AIC
HOLDING

2024_25 catalogue

Oil, Gas and Petrochemical

INTRODUCTION

AIC HOLDING

In recent years, wide use of adsorbent & catalyst in oil, gas, chemical, petrochemical and iron industries, have a key role in many plants. Ardakan Industrial Ceramics (AIC) Holding, with professional R&D team, technical staff and sales capabilities, supply the best raw materials in order to manufacturing various adsorbent & catalyst. We combine research and development department in process design with state-of-the-art engineering technologies to provide our clients with flexible, accurate, and efficient tools that improve their process efficiency. We look forward to building strong, rewarding relationships and delivering superior products and services to our customers.

OUR SERVICES

At AIC Holding, we provide a comprehensive range of unique services to our customers. AIC be a source of strength as follows:

- Offering a wide range of specific catalysts, adsorbents, high-performance activated alumina, silicate-based, and alumina-based bed support. to meet the demanding needs of the customers.
- Innovative adsorption solutions and configurations for difficult process.
- High quality adsorbent products with short delivery times.
- locating close to our customers, whenever they have operational plant.
- Strong technical and engineering support to our clients.
- Company personnel training according to the needs and demands of employer for each project.

AIC Adsorbents & Catalysts Category

Row	Product Code	Application	Material	Shape	Oil Refining	Petrochemical	Gases	Others	Water	Iron Making
adsorbents										
Drying Series										
1	AICSorb-DA10	Drying Air, Gas & Liquid	Activated Alumina	S	*	*	*	*		
2	AICSorb-DA20		Activated Alumina	S						
3	AICSorb-SA30	Special Adsorbent for the Multibed Technology	Activated Alumina	S						
4	AICSorb-SA31		Activated Alumina	S						
Specialty Series										
5	AICSorb-HP41	H_2O_2 & Working Solution Purification	Activated Alumina	S	*	*				
6	AICSorb-HP42		Activated Alumina	S						
7	AICSorb-HP43		Activated Alumina	G						
Purification Series										
8	AICSorb-PCR51	Removal of Polar Compounds & Oxygenated Hydrocarbon	P-alumina -zeolite composite	S	*	*	*	*		
9	AICSorb-PCR52			S						
10	AICSorb-SD61	Water and TBC Removal	P-Activated Alumina	S						
11	AICSorb-AGR71	Acid Gases & Water Removal Gases	P-Activated Alumina	S						
12	AICSorb-AGR72		P-Activated Alumina	S						
13	AICSorb-COSR131	COS Removal	P-Activated Alumina	S						
Arsine Series										
14	AICTrap-ArR81	Arsine & Phosphine & COS Removal	PbO promoted Al_2O_3	S	*	*	*	*		
15	AICTrap -ArR82	Arsine & Phosphine & S ulfur Removal from propane & propylene	CuO promoted Al_2O_3	S						
16	AICTrap -ArR83	Arsine & Phosphine & S ulfur Removal from Propane & Propylene	CuO promoted Al_2O_3	S						
Mercury Series										
17	AICTrap-MR91	Mercury Removal from Gas & Liquid Stream	Metal oxide, Sulfide, Al2O3	S	*	*	*	*		
18	AICTrap-MR92		Mixed Metal Oxide	S						
19	AICTrap-MR93		Proprietary	S, E						
Floride Series										
20	AICTrap -FR101	HF Removal & Floride Removal	Activated Alumina	S	*					
21	AICTrap -FR102	HF Removal & Floride Removal	P-Activated Alumina	S						
Chloride Series										
22	AICTrap-ClR111	HCl Removal from Hydrogen Rich Gas, LPG & Reformate	P-Activated Alumina	S	*	*	*	*		
23	AICTrap-ClR112		P-Activated Alumina	S						
24	AICTrap-ClR113	HCl &Organic Chloride Removal	ZnO/Na_2O promoted Al_2O_3	S						
Water treatment Series										
25	AICGuard-AFR121	Arsenic & Floride Removal	Activated Alumina	G					*	
26	AICGuard-AMR122	Arsenic & Metal Removal	P-Activated Alumina	G						
27	AICGuard-LFR123	Floride Removal for Bottled Water Plant	Proprietary Alumina	ML						
Catalyst										
SRU Series										
28	AICcat-AC440	Sulfur Recovery	Activated Alumina	S	*	*	*			
29	AICcat-HT470	Hydrolysis Claus	TiO_2	S						
30	AICcat-LT460	Hydrolysis Claus	P-Activated Alumina	S						
31	AICcat-PF450	Oxygen Scavenger	P-Activated Alumina	S						
32	AICcat-CM480	Hydrogenation Tail Gas	CoMo-Promoted- Activated Alumina	S						
COS Series										
33	AICcat-HCOS491	Hydrolysis of COS	P-Activated Alumina	S	*	*	*			
34	AICcat-HCOS492	Hydrolysis of COS	P-Activated Alumina	S						
DRI Series										
35	AICcat-HA410	Producing Syngas	NiO- Alumina	RR						*
36	AICcat-HA420		NiO-Magnesia	RR						
37	AICcat-HA430		Alumina	R						
Supports										
38	AICSup-ADM220	General Purposes	Silicate-Based Balls	S	*	*	*	*	*	*
39	AICSup-ADM920		Alumina -Based Balls	S						

