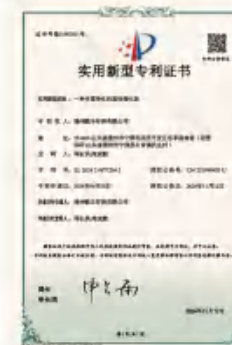
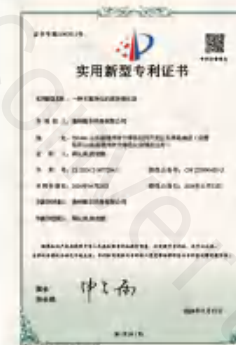
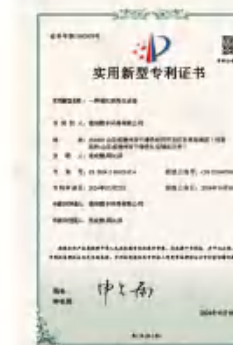
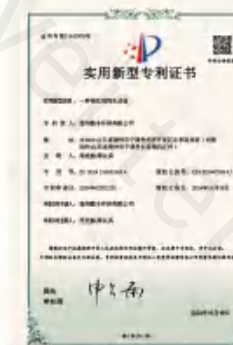
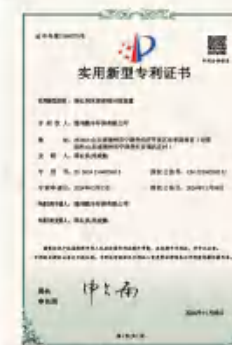
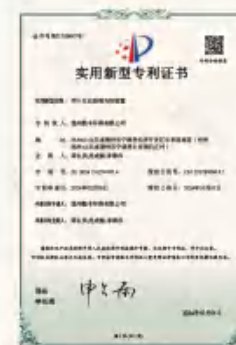
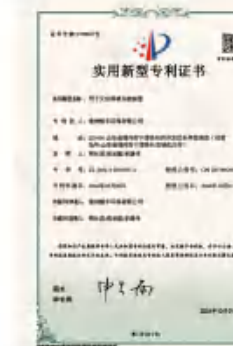
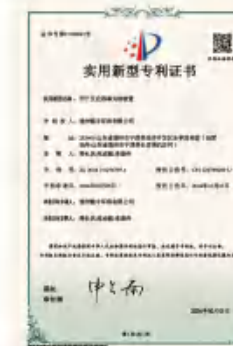


研发设备 Research and development equipment



资质证书

QUALIFICATION CERTIFICATE



蜂窝载体产品系列 | Honeycomb substrate series

汽油车TWC Gasoline car TWC

产品概述 | Product Overview

汽油车 TWC 使用堇青石质蜂窝陶瓷载体, 我司涂覆贵金属催化剂后可以帮助汽车提升动力, 减少油耗, 消灭 OBD 故障灯, 去除尾气异味等问题。通过催化作用将汽车尾气中的有害物质, 如一氧化碳 (CO)、碳氢化合物 (HC) 和氮氧化物 (NOx) 等, 转化为无害的二氧化碳 (CO₂)、水蒸气 (H₂O) 和氮气 (N₂)。

The TWC gasoline car uses a honeycomb ceramic substrate made of cordierite. After coating with precious metal catalysts, our company can help improve the car's power, reduce fuel consumption, eliminate OBD malfunction lights, and eliminate exhaust odors. By catalytic action, harmful substances in car exhaust such as carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NOx) are converted into harmless carbon dioxide (CO₂), water vapor (H₂O), and nitrogen (N₂).



基材特点 | Characteristics of substrate

- 背压小;
- 比表面积大;
- 抗压强度高;
- 热膨胀系数小;
- 吸水率一致性好;
- 耐热冲击性和热抗震性好;
- 具有和各种催化剂活性组份的良好匹配型。
- Low pressure drop;
- High surface area;
- High compressive strength;
- Low thermal expansion coefficient;
- Good consistency water absorption;
- Good heat shock resistance and heat vibration resistance;
- Ideal matching with various active components.

