



We are Nano Pars Spadana

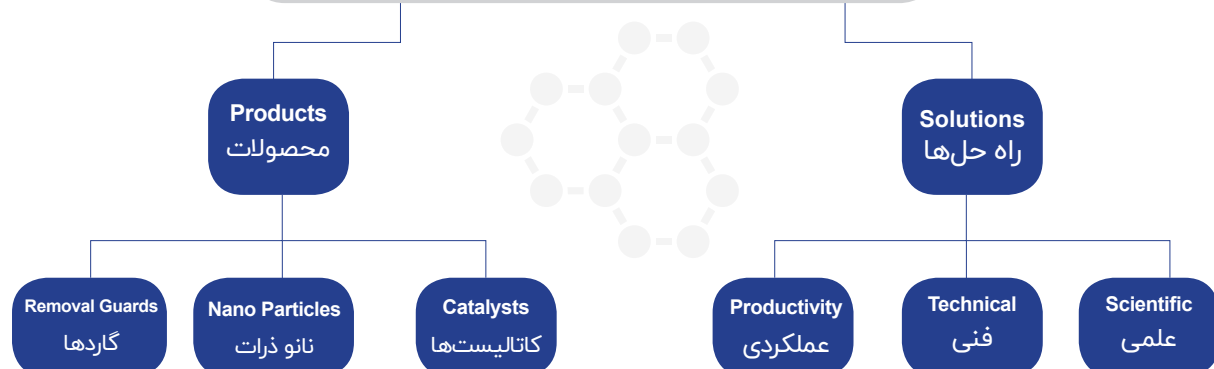
We Invent Our Own Method



NANO
PARS SPADANA

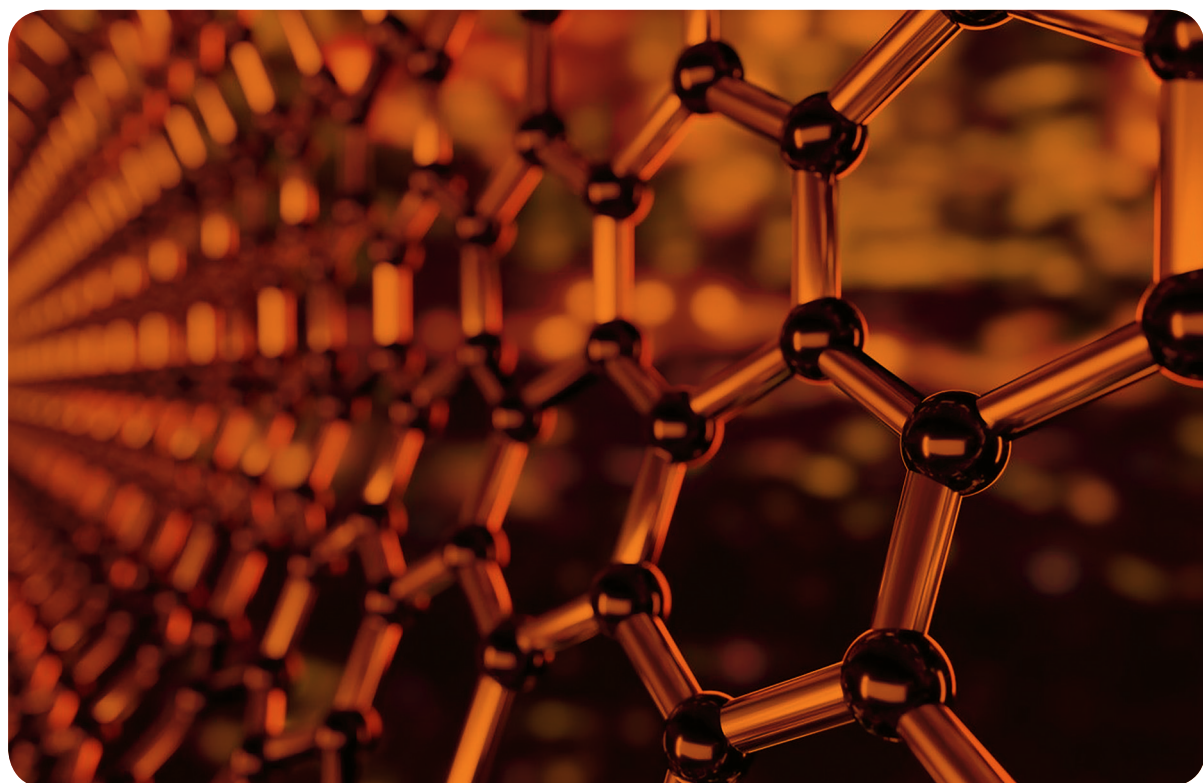
nano technology

مدل کسب و کار شرکت نانو پارس اسپادانا



ابداع و نوآوری هسته اصلی نانوپارس اسپادانا

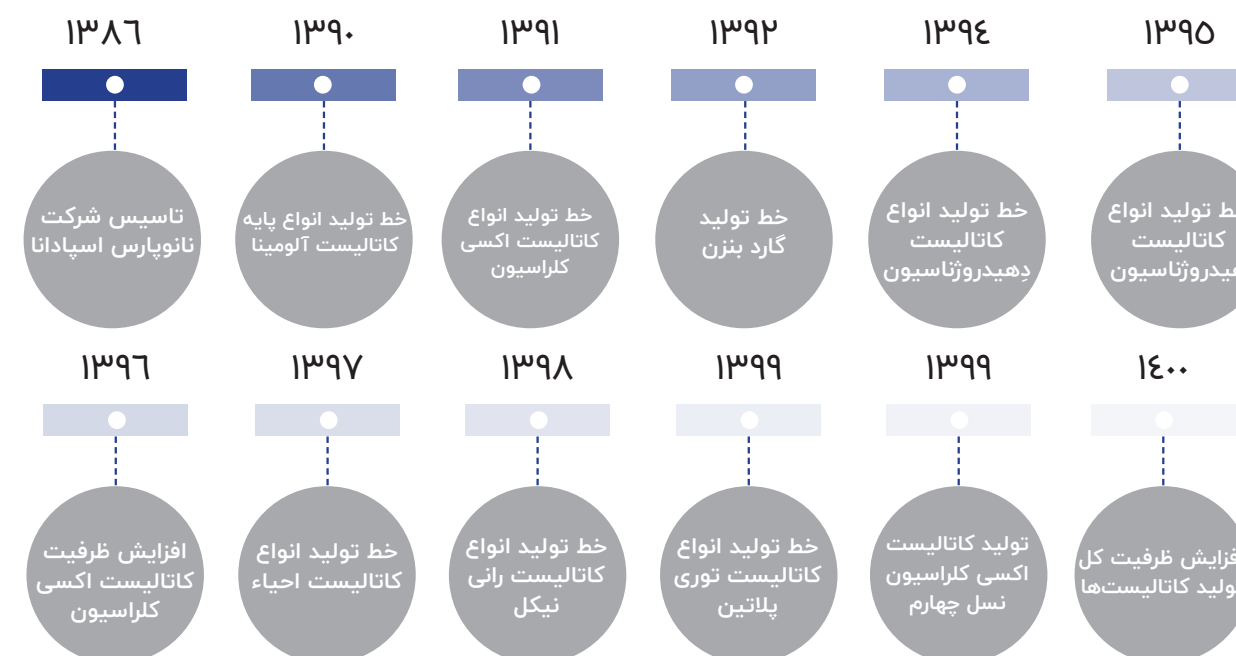
تیم پژوهشی نانوپارس اسپادانا متشکل از متخصصین خود در رشته‌های شیمی، متالورژی و فیزیک روش نوینی برای تولید نانوذرات ابداع نموده است که با نام روش SHOL شناخته می‌شود. مزایای قابل توجه این روش نسبت به سایر روش‌های موجود، گستردگی تعداد عناصر قابل تبدیل به نانوذرات، توانایی کنترل طیف وسیعی از پارامترهای واکنش، هموژن بودن ذرات تولید شده، قابلیت تولید انبوه و کاهش هزینه‌های تولید می‌باشد. تا کنون اکثر فلزات و شبه فلزات جدول مندلیف به صورت فلزی، اکسیدی و کمپلکس با این روش تولید شده‌اند.