AICSORB-DA10

Activated Alumina for Liquid and Gas Drying (AICSorb-DA10) is a White sphere, odorless, non-toxic, insoluble in water and alcohol, with high mechanical strength and strong Adsorption of moisture. AICSorb-DA10 is widely used for drying in electronic, textile and oxidizing industry, also as adsorbent in air-grading industry. It's especially suitable for atmospheric temperature recovering equipment.

Physical Properties	
Properties	**Specification**
Al_2O_3	>93%
Na_2O	<0.5%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<8.0%
Chemical Properties	
Specific Surface Area, m^2/g	260-300
Total Pore Volume (cc/g)	0.4
Bulk Density (Kg/m^3)	750
Attrition Loss (wt%)	<1.0
Op.Temp (°C)	2100

AICSORB-DA20

AICSorb-DA20 is a smooth sphere of activated alumina produced by AIC which is an excellent desiccant for drying a wide variety of liquids and gases. Although all molecules are adsorbed to some extent on AICSorb-DA20 activated alumina, those molecules having the highest polarity are preferentially absorbed.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>93%
Na_2O	<0.4%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<7.0%
Physical Properties	
Specific Surface Area, m^2/g	300-350
Total Pore Volume (cc/g)	0.5
Microporosity>1000A cc/g	---
Bulk Density (Kg/m^3)	700
Attrition Loss (wt%)	<1.0

AICSORB-SA30

AICSorb-SA30 is a white spherical activated alumina produced by AIC. It's used highly for purification and drying process for both liquid and industrial vapor streams including organic liquids, LPG, aromatics and hydrocarbon condensate.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>90%
Na_2O	<0.5%
SiO_2	<0.5%
Fe_2O_3	<0.5%
LOI at 1000°C	<8.0%
Physical Properties	
Specific Surface Area, m^2/g	300-350
Total Pore Volume (cc/g)	0.45
Water Absorption Capacity @ 60% RH & 25°C, %	20.00
Bulk Density (Kg/m^3)	700
Attrition Loss (wt%)	<1.0

AICSORB-SA31

AICSorb-SA31 for liquid and gas drying compared with traditional activated alumina, has 20% higher specific surface area, and its water adsorption capacity are better and providing long service life with performance at or below dew point specifications.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>92%
Na_2O	<0.4%
SiO_2	<0.2%
Fe_2O_3	<0.02%
LOI at 1000°C	<8.0%
Physical Properties	
Specific Surface Area, m^2/g	350-380
Total Pore Volume (cc/g)	0.4
Water Absorption Capacity @ 60% RH & 25oC, %	21.5
Bulk Density (Kg/m^3)	650-760
Attrition Loss (wt%)	<1.0

AICSORB-HP41

AICSorb-HP41, peroxide grade activated Alumina is white sphere, non-toxic, insoluble in water/alcohol with high mechanical strength and high-capacity moisture adsorption. AICSorb-HP41 is a special adsorbent for the production of hydrogen peroxide.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>93%
Na_2O	<0.35%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<8.0%
Physical Properties	
Specific Surface Area, m^2/g	240-300
Total Pore Volume (cc/g)	0.3-0.45
Water Absorption	50
Bulk Density (Kg/m^3)	650-750
Attrition Loss (wt%)	<1.0