汽油车陶瓷载体常规尺寸 | Dimensions of Ceramic Carriers for Gasoline Vehicles

shape形状	Diameter(mm)	High(mm)	Cells	shape形状	Diameter(mm)	High(mm)	Cells
cylinder圆柱形	76.2mm/3"	≤152.4mm/6"	400/600	cylinder圆柱形	118mm/4.6"	≤152.4mm/6"	400/600
cylinder圆柱形	80mm/3.1"		400/600	cylinder圆柱形	120mm/4.7"		400/600
cylinder圆柱形	83mm/3.2"		400/600	cylinder圆柱形	123mm/4.8"		400/600
cylinder圆柱形	85mm/3.3"		400/600	cylinder圆柱形	127mm/5"		400/600
cylinder圆柱形	87mm/3.4"		400/600	cylinder圆柱形	130mm/5.1"		400/600
cylinder圆柱形	90mm/3.5"		400/600	cylinder圆柱形	144mm/5.6"		400/600
cylinder圆柱形	93mm/3.6"		400/600	elliptic 椭圆形	136mm*94mm		400/600
cylinder圆柱形	97mm/3.8"		400/600	elliptic 椭圆形	147mm*95mm		400/600
cylinder圆柱形	101.6mm/4"		400/600	elliptic 椭圆形	153mm*103mm		400/600
cylinder圆柱形	103mm/4.05"		400/600	Runway 跑道形	120mm*80mm		400/600
cylinder圆柱形	106mm/4.1"		400/600	Runway 跑道形	148mm*84mm		400/600
cylinder圆柱形	110mm/4.3"		400/600	Runway 跑道形	165mm*116mm		400/600
cylinder圆柱形	115mm/4.5"		400/600	All size can be customized			

产品性能指标 | Product performance index

项目			单位	标准值	测量方法
外形尺寸	直径		%	≤ ± 1	游标卡尺
	高度		%	≤ ± 1	游标卡尺
	目数		%	± 10	游标卡尺
	平行度		%	≤ ± 1	游标卡尺
	垂直度		%	≤ ± 1	游标卡尺
物化性能	化学成分	Al ₂ O ₂	%	35.4 ± 1.5	X荧光定量分析
		SiO ₂	%	49.7 ± 1.5	
		MgO	%	13.5 ± 1.5	
	抗压强度	A轴	Mpa	≥ 10.0	抗压强度仪
		B轴	Mpa	≥ 2.0	
		C轴	Mpa	≥ 0.2	
	软化温度		℃	≥ 1400	高温电炉
	吸水率		%	25 ± 2	重量法
	热膨胀系数		10 ⁻⁶ /℃	≤ 1.2	热膨胀系数仪
	抗热震性（550℃）		次	≥ 3	高温电炉

蜂窝载体产品系列 | Honeycomb substrate series

金属载体 Metal carrier

产品概述 | Product Overview

金属载体广泛应用于摩托车和汽车（汽油机和柴油机）排气系统。我们可以提供涂有 Pt、Pd、Rh 贵金属和不含贵金属的金属载体，并可以满足欧 I - VI、EPA 和 CARB 的排放标准。

金属载体钼数：100 钼 -900 钼

外壳材料：不锈钢

核心材料：铁铬铝

形状：圆形、椭圆形、跑道、矩形等特殊形状，可根据客户设计。

螺旋形芯：同芯、两芯、三芯

Metallic substrate are widely used in the exhaust systems of motorcycles and automobiles (gasoline and diesel engines). We can provide metal substrate coated with Pt, Pd, Rh precious metals and those without precious metals, it can meet the emission standards of Euro I-VI, EPA, and CARB.