از خلق دانش فنی، تا توسعه و تولید کاتالیست‌ها

کاتالیست‌ها و نانوذرات شرکت نانوپارس اسپادانا در صنایع زیر در حال مصرف هستند:

- صنعت نفت
- صنعت پتروشیمی
- صنعت خودروسازی
- صنایع نظامی
- صنعت داروسازی
- صنایع غذایی
- صنایع هسته‌ای



- رسالت ما نقش آفرینی کارآمد در زنجیره ارزشمند صنعت نفت و پتروشیمی و سایر صنایع با ارائه راهکارهای نوآورانه و متکی بر خلق دانش فنی است.
- خط مشی متخصصان این شرکت تولید کاتالیست‌های استراتژیک با هدف رفع گلوگاه‌های صنایع کشور می‌باشد.
- چشم انداز شرکت دستیابی به راهکارهای موثر در حذف یا کاهش آلاینده‌های زیست محیطی بر پایه ارتقا کیفیت محصولات و همگام با جنبش جهانی گرمایش زمین است.

افق پیش رو

- همکاری نزدیک با مراکز تحقیقاتی پیشرو جهانی به منظور تبادل آخرین دست آوردهای علمی و فنی.
- تقویت هسته پژوهشی شرکت به منظور آفرینش دانش فنی تکنولوژی‌های سبز از قبیل مهار و ذخیره کربن (CCS).

List of Our Products

Catalysts
Hydrogenation Catalysts
Hydrocracking
Hydrodesulfurization(HDS)
Acetylene Hydrogenation
Raney Nickel
Olefin to Paraffin
Dehydrogenation catalysts
Alkane Dehydrogenation
Methyl-Ethyl-Ketone Dehydrogenation
Oxychlorination Catalysts
OxyPars series for Fluidized Bed
OxyPars series for Fixed Bed
Gauze Catalyst
Industrial Grade
Food Grade
Pharmaceutical Grade
Reduction catalysts
Isomerization Catalysts
Removal Guards
Benzene Chlorination
Sulfur Guard
Nano-Particles
Gamma Alumina Supports of Catalysts
Nano Alpha Alumina supports of Catalysts
Nano Zinc Oxide
Nano Copper Oxide
Nano Iron Oxide
Customized Catalysts & Particles

مفتخریم که صنایع کلیدی پتروشیمی کشور در میان مشتریان ما هستند

ما در نانو پارس اسپادانا معتقد به ارتباط نزدیک با مشتریان خود به منظور ارائه راه حل‌های فنی - عملکردی می‌باشیم. همکاری‌های ما با مطالعه پروسه تولید مشتریان آغاز شده و با شناخت گلوگاه‌های تولید و یافتن راه حل‌های مناسب در قالب کاتالیست‌های بهینه ادامه می‌یابد. بازخوردهای مثبتی که تاکنون از مشتریانمان دریافت نموده‌ایم مشوقی برای ادامه این رویکرد پروسه محور بوده است که بدون شک در رشد و نمو مجموعه نانو پارس اسپادانا نقش بسزایی ایفا کرده است.



