



AP AIR-LIQUID INDUSTRIAL
EQUIPMENT TRADING

Media Catalog

**Ensuring Smooth
Operations with Premium
Industrial Supplies.**

Based in the Philippines, AP Air-Liquid Industrial Equipment Trading is a dedicated provider of a wide range of industrial necessities. Our core offerings include reliable air compressors, advanced filtration solutions for air, oil, and liquids, a diverse selection of purification media, and a complete inventory of industrial tools, parts, and consumables.

We strive to be a dependable partner, delivering quality products that meet the diverse needs of industrial operations.

QUALITY PRODUCT - BEST
QUALITY PRODUCT - BEST



San Antonio, Binan City,
Laguna, Philippines



www.apalit.ph

Anthracite Coal

FEATURES:

- High Carbon Content
- Low Volatile Matter
- High Energy Density/Calorific Value
- Hard and Brittle
- Glossy/Metallic Luster
- Low Moisture Content
- Low Sulfur and Ash Content
- Difficult to Ignite, but Burns Slowly and Steadily
- Non-Clinkering
- Limited Availability

Anthracite coal, often referred to as "hard coal" or "black coal," is the highest rank of coal, distinguished by its exceptional properties that set it apart from other coal types.

Anthracite coal is a new enhancement to our high-quality product portfolio, offering superior energy density, reduced emissions, lower volatile matter, and consistent, long-lasting heat compared to other fossil fuels. Sourced from the highest-grade geological formations, we provide this premium coal in a comprehensive range and at competitive price points for our international clientele.

ANTHRACITE COAL SPECIFICATION

PROPERTIES	Unit	Ant40	Ant70	Ant80	Ant90
Appearance		Black Granule			
Moisture	% max	10	5	5	5
Carbon Content	% min	40	70	80	90
Ash	% max	40	25	15	5
Hardness (MOH)		2 - 3	2 - 3	2 - 3	2 - 3

APPLICATIONS

Anthracite coal, with its unique properties, finds a variety of important applications across different industries. Historically, its primary use was in residential and commercial heating due to its clean-burning nature, high heat output, and long-lasting flame, making it ideal for hand-fired stoves and automatic stoker furnaces, especially in smoke-controlled areas. Although its use in this sector has decreased with the rise of natural gas and electricity, it still maintains a niche market.

In the metals industry, anthracite is highly valued, particularly in steel production. It serves as a carbon additive in electric arc furnaces (EAF) to control the carbon content of steel, ensuring high-quality output. It also acts as a foaming agent in EAF operations, stabilizing the electric arc, improving furnace efficiency, and reducing energy consumption. Its low sulfur and ash content are also beneficial in minimizing impurities in the final metal product. Furthermore, anthracite has been used as a reducing agent in smelting processes and can be a substitute for coke in some metallurgical applications.

Another significant application is in water filtration systems. The hardness, angular shape, and specific density of anthracite make it an effective filter medium for both industrial and municipal water treatment plants. It efficiently removes suspended solids, impurities, and particulates from water, contributing to cleaner drinking water and improved industrial processes. Its durability and resistance to chemical degradation also make it a reliable choice for long-term filtration.

Beyond these major uses, anthracite also plays a role in glass manufacturing, sugar refining (for refining sugar crystals), battery recycling, and some specialized chemical processes as a source of high-purity carbon. Its versatility and high carbon content underscore its continued importance in various industrial sectors, particularly those focused on efficiency and sustainability.

Carbon Molecular Sieves

FEATURES:

- Selective Adsorption based on Size and Shape
- High Adsorption Selectivity
- Microporous Structure and High Surface Area
- Operation at Room Temperature
- Thermal Stability and Chemical Resistance
- Hydrophobic Nature
- High Mechanical Strength and Durability
- Regenerability
- Versatility and Customizability
- Spherical/Pellet Shape

Carbon Molecular Sieves (CMS) are porous carbon materials with distinctive features that make them highly effective for gas separation and purification, especially in applications like nitrogen generation. Here are their key characteristics

Carbon Molecular Sieves (CMS) are a game-changer for our high-quality product portfolio, offering superior selectivity, enhanced efficiency, lower energy consumption, and greater durability compared to traditional separation methods. Manufactured with precisely controlled pore structures, we provide these advanced adsorbents in a comprehensive range and at competitive price points for our international clientele.