AICSORB-HP42

AICSorb-HP42 is an adsorbent for the production of hydrogen peroxide by anthraquinone method. In addition to absorbing the alkali in the working fluid, it has a strong regeneration ability for hydrogenated degradation products. AICSorb-HP42 is white sphere activated alumina adsorbent with regular particle size and high moisture adsorption capacity.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>93%
Na_2O	<0.35%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<8.0%
Physical Properties	
Specific Surface Area, m^2/g	300-380
Total Pore Volume (cc/g)	0.48
Water Absorption	20-22
Bulk Density (Kg/m^3)	700
Attrition Loss (wt%)	<0.1

AICSORB-HP43

AICSorb-HP43 is a high surface area activated alumina adsorbent that can adsorb alkali in the working fluid and having strong regeneration ability for hydrogenated degradation products. This product is developed specifically for "work solution" purification in hydrogen peroxide production to convert the peroxides to H4-hydroquinone and subsequently to H2-hydroquinone. The most important advantage of this kind of peroxide grade adsorbent is that it strongly removes by-products from work solutions. AICSorb-HP43 is crushed granular shaped.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>93%
Na_2O	<0.35%
SiO_2	<0.2%
Fe_2O_3	<0.02%
LOI at 1000°C	<8.0%
Physical Properties	
Specific Surface Area, m^2/g	270-300
Total Pore Volume (cc/g)	0.40
Water Absorption	>50
Bulk Density (Kg/m^3)	680-700
Attrition Loss (wt%)	<0.1

AICSORB-PCR51

AICSorb-PCR51 is a kind of sorbent material for removing polar contaminants from reactive process and ethylene, propylene and butene streams. Typical contaminants can remove from water, oxygenates (alcohols, aldehydes, ketones, ethers, peroxides) and nitrogen-based molecules (ammonia, amines, nitriles.

Chemical Properties	
Properties	**Specification**
Al_2O_3+modifier	>95.5%
Na_2O	<0.35%
SiO_2	<0.2%
Fe_2O_3	<0.02%
LOI at 1000°C	<4.0%
Physical Properties	
Specific Surface Area, m^2/g	400-460
Total Pore Volume (cc/g)	----
Water Absorption	---
Bulk Density (Kg/m^3)	650-750
Attrition Loss (wt%)	----

AICSORB-PCR52

Due to the high chemical adsorption capacity on the surface of AICSorb-PCR52, it can directly and selectively adsorb and remove trace oxygen containing organic compounds (alcohols, ethers, aldehydes, carboxylic compounds, ketones, peroxides). At the same time, it also has a good adsorption effect on water and mercaptan in the feedstock, meeting the requirements for deep purification of the feedstock.

Chemical Properties	
Properties	**Specification**
Al_2O_3+modifier	>95.5%
Na_2O	<0.35%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<4.0%
Physical Properties	
Specific Surface Area, m^2/g	360-400
Total Pore Volume (cc/g)	----
Water Absorption	---
Bulk Density (Kg/m^3)	650-750
Attrition Loss (wt%)	----

AICSORB-SD61

AICSorb-SD61 is a white, spherical activated alumina. It perfectly adsorbs water, TBC (p-tert-butylcatechol) and other hydrocarbons, in production of polyethylene and polymer.

Properties	Specification
Al_2O_3	>93.5%
Na_2O	<0.32%
SiO_2	<0.02%
Fe_2O_3	---
LOI at 1000°C	<5.0%
Physical Properties	
Specific Surface Area, m^2/g	330
Total Pore Volume (cc/g)	0.44
Static Water Absorption (RH=60%)	20%
Bulk Density (Kg/m^3)	700-800
Attrition Loss (wt%)	<1.0%

AICSORB-AGR71

AICSorb-AGR71 is made by using modified activated alumina with good physical properties as the matrix, loaded with high content of active components; It is mainly applicable to remove hydrogen sulfide and water from gaseous and liquid phase feedstocks. The remarkable characteristics of this product are large pore size, large specific surface area, rapid reaction, strong adaptability, and strong regeneration ability. It has high capacity and high selectivity in impurity removal process; In particular, it is an ideal adsorbent for removing contaminant from olefin containing materials.

Properties	Specification
Al_2O_3+promoter	>92%
Na_2O	----
SiO_2	---
Fe_2O_3	---
LOI at 1000°C	<5.0%
Physical Properties	
Specific Surface Area, m^2/g	330
Total Pore Volume (cc/g)	0.44
Static Water Absorption (RH=60%)	20%
Bulk Density (Kg/m^3)	700-800
Attrition Loss (wt%)	<1.0%

AICSORB-AGR72

AICSorb-AGR72 is an activated alumina impregnated with a mixture of specific chemicals and KMn04.