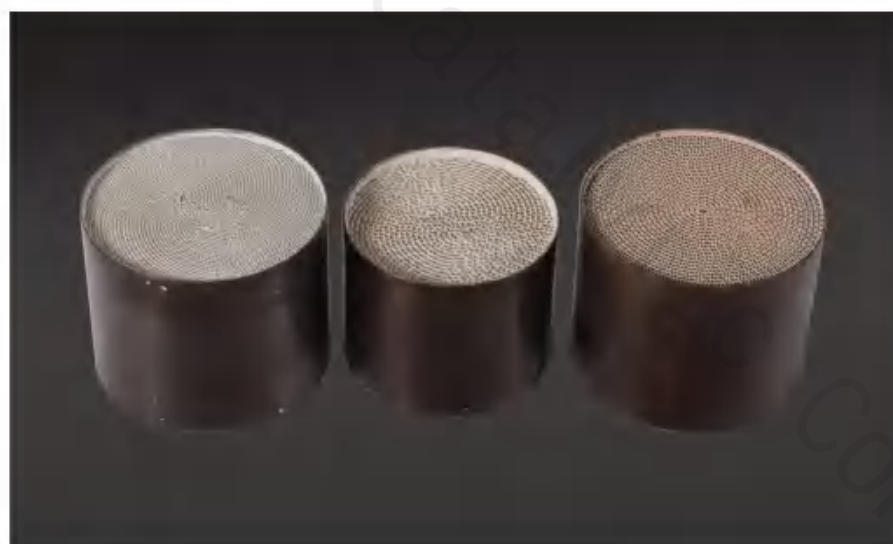
CPSI : 100 cpsi-900cpsi

Shell material: stainless steel

Core material: Iron chromium aluminum

Shape: Special shapes such as circles, ellipses, runways, rectangles, etc., can be designed according to customers.

Spiral core: 1core.2 cores.3 cores



金属载体常规尺寸 | Dimensions of Ceramic Carriers for Gasoline Vehicles

Metal substrate	CELLS	Cores
12*20mm	100-600	1-3
12*25mm	100-600	1-3
85*90*100mm	100-600	1-3
97*90*100mm	100-600	1-3
100*90*100mm	100-600	1-3
110*90*100mm	100-600	1-3
114*90*100mm	100-600	1-3
117*90*100mm	100-600	1-3
120*90*100mm	100-600	1-3
123*90*100mm	100-600	1-3
130*90*100mm	100-600	1-3
All size can be customized		

产品性能指标 | Product performance index

Thickness (mm)	0.04-0.1
Width (mm)	10-250
Main Chemical composition	Cr:19.0-22.0, Al:5.0-7.0, Fe:rest, Re:opportune
Max Working temperature	1100°C
Max Service temperature	1250°C
Thermal conductivity	63.2
Resistivity at 20°C	1.42
Density (g/cm ³)	7.16
Coefficient of line expansion	14.7
Melting point (approx)	1500
Tensile strength	630-780
Elongation at rupture	>12
Variation of area	65-75
Repeat bending frequency	>5
Hardness	200-260
Material	Fe-Cr-Alloy
Application	catalytic, converter carrier material

基材特点 | Characteristics of substrate

- 背压小;
- 热膨胀系数低;
- 气孔率高, 微孔分布均匀;
- 抗热震性和耐热冲击性好;
- 具有和各种催化剂活性组份的良好匹配型。
- Low pressure drop;
- Low thermal expansion coefficient;
- High porosity, uniform pore size distribution;
- Good heat shock resistance and heat vibration resistance;
- Ideal matching with various active components.