ما صنایع کشور را در زمینه ارائه راه حل‌های علمی، فنی و عملکردی یاری می‌کنیم

ما تا به امروز توانسته‌ایم در صنایع نفت، پتروشیمی، غذا و دارو طیف وسیعی از راه حل‌های علمی - فنی - عملکردی را به مشتریان خود ارائه دهیم. برخی از محورهای فعالیت مجموعه نانو پارس اسپادانا در زمینه ارائه راه حل به صنایع کشور شامل موارد زیر می‌باشد:

- افزایش خلوص مواد شیمیایی
- تولید نانو ذرات به منظور کاهش خوردگی تجهیزات صنعتی
- طراحی و اجرای پروژه‌های پایلوت
- طراحی و اجرای پروسه‌های شیمیایی - تولید مواد شیمیایی صنایع ویژه

برخی از پروژه‌های اجرا شده



(Hydrodesulfurization Catalyst (HDS))

Hydrodesulfurization is a valuable cornerstone in the modern refineries, aiming to reduce sulfur-containing compounds to produce cleaner end-products, by using heterogeneous metal catalysts at elevated temperatures and hydrogen pressures.

HDS Catalysts Contain a Mixture of Either Nickel and Molybdenum or Cobalt and Molybdenum.

Type	H2A-Ex	H2B-Ex
Form	Extrudate	Extrudate
Size-Length (mm)	5-8	5-8
Size-Diameter (mm)	1.5-3.6	1.5-3.6
Color	Blue	Blue
Surface Area (m ² /g)	120-200	120-200
Al ₂ O ₃ (%wt)	Balance	Balance
Co (%wt)	3.2-4	1.2-4
Mo (%wt)	12-19	2-5
Ni (%wt)	--	2-7
Promoters	Variant	Variant



We have the capacity to produce this product with different parameters .
For more details contact our experts .

Hydrocracking Catalyst

Hydrocracking is a chemical process used in petroleum refineries for converting high boiling hydrocarbons in petroleum crude oils to more valuable lower boiling products such as gasoline, kerosene, and diesel oil that operate at high temperature and pressure.

Hydrocracking catalysts are responsible for reducing temperature and pressure.

Type	H1A-Ex	H1A-Tr	H1B-Ex	H1B-Tr
Form	Extrude	Trilobed	Extrudate	Trilobed
Size-Diameter (mm)	1.5-2	1.5-2	1.5-2	1.5-2
Surface Area (m ² /g)	90-240	90-240	90-240	90-240
Al ₂ O ₃ (%wt)	Balance	Balance	Balance	Balance
NiO (%wt)	2.5-5.5	2.5-5.5	2.5-5.5	2.5-5.5
CoO (%wt)	-	-	3-6	3-6
WO ₃ (%wt)	19-30	19-30	19-30	19-30
Promoters (%wt)	<=1	<=1	<=1	<=1

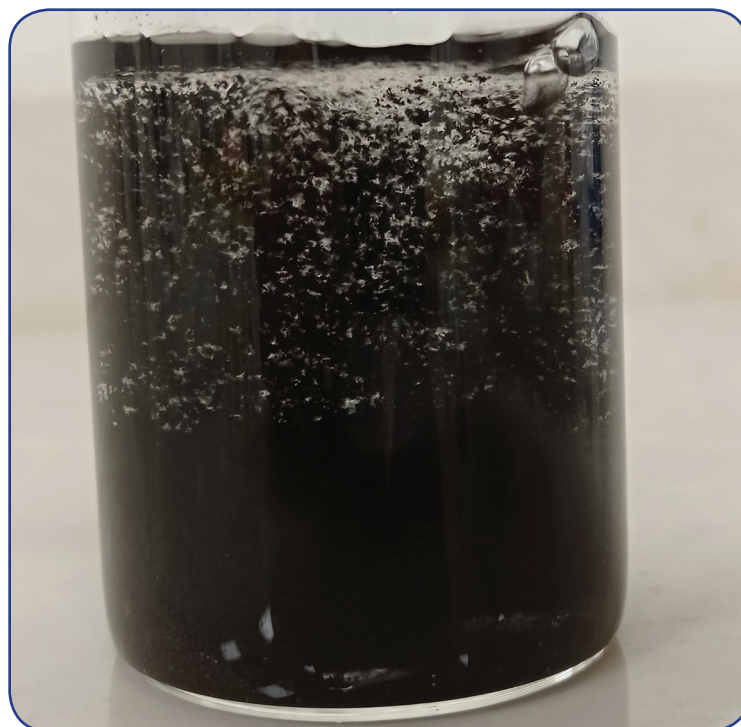


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For more details contact our experts .