The specific manufacturing process allows to obtain chemically active spherical granules with high porosity and high contact surface. This is specifically formulated for H2S removal from gas streams, S02, N0x, formaldehyde, ethylene, acid gases, light hydrocarbons and volatile organic substances.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>80%
$KMnO_4$	4-10%
LOI at 1000°C	<15.0%
Physical Properties	
Specific Surface Area, m^2/g	250
Total Pore Volume (cc/g)	0.44
Bulk Density (Kg/m^3)	750-820

AICSORB-COSR131

AICSorb-COSR131 has an effective chemical adsorption on the surface. it can directly and selectively adsorb and remove trace amounts of COS, CS2, and H2S from multiple unsaturated monomer materials such as C2~C4 hydrocarbons, and can also remove common poisons such as CO2, H2O, chloride, and cyanide from the materials in purification process.

Chemical Properties	
Properties	**Specification**
Al_2O_3+promoter	>93.5%
Na_2O	0.36
SiO_2	0.02
Fe_2O_3	0.02
LOI at 1000°C	<6.0%
Physical Properties	
Specific Surface Area, m^2/g	280
Total Pore Volume (cc/g)	0.5
Static Water Absorption (RH=60%)	20%
Bulk Density (Kg/m^3)	650
Attrition Loss (wt%)	<1.0%

AIC-ARSINE SERIES ADSORBENT

AICTRAP-ARR81

AICTrap-ArR81 is a promoted spherical adsorbent for removal of sulfur impurities such as H2S, COS, and light mercaptans, as well as Arsine (AsH3) Phosphine (PH3), from both liquid and vapor process streams.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>98%
Na_2O	<0.45%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<8.0%
Physical Properties	
Specific Surface Area, m^2/g	>270
Bulk Density (Kg/m^3)	780-804

AICTRAP-ARR82

AICTrap-ArR82 is a spherical Alumina-based adsorbent, impregnated with metal oxide as active component to provide optimum adsorption capacity for Arsine, phosphine and sulfur components. It is used in purification of refinery, chemicals and polymer grades of propylene.

Chemical Properties	
Properties	**Specification**
Al_2O_3	Balance
Na_2O	<0.5%
SiO_2	<0.02%
CuO	10-12%
LOI at 1000°C	<8.0%
Physical Properties	
Specific Surface Area, m^2/g	>150
Bulk Density (Kg/m^3)	650-750

AICTRAP-ARR83

Arsine removal adsorbent (AICTrap-ArR83) is suitable for the removal of Arsine and phosphine from liquid and gaseous hydrocarbon feedstocks at normal and medium temperatures, with deep desulfurization effects. The arsenic removal adsorbent is prepared using activated alumina with a large pore size and high specific area as a high active carrier that loaded with active components.

Chemical Properties	
Properties	**Specification**
Al_2O_3	Balance
Na_2O	<0.5%
SiO_2	<0.02%
CuO	8-15%
LOI at 1000°C	<6.0%
Physical Properties	
Specific Surface Area, m^2/g	>280
Bulk Density (Kg/m^3)	750-790

AIC-MERCURY SERIES ADSORBENT

AICTRAP-MR91

AICTrap-MR91 is sulfur impregnated activated alumina, which is designed to efficiently remove mercury from various vapor streams, i.e. natural gas and syngas.
AicTrap-MR91 is highly promoted microporous alumina adsorbent which can minimize capillary condensation of heavy hydrocarbon for better performance.

Chemical Properties	
Properties	**Specification**
Al_2O_3	Balance
CuO, CuS	5-20%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<5.0%
Physical Properties	
Specific Surface Area, m^2/g	>200
Bulk Density (Kg/m^3)	700-750

AICTRAP-MR92

AicTrap-MR92 Is Metal oxide and sulfide, which is designed to efficiently remove mercury from various vapor streams, i.e. natural gas and syngas.
AITrap-MR92 protects downstream piping and machinery by removing mercury from gas stream.

Chemical Properties	
Properties	**Specification**
Al_2O_3	Max.15%
CuO, CuS	Balance%
SiO_2	<0.02%
LOI at 1000°C	<6.0%
Al_2O_3	Max.15%
Physical Properties	
Specific Surface Area, m^2/g	>200
Bulk Density (Kg/m^3)	750-800

AICTRAP-MR93

AICTrap-MR93 is silver impregnated activated zeolite, which is designed to efficiently remove traces mercury from gas streams at ambient temperature. AICTrap-MR93 is highly promoted Poros zeolite adsorbent which can minimize capillary condensation of heavy hydrocarbon for better performance.