蜂窝载体产品系列 | Honeycomb substrate series

柴油DOC/SCR蜂窝陶瓷 Diesel DOC/SCR honeycomb ceramics

产品概述 | Product Overview

- DOC 使用堇青石质蜂窝陶瓷载体经过涂覆我司自主研发的贵金属催化剂，可以起到更好的催化还原作用，减少柴油车，发电机组，船舶等废气中的污染物排放。它能够将一氧化碳（CO）、碳氢化合物（HC）和氮氧化物（NO_x）等有害气体转化为无害的二氧化碳（CO₂）、氮气（N₂）和水（H₂O）。最终达到减少有害气体排放的目的。

DOC uses cordierite honeycomb ceramic substrate coated with our independently developed precious metal catalyst, which can achieve better catalytic reduction effect and reduce pollutant emissions from diesel vehicles, generator sets, ships and other exhaust gases. It can convert harmful gases such as carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NO_x) into harmless carbon dioxide (CO₂), nitrogen (N₂), and water (H₂O). The ultimate goal is to reduce harmful gas emissions.

- 选择性催化还原 SCR（铜基和钒基）是一种先进的排放控制技术，使用堇青石质蜂窝陶瓷载体涂覆我司贵金属催化剂可应用于柴油发动机、重型车辆和工业燃烧系统中，减少氮氧化物（NO_x）排放。SCR 系统通过向排气中喷射还原剂（尿素溶液），与 SCR 催化剂协同反应，将氮氧化物转化为无害的氮气（N₂）和水蒸气（H₂O），从而有效地降低排放污染。

Selective catalytic reduction (SCR) (copper based and vanadium based) is an advanced emission control technology that can be applied to diesel engines, heavy-duty vehicles, and industrial combustion systems by coating our company precious metal catalysts with ceramic honeycomb substrate, reducing nitrogen oxide (NO_x) emissions. The SCR system sprays a reducing agent (urea solution) into the exhaust, which reacts synergistically with the SCR catalyst to convert nitrogen oxides into harmless nitrogen gas (N₂) and water vapor (H₂O), effectively reducing emission pollution.



常规尺寸 | Conventional size

直径 Diameter	高度 Height	孔密度 Cell density
190mm/7.5"	≤200mm	100–400cpai
240mm/10.5"		
267mm/10.5"		
286mm/11.26"		
330mm/13"		
形状：椭圆、跑道圆尺寸形状可定制。 oval ,runway, OEM shape&size		

产品性能指标 | Product performance index

项目		单位	标准值	测量方法
外形尺寸	直径	%	≤ ± 1	游标卡尺
	高度	%	≤ ± 1	游标卡尺
	目数	%	± 10	游标卡尺
	平行度	%	≤ ± 1	游标卡尺
	垂直度	%	≤ ± 1	游标卡尺
化学成分	Al ₂ O ₃	%	35.4 ± 1.5	X荧光定量分析
	SiO ₂	%	49.7 ± 1.5	
	MgO	%	13.5 ± 1.5	
抗压强度	A轴	Mpa	≥ 10.0	抗压强度仪
	B轴	Mpa	≥ 2.0	
	C轴	Mpa	≥ 0.2	
物化性能	软化温度	℃	≥ 1400	高温电炉
	吸水率	%	25 ± 2	重量法
	热膨胀系数	10 ⁻⁶ /℃	≤ 1.2	热膨胀系数仪
	抗热震性 (550℃)	次	≥ 3	高温电炉

碳化硅产品性能指标 | Product performance index

性能指标	标准
气孔率 Porosity	40-50%
中值孔径 Mean pore size	12-18um
A轴抗压强度 Compressive Stren	> 10MPa
热膨胀系数 Thermal Expa Coef	< 4.7x10 ⁻⁶

基材特点 | Characteristics of substrate

- 背压小；
- 热膨胀系数低；
- 气孔率高，微孔分布均匀；
- 抗热震性和耐热冲击性好；
- 碳烟过滤效率高，适合再生利用。
- Low pressure drop;
- Low thermal expansion coefficient;
- High porosity, uniform pore size distribution;
- Good heat shock resistance and heat vibration resistance;
- High particulate trapping efficiency, adaptability to various modes of production

蜂窝载体产品系列 | Honeycomb substrate series

柴油机烟气颗粒过滤器DPF (堇青石/碳化硅)

Diesel engine exhaust particulate filter DPF (cordierite/silicon carbide)