Raney Nickel Catalyst Catalyst

A high catalytic activity, coupled with the fact that hydrogen is absorbed within the pores of the catalyst during activation, makes Raney nickel a useful catalyst for many hydrogenation reactions

Specification				
Type	H4A-Su	H4B-Su	H4C-Su	H4A-Ex
Form	Slurry in H ₂ O	Slurry in H ₂ O	Slurry in H ₂ O	Extrude in H ₂ O
Color	Grey Powder	Grey Powder	Grey Powder	Grey Extrude
Density (g/ cm ³)	~ 2	~2	~2	-
Particle Size (μ)	30-150	30-120	30-150	30-150
Ni (%wt)	92-95	92-95	92-97	92-95
Al ₂ O ₃ (%wt)	Max 7	Max7	Max7	Max7
MO (%wt)	max 0.2	max 0.2	max 0.2	max 0.2
PH of supernatant water	11±1	11±1	11±1	11±1



We have the capacity to produce this product with different parameters .
For more details contact our experts .

Acetylene Hydrogenation Catalyst

Ethylene cuts typically comprise 0.5%–2% of acetylene, which is a poison for the polymerization catalysts and should be removed by selective hydrogenation to ethylene.

Alumina-supported palladium catalysts are used for selective hydrogenation process, assuring very high activity and selectivity for acetylene hydrogenation. We offer catalysts for selective hydrogenation:

Type	H3C-Ex	H3B-Am	H3A-Sp
Form	Extrudate	Amorphous	spherical
Size Diameter (mm)	2-5	Variant	1.8-5
Color	Light brown	Dark brown	Light brown
Surface Area (m ² /g)	100-200	<1	100-200
Al ₂ O ₃ (after1000C)(%wt)	Min 99	-	Min 99
SiO ₂ (%wt)	-	Min 99	-
Pd (%wt)	0.15 -0.35	0.15 -0.35	0.15 -0.35



We have the capacity to produce this product with different parameters .
For more details contact our experts .

Methyl-Ethyl-Ketone Dehydrogenation Catalyst

Methyl-ethyl-ketone (MEK) is an industrial organic solvent that is characterized by suitable boiling point, good solubility, volatilization, stability and nontoxic. It is applied as a solvent in paint, dye, adhesives, magnetic tapes, pharmaceutical, and refining industries. Currently, most MEK is commercially produced using dehydrogenation of 2- butanol. The industrially used alcohol dehydrogenation catalysts are copper, brass and/or zinc-based. Our MEK catalysts provide higher productivity due to their lower temperature operation and minimum side reactions.

Specification	
Type	D2A-Ta
Form	Tablet
Size-Length (mm)	5-8
Size- Diameter (mm)	5-8
Color	Brown
Surface Area (m2/g)	40-160
Al ₂ O ₃ (%wt)	Balance
CuO (%wt)	15-45
ZnO (%wt)	2-15
SiO ₂ (%wt)	25-55
Promoters	Variant



We have the capacity to produce this product with different parameters .
For more details contact our experts .

Alkane Dehydrogenation Catalyst

Catalytic dehydrogenation of alkanes is an endothermic reaction, which occurs with an increase in the number of moles. This reaction cannot be carried out thermally because it is highly unfavorable compared to the cracking of the hydrocarbon. However, in the presence of a suitable catalyst, dehydrogenation can be carried out.

Type	D1A-Ex	D1A-Tr	D1A-Sp
Form	Extrudate	Trilobed	Spherical
Size (mm)	Variant	Variant	Variant
Surface Area (m ² /g)	150-220	150-250	150-250
Al ₂ O ₃ (%wt) (after1000C)	Min 99	Min 99	Min 99
Pt (%wt)	0.18-0.55	0.18-0.55	0.18-0.55
Promoters	Variant	Variant	Variant



We have the capacity to produce this product with different parameters .
For more details contact our experts .