Chemical Properties	
Properties	**Specification**
Zeolite	Balance
Na_2O	<0.5%
SiO_2	<0.02%
Ag	Max. 15%
LOI at 1000°C	<6.0%
Physical Properties	
Specific Surface Area, m^2/g	>180
Bulk Density (Kg/m^3)	750-805

AIC-MERCURY SERIES ADSORBENT

AICTRAP-FR101

Spherical Floride adsorbent (AICTrap-FR101) tailored for optimum activity towards organic fluoride decomposition and HF removal from vapors and liquid streams. Physical and chemical properties result in higher fluoride loading and longer alumina life.

Chemical Properties	
Properties	**Specification**
Al_2O_3	99.6%
Na_2O	Max. 0.52%
SiO_2	Max. 0.02%
LOI at 1000°C	<6.0%
Al_2O_3	99.6%
Physical Properties	
Specific Surface Area, m^2/g	>100
Bulk Density (Kg/m^3)	710-760

AICTRAP-FR102

Spherical Promoted Floride adsorbent (AICTrap-FR102) appropriate for optimum activity towards organic fluoride decomposition and HF removal from liquid and gas streams. Physical and chemical properties result in higher fluoride loadings and longer alumina life. Metal promoter maximizes fluoride loading capacity with significant reduction in cocking tendency.

Chemical Properties	
Properties	**Specification**
Al_2O_3	Balance
Promoter	10-12%
SiO_2	Max. 0.02%
Na2O	Max. 0.50%
LOI at 1000°C	<6.0%
Physical Properties	
Specific Surface Area, m^2/g	>270
Bulk Density (Kg/m^3)	750-770

AIC-CHLORIDE SERIES ADSORBENT

AICTRAP-CIR111

Spherical Floride adsorbent (AICTrap-FR101) tailored for optimum activity towards organic fluoride decomposition and HF removal from vapors and liquid streams. Physical and chemical properties result in higher fluoride loading and longer alumina life.

Chemical Properties	
Properties	**Specification**
Appearance	Spherical/Extrudate
Al_2O_3	90%
SiO_2	Max. 0.02%
Na_2O	~10%
LOI at 1000°C	<6.0%
Physical Properties	
Specific Surface Area, m^2/g	>50
Bulk Density (Kg/m^3)	850-950

AICTRAP-CIR112

AICTrap-CIR112 is particularly appropriate for use in vapor phase chloride traps in catalytic reforming process where optimum HCl adsorption capacity and minimization of polymer/gum formation is desirable.

Chemical Properties	
Properties	**Specification**
Appearance	Spherical/Extrudate
Al_2O_3	95.5%
SiO_2	Max. 0.02%
Na2O	NA
LOI at 1000°C	<6.0%
Physical Properties	
Specific Surface Area, m^2/g	>50
Bulk Density (Kg/m^3)	760

AICTRAP-CIR113

AICTRAP-CIR113 is mainly used in the rapid removal of hydrogen chloride from dry gas, liquefied gas (LPG), Liquid hydrocarbons, and synthetic gas in reforming, isomerization, dehydrogenation and synthetic gas process units. It is an ideal adsorbent for the removal of hydrogen chloride from olefin containing materials.

Chemical Properties	
Properties	**Specification**
Appearance	Spherere
Al_2O_3	Balance
SiO_2	Max. 0.02%
Alkali Metal	Max. 20%
LOI at 1000°C	<6.0%
Physical Properties	
Specific Surface Area, m^2/g	>50
Bulk Density (Kg/m^3)	750-850

AICSORB-AFR121

AICSorb-AFR121 is white sphere, odorless, tasteless, non-toxic, insoluble in water and alcohol, with regular particle size. This product can be used as high fluoride drinking water removal water agent (with large fluoride removal capacity). Activated alumina is used for the removal of Arsenic and Fluoride.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>92%
Na_2O	<0.4%
SiO_2	<0.1%
Fe_2O_3	<0.04%
LOI at 1000°C	<7.0%
Physical Properties	
Specific Surface Area, m^2/g	>300
Total Pore Volume (cc/g)	>0.4
Macroporosity>1000A cc/g	---
Bulk Density (Kg/m^3)	700±50
Attrition Loss (wt%)	<1.0

AICSORB-AMR122

AICSorb-AMR122 iron promoted activated alumina with high arsenic capacity and low cost make it the most economical adsorption route for arsenic removal. Its capacity is higher than non-promoted activated alumina. It can remove metals and other contaminant from water including Arsenic, Fluoride, Zinc, Copper, Silica, Lead, Selenium, Phosphate and Nitrates.