CARBON MOLECULAR SIEVES SPECIFICATION

PROPERTIES	Unit	CMS
Appearance		Porous Carbon structure and non-polar adsorbent Cylindrical Extrudates
Diameter	mm	2 - 4 or Customized
Bulk Density	gm/cc	0.68 - 0.73
Ash	% max	1
Carbon	min	97/99
Hardness	min	98
Loss on Drying	% max	1
PSA Performance of 99% Nitrogen at 30 °C, 0.69MPa Cycle Time Recovery, Nitrogen/Air Productivity, Nitrogen	Sec % Nm ³ /hr. ton, min	60 37 190

APPLICATIONS

Carbon Molecular Sieves (CMS) are highly versatile materials with a wide range of applications, primarily in the field of gas separation and purification. Their most prominent use is in nitrogen generation, particularly through Pressure Swing Adsorption (PSA) and Vacuum Swing Adsorption (VSA) systems. In these processes, CMS selectively adsorbs oxygen and other trace impurities from compressed air, allowing for the continuous production of high-purity nitrogen, which is crucial for industries ranging from food packaging and electronics manufacturing to chemical synthesis and metal heat treatment where an inert atmosphere is required. Beyond nitrogen, CMS also plays a vital role in air purification systems, effectively removing contaminants like carbon dioxide, moisture, and various hydrocarbons. They are also employed in hydrogen purification, separating hydrogen from mixed gas streams like syngas or recovering it from industrial processes to enhance efficiency. Furthermore, CMS finds application in the upgrading of biogas by removing CO₂ and other impurities to produce high-purity biomethane, a valuable renewable fuel source. Their ability to precisely differentiate molecules based on size and shape also makes them useful in gas chromatography for the accurate separation of complex gas mixtures in analytical applications, and in the petrochemical industry for separating various hydrocarbon mixtures.



We've added activated alumina spheres to our filtration solutions.

Activated Alumina Balls are a highly versatile and effective material, primarily composed of aluminum oxide (Al_2O_3). They are widely used as adsorbents, desiccants, and catalyst carriers across various industries.

Activated Alumina Balls (Spheres)

FEATURES:

- High Porosity and Large Surface Area
- High Adsorption Capacity
- Excellent Mechanical Strength and Crush Resistance
- Resistance to Liquid Water
- Thermal Stability
- Regenerability
- Chemical Inertness
- Uniform Bead Size
- Selective Adsorption Properties

Activated alumina balls are produced by pulverizing aluminum hydroxide, which then undergoes controlled high-temperature dehydroxylation (calcination) to create porous aluminum oxide. This "activated" powder is then pelletized into uniform spherical balls, often with binders, and may undergo a final activation calcination and optional hydration step to enhance their adsorption properties and mechanical strength. Finally, they are sieved and packaged.

ACTIVATED ALUMINA BALLS SPECIFICATION

PROPERTIES	Unit	SPECS-1: ACTIVATED ALUMINA BALLS
Appearance		White Spherical Bead
Size	mm	1-3, 2-5, 3-5, 5-8, 8-10
Bulk Density	g/l	0.7 - 0.8
BET Surface Area	m ² /g	300 - 425
Pore Volume	g/cc	0.40 - 0.50
Adsorption Capacity (60% RH)		20 - 26
Attrition Loss	%	0.2
Na ₂ O ₃		0.1 - 0.3
Fe ₂ O ₃		0.02 - 0.12
SiO ₂		0.1 - 0.5
Crushing Strength (kgf/cm ²)		8 - 12
Loss On Ignition (LOI) 300 ° C - 1000 ° C		6 - 8
Al ₂ O ₃		92 - 95