OxyPars Series for Fixed Catalyst

There are many different commercial Oxychlorination processes in which the reactions is carried out either in fixed bed or fluidized bed reactor .

Based on extensive research, this catalyst is designed for optimal performance of Fixed Bed reactors.

Type		O2A-HE
Form		Hollow Cylindrical
Average size (mm)	Length	5-7
	Outside D	5
	Inside D	2
Color		Green
Surface Area (m ² /g)		120-180
Al ₂ O ₃ (%wt)		Balance
Cu (%wt)		4-10
Promoters		Variant



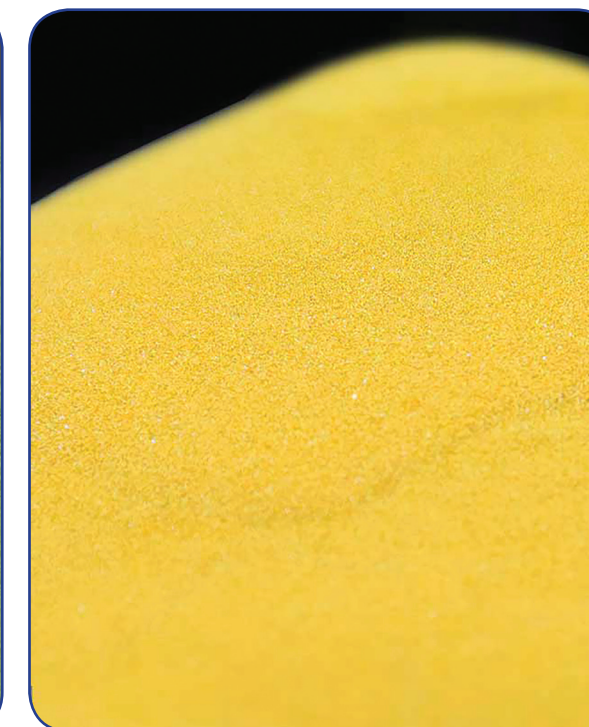
We have the capacity to produce this product with different parameters. For more details contact our experts.

OxyPars series for Fluidized Bed Catalyst

In Oxychlorination, ethylene reacts with dry HCL and either air or pure oxygen in heterogamous catalytic reaction to form EDC and water.

Our OxyPars series for Fluidized Bed is designed and manufactured based on an extensive research and it has been successfully applied in commercial units

Type		O1B1	O1A1	O1A4	O1B4
Surface Area (m ² /g)		120-180	100-160	110-150	110-150
Al ₂ O ₃ (%wt)		Balance	Balance	Balance	Balance
Cu (%wt)		9-13	3.5-4.2	4-4.5	10-13
Promoters		Variant	Variant	Variant	Variant
Form		Semi spherical powder	Micro spherical powder	Micro spherical powder	Micro spherical powder
Average size(μm)	<30 (%wt)	7	15	15	7
	30-120 (%wt)	85	82	82	85
	>120 (%wt)	8	3	3	8



We have the capacity to produce this product with different parameters. For more details contact our experts.

Reduction catalyst

Reduction catalyst is a means of converting nitrogen oxides (NOx) with the aid of a catalyst into diatomic nitrogen and water.

Reduction catalysts are made from various ceramic materials used as a carrier, such as titanium oxide. active catalytic components usually either oxides of base materials such as vanadium ,molybdenum and tungsten .

Specification	
Type	R1A-Ex
Form	Extrudate
Size-Diameter(mm)	4-5
Size- Length (mm)	5-10
Color	Greenish Yellow
Surface Area (m ² /g)	40 ± 5
V ₂ O ₅ (%wt)	8 ± 1
WO ₃ (%wt)	7 ± 0.5
TiO ₂ (%wt)	55 ± 5
Promoter (Al ₂ O ₃) (%wt)	19 ± 1



We have the capacity to produce this product with different parameters. For more details contact our experts.