Chemical Properties	
Properties	**Specification**
Al_2O_3+Fe	>90%
TiO_2	<0.02%
SiO_2	<0.02%
LOI at 1000°C	<10.0%
Physical Properties	
Specific Surface Area, m^2/g	280
Total Pore Volume (cc/g)	-----
Macroporosity>1000A cc/g	---
Bulk Density (Kg/m^3)	1000±50

AICSORB-LFR123

AICSorb-LFR123 is a multilobe activated alumina for fluoride and metals removal for water treatment. It is an adsorbent of metals including fluoride from water. Regeneration is normally used to operate at the most cost-effective levels. AICSorb-LFR123 is used simultaneously to reach lower fluoride and arsenic levels in one treatment.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>93%
Na_2O	<0.3%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<7.0%
Physical Properties	
Specific Surface Area, m^2/g	>330
Total Pore Volume (cc/g)	---
Macroporosity>1000A cc/g	---
Bulk Density (Kg/m^3)	750
Attrition Loss (wt%)	---

AICSORB-LFR123

AICCat-AC440 is a Claus catalyst for common Sulfur Recovery Units (SRU) including oxygen enriched Claus units. It is designed for use in all beds for high activity conversions of H2S/SO2 and for conversion of COS and CS2 in the first converter. AICCat-AC440 has ideal pore distribution which is used in sulfur recovery processes operated near or below the sulfur dewpoint.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>93%
Na_2O	<0.4%
SiO_2	<0.02%
Fe_2O_3	<0.02%
LOI at 1000°C	<7.0%
Physical Properties	
Specific Surface Area, m^2/g	>300
Total Pore Volume (cc/g)	>0.4
Bulk Density (Kg/m^3)	700±50
Attrition Loss (wt%)	<1.0

AICCAT-HT470

Extruded titanium dioxide (TiO2) Claus SRU catalyst for very high hydrolysis conversion of CS2 and COS to H2S. AICCat-HT470 typically loaded in a portion of the first reactor. Superior resistance to sulfation poisoning and hydrothermal aging effects allows the catalyst to provide long service life while maintaining very high conversion.

Chemical Properties	
Properties	**Specification**
TiO_2	>85%
Na_2O	<0.3%
Fe_2O_3	<0.5%
LOI at 1000°C	<7.0%
Physical Properties	
Specific Surface Area, m^2/g	>100
Total Pore Volume (cc/g)	>0.2
Bulk Density (Kg/m^3)	>900
Attrition Loss (wt%)	<1.0

AICCAT-LT460

AICCat-LT460 is an Alumina/Titania composite promoted activated alumina catalyst which is used in the conversion of the sulfide species to sulfur. AICCat-LT460 has shown improved COS (carbonyl sulfide) decomposition over time.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>90%
TiO_2	>4%
Na_2O	<0.3%
Fe_2O_3	<0.5%
LOI at 1000°C	<6.0%
Physical Properties	
Specific Surface Area, m^2/g	>280
Total Pore Volume (cc/g)	>0.4
Crush Strength (N/cm)	>90
Bulk Density (Kg/m^3)	>700
Attrition Loss (wt%)	<1.0

AICCAT-PI450

AICCat-PI450 is a spherical, promoted catalyst used as a guard layer in Claus catalyst reactors to reduce the oxygen content of the reactor inlet process gas. Reducing the oxygen content of the reactor inlet process gas will reduce sulfate formation on the activated alumina Claus catalyst thereby preserving the catalytic activity of the activated alumina Claus catalyst. AICCat-PI450 is typically installed in the second and third Claus catalyst reactors, especially in units with direct/fired reheaters.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>80%
TiO_2	---
Na_2O	<0.3%
Fe_2O_3	<3%
LOI at 1000°C	<8.0%
Physical Properties	
Specific Surface Area, m^2/g	>250
Total Pore Volume (cc/g)	>0.3
Crush Strength (N/cm)	>130
Bulk Density (Kg/m^3)	>700
Attrition Loss (wt%)	<1.0

AICCAT-CM480

AICCat-CM480 is a spherical cobalt-molybdenum (CoMo) on activated alumina catalyst for use in Claus tail gas treating units that contain a hydrogenation reactor (e.g. SCOT tail gas units). Optimized catalyst support structure provides high conversion of SO2, COS, CS2, and elemental sulfur in Claus tail gas with very low pressure drop. Also facilitates water-gas shift reaction in the hydrogenation reactor to reduce CO emissions from tail gas incinerator, producing additional hydrogen for reduction. Designed for use in tail gas units with a reactor inlet temperature of at least 260 °C.