ACTIVATED ALUMINA BALLS SPECIFICATION

PROPERTIES	Unit	SPECS-2: ACTIVATED ALUMINA BALLS
Appearance		White Spherical Bead
Size	mm	1-3, 2-5, 4-8
Uniformity Co-efficient	min	16
Total Capacity for Bulk Pick-up	Min, mg/g	2.85 media @ equal
pH		5.5
Apparent Bulk Density	kg/m ³	720 - 800
Porosity	% max	65
Pore Volume	cm ³ /g	0.42 - 0.49
Crushing Strength - Newton	max	120n
Loss On Ignition (LOI)		6 - 10% @ 300 ° C
BET Surface Area	m ² /g	300 - 425
Al ₂ O ₃		92 - 95
Na ₂ O		0.1 - 0.3
Fe ₂ O ₃		0.02 - 0.12



Adsorption

Manganese Dioxide

FEATURES:

- Excellent oxidizing agent
- Effective catalyst
- High Purity and Contamination-Free (when produced to high standards)
- Versatile material
- Chemical stability
- Affordability

The key benefits of manganese dioxide for users stem from its strong oxidizing and catalytic properties, coupled with its ability to be produced in high purity, making it indispensable in diverse sectors from environmental remediation and energy storage to manufacturing and chemical synthesis.

We are a global supplier of high-purity manganese dioxide, meticulously produced without additives to ensure a contamination-free composition. This makes it ideal for water purification, filtration, and applications requiring high catalytic activity.

MANGANESE DIOXIDE SPECIFICATION

PROPERTIES	Unit	Standard	
MnO ₂ Content	% Min	30 - 40	65
Appearance		Black Granular	
Particle Size	mm	As required	
Moisture	% max	10	
Ash Content	% max	3	
Bulk Density	kg/m ³	1700	

APPLICATIONS

Manganese dioxide's primary applications leverage its roles in batteries, particularly as a depolarizer in dry-cell types, and in water treatment for removing iron and manganese. Beyond these, it serves widely as a catalyst in various chemical reactions and as a pigment in ceramics and glass.





Molecular Sieves (Zeolites) are highly porous materials with precisely defined pore sizes that allow them to selectively adsorb molecules based on their size and shape. They are widely used in various industries for drying, purification, and separation processes.

These are synthetic or natural hydrated aluminosilicates with a crystalline structure forming a network of interconnected channels and cavities. They are the most common type and are further categorized by their pore size and cation composition.

Molecular Sieves

TYPES:

3A Molecular Sieve: Has a pore size of 3 Å. It's ideal for drying polar liquids (like methanol and ethanol) and gases, as it adsorbs water molecules while excluding larger molecules like ethane.

4A Molecular Sieve: Has a pore size of 4 Å. It's a universal drying agent, effective for removing water, carbon dioxide, sulfur dioxide, and other molecules of similar or smaller size from gases and liquids.

5A Molecular Sieve: Has a pore size of 5 Å. It can adsorb larger molecules, including all four-carbon rings and iso-compounds. It's used for separating normal paraffins from branched-chain and cyclic hydrocarbons, and for removing H₂S, CO₂, and mercaptans from natural gas.

13X Molecular Sieve: Has a pore size of 10 Å. This type has the largest pore size among the common zeolites and is used for purifying gases (e.g., simultaneous removal of H₂O and CO₂ from air plant feed) and for sweetening liquid hydrocarbons and natural gas. There are also specialized 13X types like 13X-Type Air Separation Molecular Sieve optimized for air separation units.

MOLECULAR SIEVES SPECIFICATION (3A)