Isomerization Catalyst

Reforming processes using platinum catalysts have become of major importance in petroleum refining. They enable the octane rating of Naphthas to be greatly increased, and are more economical than any other refining process for the production of high octane gasoline.

Type	I1A-Ex	I1A-Sp	I1A-Tr
Form	Extrudate	Spherical	Trilobed
Size (mm)	Variant	Variant	Variant
Surface Area (m ² /g)	150-220	150-250	150-250
Al ₂ O ₃ (%wt) (after1000C)	Min 99	Min 99	Min 99
Pt (%wt)	0.18-0.55	0.18-0.55	0.18-0.55
SnO ₂ (%wt)	0.25-0.50	0.25-0.50	0.25-0.50
Promoters	Variant	Variant	Variant



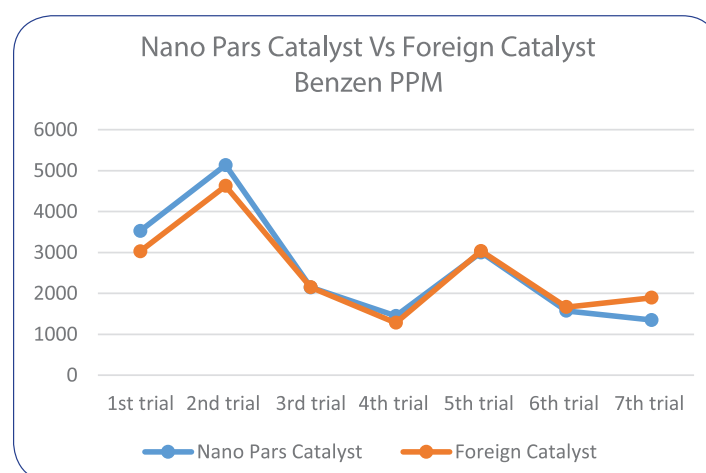
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Benzene Chlorination Catalyst

Benzene reacts with chlorine or bromine in an electrophilic substitution reaction, but only in the presence of a catalyst. The catalyst is either aluminum chloride or aluminum bromide.

Specification	
Type	RG1A-HE
Form	Hollow Cylindrical
Size-Length (mm)	5-11
Size-Out Diameter (mm)	4.5
Size-In Diameter (mm)	1.5
Color	white
Surface Area (m ² /g)	150-210
Al ₂ O ₃ (%wt)	Min 86
Promoters	Variant

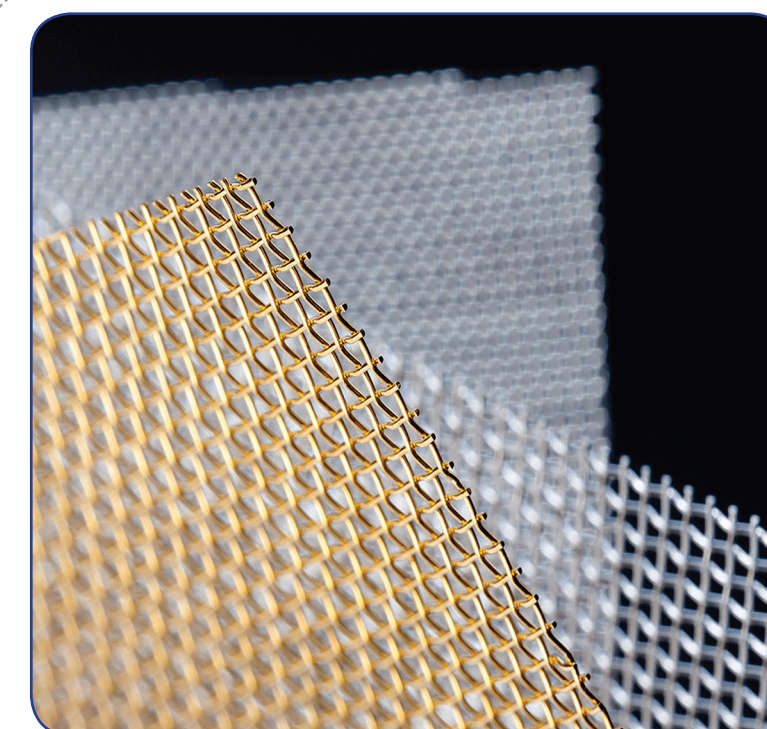


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Gauze Catalyst Catalyst

Precious metal gauzes are needed principally for the catalytic combustion of ammonia. they also employed for the production of cyanic acid (HCN).