AIC-COS SERIES CATALYST

AICCAT-HCOS491

AICCat-HCOS491 is an activated alumina-based catalyst which is used in COS hydrolysis process. This is done by passing syngas from the water scrubber through a catalytic hydrolysis reactor where over 99% of the COS is converted to H2S.
AICCat-HCOS491 has high surface area and high macroporosity result in higher catalytic activity and longer alumina life.

Chemical Properties	
Properties	**Specification**
Al_2O_3	>92.5%
Na_2O	<0.35%
SiO_2	<0.15%
LOI at 1000°C	<7.0%
Physical Properties	
Specific Surface Area, m^2/g	340
Macroporosity>750A cc/g	0.12
Bulk Density (Kg/m^3)	650±50

AICCAT- HCOS492

AICCat- HCOS492 is a promoted alumina-based catalyst used for hydrolysis of carbonyl sulfide (COS). This catalyst has a high activity even at low temperatures, which is essential for maximum conversion of COS, as the chemical equilibrium is favorable at low temperature.
In the COS hydrolysis reaction, the carbonyl sulfide is converted to hydrogen sulfide and carbon dioxide, which are easier to remove in the Acid Gas Removal (AGR) units.

AICCAT-HA410

AICCat-HA410 is a highly active DRI reforming catalyst. This catalyst is based on alumina carrier. It's a 6-hole ribbed ring-shaped catalyst containing high nickel oxide content. AICCat-HA410 is loaded inside the Midrex reformer tubes as the major layer. It is considered for the complementary reforming of natural gas purposes along with a semi-active (AICCat-SA420) catalyst and an inert (AICCat-IR430) ring.

Chemical Properties	
Properties	**Specification**
LOI at 540°C	<0.5
Ni	11.0-13.0
SiO2	<0.1
Sulfur	<0.05
Na	<0.15
Fe	<0.15
Nitrate(NOx)	<0.1
Physical Properties	
Bulk Density (Kg/l)	1.0-1.2
Ave. Crush Strength (Radial), Kgf Below 40 Kgf	120 0.%
Crush Strength (N/cm)	>130
Specific Surface Area, m2/gr	>2.0
Pore Volume, ml/gr	0.1-0.25
Diameter	31.0-35.0
Height	17.0-19.0

AICCAT-SA420

AICCat-SA410 is a superior semi-active DRI reforming. This catalyst has lower nickel oxide content than high active catalyst. The carrier of AICCat-SA410 catalyst is based on magnesium oxide (MgO). The natural gas is partially reformed and heated over the semi-active magnesium oxide-based catalyst to facilitate the process conditions of the application of an alumina based high active catalyst.

Chemical Properties	
Properties	**Specification**
LOI at 540°C	<1.0
Ni	6.0±1
Ca	3.20-7.50
Al2O3	2.2-5.0
Fe2O3	<2.0
SiO2	<2.0
Nitrate(NOx)	<0.1
MgO	Balance
Physical Properties	
Bulk Density (Kg/l)	0.95-1.15
Ave. Crush Strength (Radial), Kgf Below 75 Kgf	120 <5.0%
Crush Strength (N/cm)	>130
Specific Surface Area, m2/gr	2.5-7.1
Pore Volume>35A°, ml/gr	0.07-0.18
Diameter	27.0-33.0
Height	26.0-30.0

Chemical Properties	
Properties	**Specification**
MgO	<0.5
$CaO+K_2O$	<1.5
Fe_2O_3	0.25
SiO2	<0.1
TiO_2	<2.5
Al2O3	Balance
Physical Properties	
Bulk Density (Kg/l)	1.30-1.50
Ave. Crush Strength (Radial), Kgf **Below 150 Kgf**	250 <10.0%
Crush Strength (N/cm)	>130
Diameter	28.5-35.5
Height	29.5-34.5
Hole	15.5-18.5

AICCAT-IR430

AICCat-IR430 is an alumina based high strength inert ceramic support used for loading the bottom section of Midrex reformer tubes. Unlike conventional steam reformers, in Midrex process, feedstock moves upward inside the tubes and accordingly the catalysts loading pattern should be adjusted so that the feed gas stream is firstly pre-heated over a sufficient volume of ceramic support layer.