Nominal Dia 3A "1A" = 10^{-8} cm							
From : Cylindrical Pellets and Spheres							
	Unit	1.5mm dia Cylindrical Pellets		3.0mm dia Cylindrical Pellets		2~4mm dia Cylindrical Pellets	
		Range	Typical	Range	Typical	Range	Typical
Equilibrium Water Adsorption Capacity at 30 ° C and 15% RH	% w/w	19-23	21.0	19.0-23.0	21.0	19.0-23.0	21.0
Equilibrium Water Adsorption Capacity at 30 ° C and 75% RH	% w/w	22-27	23.5	22.0-27.0	23.5	22.0-26.0	23.5
Thermal stability after 6000 ° C Equilibrium Water Adsorption, Capacity at 300 ° C and 15% RH	% w/w	19-23	21.0	19-23	21.0	19-23	21.0
Crushing Strength (Active)	kg	3-7	5	5-12	9	3-7	5
Attrition Loss at Tumbling	% w/w	0.02-0.15	0.10	0.02-0.3	0.15	0.02-0.25	0.10
Free Moisture (Max.)	% w/w	-	1.5	-	1.5	-	1.5
Bulk Density	gms/cc	0.68-0.78	0.75	0.68-0.78	0.74	0.75-0.85	0.81
Bed Crushing Strength	% w/w	80-90	84	80-90	87.0	80-90	85.0

APPLICATIONS:

These sieves are used for drying various substances, including crack gas and olefins, liquid or gas propylene, and organic liquids like methanol and ethanol. They're also essential in insulating glass manufacturing and for drying CO₂, solvents, and reactant mixtures. Their applications extend across the pharmaceuticals, paints, chemicals, and allied industries for both gases and liquids.

Adsorption

MOLECULAR SIEVES SPECIFICATION (4A)

		3.0mm dia Cylindrical Pellets		2~4mm dia Spheres	
	Unit	Range	Typical	Range	Typical
Equilibrium Water Adsorption Capacity at 30 ° C and 15% RH	% w/w	19.0-20.0	18.5	18.0-22.0	19.0
Equilibrium Water Adsorption Capacity at 30 ° C and 75% RH	% w/w	20.0-23.0	21.5	20.0-23.0	22.0
Thermal stability after 6000 ° C Equilibrium Water Adsorption, Capacity at 300 ° C and 15% RH	% w/w	18-20	18.5	18-20	19.0
Crushing Strength	kg	6.0-16.0	10.0	4.0-8.0	6
Attrition Loss at Tumbling	% w/w	0.02-0.3	0.15	0.02-0.15	0.05
Free Moisture (Max.)	% w/w	1.5	-	1.5	-
Bulk Density	kg/lit	0.60-0.70	0.65	0.75-0.85	0.81
Bed Crushing Strength	% w/w	80-90	88.0	80-90	88.0

APPLICATIONS:

Our molecular sieves offer versatile solutions for moisture and CO₂ removal across various industrial applications. They effectively dry associated gas (LPG), achieving a dew point as low as -90°C. These sieves can also simultaneously remove moisture and CO₂ from gaseous streams, making them ideal for purifying feed air to cryogenic plants. Furthermore, they are excellent for general air drying, reaching a dew point of less than -60°C, and are highly effective in organic liquid drying.

MOLECULAR SIEVES SPECIFICATION (5A)

NOMINAL DIA 5A "1A" = 10^{-8} cm							
From : Cylindrical Pellets and Spheres							
		1.5mm dia Cylindrical Pellets		3.0mm dia Cylindrical Pellets		2~4mm dia Spheres	
	Unit	Range	Typical	Range	Typical	Range	Typical
Equilibrium Water Adsorption Capacity at 30 ° C and 15% RH	% w/w	18-22	20.5	18-22	20.5	18-22	20.5
Equilibrium Water Adsorption Capacity at 30 ° C and 75% RH	% w/w	21-25	23.0	21-25	23.0	21-25	23.0
Thermal stability after 6000 ° C Equilibrium Water Adsorption, Capacity at 300 ° C and 15% RH	% w/w	18-22	20.5	18-22	20.5	18-22	20.0
CO ₂ ads, Capacity 760mm Hg, at 30 ° C	% w/w	17-22	20.0	17-22	20.0	17-22	20.0
Crushing Strength (Active)	kg	3-7	4	8-15	10	3.0-8.0	5.0
Attrition Loss at Tumbling	% w/w	0.02-0.2	0.10	0.02-0.3	0.20	0.02-0.3	0.10
Free Moisture (Max.)	% w/w	-	1.5	-	1.5	-	1.5
Bulk Density	gms/cc	0.7-0.8	0.75	0.7-0.8	0.75	0.75-0.85	0.81
Bed Crushing Strength	% w/w	80-90	84	80-90	86	80-90	85