Specification				
Type	G4A	G3A	G2A	G1A
Form	Gauze	Gauze	Gauze	Gauze
Diameter gauze (cm)	3710	1800	700	110
Weight of One Layer Gauze(gr)	3500-3600	900-1100	140-170	320-370
Width of the fence (mm)	25	25	25	25
Type of texture	Knitted	Knitted	Knitted	Knitted
Wire diameter (μ)	100	100	100	100
Pd (%wt)	-	-	-	5±1
Pt (%wt)	90±1	90±1	90±1	90±1
Rh (%wt)	10±1	10±1	10±1	5±1



We have the capacity to produce this product with different parameters. For more details contact our experts.

Nano Alpha Alumina supports of Catalysts

Nano alpha Alumina is used as a catalyst support. An example of Alpha alumina as support of catalysts is Ag/alpha alumina which has applications in petrochemical industry.

Specification	
Type	S2A
Form	powder
Size (µm)	~50
Color	White
Surface Area (m ² /g)	5-120
Al ₂ O ₃ (%wt)	Min 99



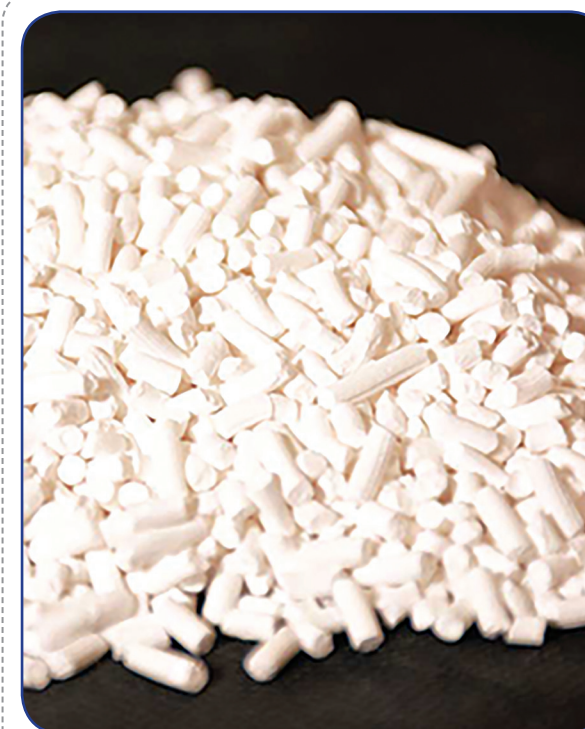
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Gamma Alumina Supports of Catalysts

Gamma alumina is widely used as a catalyst carrier due to its chemical properties. These properties are strongly correlated with the physical properties of the material, such as porosity, density, shrinkage, and surface area.

The pore structure and surface properties of catalyst depend on support. therefore, high performance support would be found for specific catalytic reaction by controlling the properties of Y-AL₂O₃ Support.

Specification				
Type	S1A	S1B	S1C	S1D
Form	extrude	powder	Micro spherical Powder	Spherical
Size	Variant	25-125 (µm)	3-6 (mm)	3-6 (mm)
Color	White	White	White	White
Surface Area (m ² /g)	120-220	120-350	1250-350	1250-350
Al ₂ O ₃ (%wt)	Min 99	Min 99	Min 99	Min 99



We have the capacity to produce this product with different parameters. For more details contact our experts.



Customized catalysts and Particles

Whenever there is necessity for custom designed catalysts for specific processes such as increasing efficiency or developing leading technologies our experts in R&D department cooperate with customers to provide catalyst solutions.



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