产品概述 | Product Overview

柴油颗粒过滤器 (DPF) 是以堇青石或碳化硅为原料的一种壁流式蜂窝陶瓷, 柴油车发动机排出的尾气中含有的主要成分是碳的微粒, 微粒捕集器 (DPF) 是安装在柴油与汽车排气系统中, 通过过滤降低排气中颗粒物 (PM) 的装置, 其对碳粒的过滤效率可达 90% 以上, 可溶性有机成分 SOF (主要是高沸点 HC) 也能部分被捕集。微粒捕集器工作原理: 通过交替堵住蜂窝状多孔质陶瓷的孔两端, 利用陶瓷的壁孔来过滤除去 PM。

碳化硅比堇青石具有更好的耐热和耐腐蚀性, 更好的温度适应性, 更高的碳载量, 背压小, 热胀系数小, 抗压强度高, 产品一致性好的特点, 能够为客户提供更完善的尾气解决方案。

Diesel particulate filter (DPF) is a wall flow honeycomb ceramic made of cordierite or silicon carbide as raw materials. The main component of the exhaust gas emitted by diesel engines is carbon particles. The particulate filter (DPF) is installed in the diesel and automotive exhaust systems to filter and reduce particulate matter (PM) in the exhaust. Its filtration efficiency for carbon particles can reach over 90%, and soluble organic components (SOF) (mainly high boiling point HC) can also be partially captured. The working principle of the particle trap is to alternately block the two ends of the honeycomb shaped porous ceramic pores, and use the ceramic wall pores to filter and remove PM.

Silicon carbide has better heat and corrosion resistance, better temperature adaptability, higher carbon load, lower back pressure, lower thermal expansion coefficient, high compressive strength, and good product consistency compared to cordierite. It can provide customers with more comprehensive exhaust solutions.



常规尺寸 | Conventional size

直径 Diameter	高度 Height	孔密度 Cell density
118mm/4.66"	≤355mm	100/200cpa
127mm/5"		
144mm/5.66"		
190mm/7.5"		
228mm/9"		
240mm/9.5"		
267mm/10.5"		
279mm/11"		
286mm/11.26"		
305mm/12"		
330mm/13"		

堇青石产品性能指标 | Product performance index

项目			单位	标准值	测量方法
外形尺寸	直径		%	≤ ± 1	游标卡尺
	高度		%	≤ ± 1	游标卡尺
	目数		%	± 10	游标卡尺
	平行度		%	≤ ± 1	游标卡尺
	垂直度		%	≤ ± 1	游标卡尺
物化性能	化学成分	Al ₂ O ₂	%	35.4 ± 1.5	X荧光定量分析
		SiO ₂	%	49.7 ± 1.5	
		MgO	%	13.5 ± 1.5	
	抗压强度	A轴	Mpa	≥ 10.0	抗压强度仪
		B轴	Mpa	≥ 2.0	
		C轴	Mpa	≥ 0.2	
	软化温度		℃	≥ 1400	高温电炉
	吸水率		%	25 ± 2	重量法
	热膨胀系数		10 ⁻⁶ /℃	≤ 1.2	热膨胀系数仪
	抗热震性 (550℃)		次	≥ 3	高温电炉

碳化硅产品性能指标 | Product performance index

性能指标	标准
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中值孔径 Mean pore size	12-18um
A轴抗压强度 Compressive Stren	> 10MPa
热膨胀系数 Thermal Expa Coef	< 4.7x10 ⁻⁶

基材特点 | Characteristics of substrate

- 背压小;
- 热膨胀系数低;
- 气孔率高, 微孔分布均匀;
- 抗热震性和耐热冲击性好;
- 碳烟过滤效率高, 适合再生利用。
- Low pressure drop;
- Low thermal expansion coefficient;
- High porosity, uniform pore size distribution;
- Good heat shock resistance and heat vibration resistance;
- High particulate trapping efficiency, adaptability to various modes of praduction

应用领域 | application area



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