APPLICATIONS:

Our molecular sieves offer a range of advanced purification and enrichment applications. They are highly effective in the removal of trace methanol and CO₂ from nitrogen (N₂) streams within nitrogen wash units, common in fertilizer plants. These sieves also play a crucial role in purifying liquefied natural gas (LNG) by efficiently removing H₂O, CO₂, H₂S, and mercaptans. Beyond these, they are used for the drying and purification of inert gases, and enable oxygen (O₂) air enrichment to concentrations up to 93%. Additionally, our sieves can significantly enhance hydrogen (H₂) purity, achieving enrichment from 60% to 98% and higher.

MOLECULAR SIEVES SPECIFICATION (13X)

Nominal Pore Dia = 1nm							
From : Cylindrical Pellets and Spheres							
		1.5mm dia Cylindrical Pellets		3.0mm dia Cylindrical Pellets		2~4mm dia Spheres	
	Unit	Range	Typical	Range	Typical	Range	Typical
Equilibrium Water Adsorption Capacity at 30 ° C and 15% RH	% w/w	20-23	21.0	20-23	21.0	20-23	21.5
Equilibrium Water Adsorption Capacity at 30 ° C and 75% RH	% w/w	23-27	26.0	23-27	26.0	23-27	26.0
Thermal stability after 6000 ° C Equilibrium Water Adsorption, Capacity at 300 ° C and 15% RH	% w/w	20-23	21.0	20-23	21.0	20-23	21.5
CO2 ads, Capacity 760mm Hg, at 30 ° C	% w/w	19.0-20.5	19.5	19.0-20.5	19.5	19.0-20.5	19.5
Crushing Strength (Active)	kg	2.0-6.0	4	5-12	7	3-7	5
Attrition Loss at Tumbling	% w/w	0.02-0.2	0.10	0.02-0.4	0.20	0.02-0.25	0.10
Free Moisture (Max.)	% w/w	1.5	-	1.5	-	1.5	-
Bulk Density	kg/lit	0.55-0.63	0.58	0.55-0.63	0.57	0.60-0.70	0.65
Bed Crushing Strength	% w/w	80-90	87.0	80.90	90.0	80.90	85.0

APPLICATIONS:

Our molecular sieves offer a range of crucial applications for gas purification. They excel at the simultaneous removal of moisture and CO2 from feed air in air separation and cryogenic plants, ensuring optimal operational efficiency. These sieves are also highly effective for mercaptans removal from gaseous streams and are utilized for the drying of process air in sulfonation plants, achieving a very low dew point of less than -60°C. Additionally, they play a vital role in the sweetening of natural gas and the removal of H2S from various gaseous streams.



Adsorption



Ceramic Balls (Spheres)

FEATURES:

- High Hardness and Wear Resistance
- Lightweight / Low Density
- High-Temperature Resistance
- Excellent Corrosion and Chemical Resistance
- Electrical Insulation
- Low Coefficient of Thermal Expansion
- Low Friction Coefficient (in certain applications)
- Non-Magnetic
- High Stiffness/Modulus of Elasticity
- Customizability

While highly beneficial, it's worth noting a general limitation: most ceramics tend to be more brittle than metals, which means they can be susceptible to catastrophic failure under sudden, heavy impact loads, though this can be mitigated by material selection (e.g., zirconia's higher fracture toughness) and design.



Ceramic spheres are a new enhancement to our high-quality product portfolio, offering superior stiffness, reduced thermal expansion, lower mass, enhanced corrosion resistance, and increased electrical insulation compared to steel. Manufactured from a diverse selection of ceramic materials, we provide these spheres in a comprehensive range and at competitive price points for our international clientele.