AICSUP-ADM990

AICCat-IR430 is an alumina based high strength inert ceramic support used for loading the bottom section of Midrex reformer tubes. Unlike conventional steam reformers, in Midrex process, feedstock moves upward inside the tubes and accordingly the catalysts loading pattern should be adjusted so that the feed gas stream is firstly pre-heated over a sufficient volume of ceramic support layer.

Chemical Properties	
Properties	**Specification**
$Al_2O_3(+TiO_2)$	99
SiO_2	0.3
Fe_2O_3	0.1
MgO	0.09
Na_2O+K_2O	0.05
Physical Properties	
Bulk/Pack Density (Kg/m^3)	3700/2100
Hardness (Mohs)	9
Water Absorption (%)	0.2
Porosity (%)	0.4
Op.Temp (°C)	2100

AICSUP-ADM920

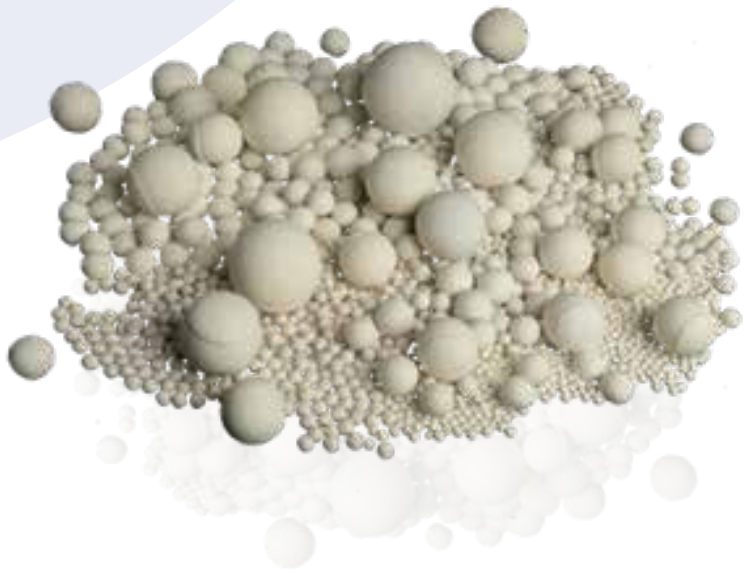
AICSup-ADM920 is a 92% high alumina ball support, that made from low SiO2 content alumina powder. This product is resistant to high temperature, high pressure, thermal shock, acid, alkali and other organic solvents because of its high purity and strength. AICSup-ADM920 widely used as a support in the reactor to protect the catalysts and tower packing in petroleum, chemicals, fertilizer, gas and environmental protection industries.

Chemical Properties	
Properties	**Specification**
Al_2O_3	92
SiO_2	3.5
Fe_2O_3	0.1
MgO	3.0
Na_2O+K_2O	---
Physical Properties	
Bulk/Pack Density (Kg/m^3)	3600/2000
Hardness (Mohs)	8.5-9
Water Absorption (%)	0.1
Porosity (%)	0.2
Op.Temp (°C)	2000

AICSUP-ADM220

AICSup-ADM220 is used as a support for molecular sieve, silica gel, alumina adsorbent and desiccant beds in hydroprocessing and desulphurization of sour feedstreams by the Claus process. The high quality of support media allows the catalyst to achieve optimum performance and an extended life. You can trust that the seamless monolithic structure of AICSup-ADM220 media will not have adverse effects on your operating performance because of chips, splits, spalls, cracks, or dust. Additionally, AICSup-ADM220 provide high thermal shock resistance, prevent poisoning & contamination of your catalyst, prevent plugging of your bed.

Chemical Properties	
Properties	**Specification**
Al_2O_3	25±3
SiO_2	66±3
Fe_2O_3	1.5
MgO	1.0
Na_2O+K_2O	4.0
Physical Properties	
Bulk/Pack Density (Kg/m^3)	2350/1450
Hardness (Mohs)	6.5-7
Water Absorption (%)	0.4
Porosity (%)	1.0
Op.Temp (°C)	960



AIC

Aluminium Pars Oxide of Kasra Co.

ZPNK Eng Mineral Co.

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