CERAMIC SPHERES SPECIFICATION

PROPERTIES	Unit	CB25	CB50	CB95
Appearance		White Spherical Bead		
Al ₂ O ₃	%	20-26	45-52	99
SiO ₂	%	65-72	45-55	0.20
SiO ₂ + Al ₂ O ₃	% max	92	-	-
K ₂ O	%	2-3	2-3	
Na ₂ O	%	1.3-1.8	0.5-1.5	0.40
CaO	%	0.5-1.1	0.5-1.5	-
MgO	%	0.5-1.2	0.5-1.5	-
Fe ₂ O ₃	%	0.4-0.8	1	0.10
TiO ₂	%	0.4-0.8	-	-
Leachable Iron	% min	0.1	-	-
Aparent Porocity by Volume	% max	1	1	1
Water Adsorption per Weight	% max	0.4	0.4	0.4
Particle Weight Density (Material piece density)	g/cc	2.2-2.4	2.4-2.6	3-3.5
Working Temp		1000° C	1450° C	1800° C
Roundness	dmax/dmin mm	1.25	1.25	1.25
Thermal Expansion Coefficient, 1/K		4.7x10 ⁻⁶	4.9x10 ⁻⁶	6.7x10 ⁻⁶
Specific Thermal Energy, kj/ (kg x k)		-0.84	-0.94	-1.1

CERAMIC SPHERES CRUSHING STRENGTH (POINT LOAD) : KGS/LBS/N

Size	Range	Kgs	Lbs	N	Kgs	Lbs	N	Kgs	Lbs	N
1/8" - 3mm	2 - 5mm	>25	55	245	>57	126	558	>75	165	735
1/4" - 6mm	5 - 8mm	>65	143	637	>113	249	1108	>150	331	1471
1/2" - 12mm	11 - 14mm	>180	397	1765	>230	507	2256	>300	661	2942
3/4" - 19mm	17 - 21mm	>430	948	4217	>480	1058	4707	>600	1323	5884
1" - 25mm	23 - 27mm	>650	1433	6374	>700	1543	6865	>800	1764	7845
1 1/2" - 38mm	34 - 40mm	>910	2006	8924	>1000	2205	9807	>1100	2425	10787
2" - 50mm	47 - 53mm	>1100	2425	10787	>1200	2645	11768	>1500	3307	14710

WHY STRENGTH MATTERS:

The crushing strength of ceramic balls is a critical property that directly relates to their durability, reliability, and effectiveness in applications where they are subjected to significant mechanical loads, impacts, or pressures.

CERAMIC SPHERES AVERAGE BALL VALUE

Size	Range	Void Space %		Void Fraction %	Surface Area %
		Min	Max		
1/8" - 3mm	2 - 5mm	42	45	0.425	1250
1/4" - 6mm	5 - 8mm	42	45	0.425	500
1/2" - 12mm	11 - 14mm	42	45	0.425	280
3/4" - 19mm	17 - 21mm	42	45	0.425	170
1" - 25mm	23 - 27mm	42	45	0.425	125
1 1/2" - 38mm	34 - 40mm	42	45	0.425	85
2" - 50mm	47 - 53mm	42	45	0.425	45

WHY BALL VALUE MATTERS:

The "average ball value" (average diameter) of ceramic spheres is a critical design parameter that dictates their suitability for specific applications, influencing performance characteristics like efficiency, precision, flow, weight, and mechanical properties.





Ceramic Balls

We now offer ceramic spheres, a high-quality product with superior properties like stiffness and corrosion resistance. These are available in various ranges and at competitive prices for our global customers.

[See Adsorption](#)



Garnet

We source high-grade abrasive garnet for various applications like blast cleaning. It's a safe, durable, and cost-effective solution, also available in river and ocean grades.

[Inquire for Specs](#)



MEDIA GENERAL USE GUIDE

	Specification	Purification	Adsorption	Abrasive
Activated Carbon	Various	✓	✓	✗
Activated Alumina Balls (Spheres)	Various	✓	✓	✗
Anthracite Coal	Various	✓	✓	✗
Ceramic Balls (Spheres)	Various	✓	✓	✓
Garnet	Various	✓	✗	✓
Ion Exchange Resin	Various	✓	✓	✗
Molecular Sieves	Various	✓	✓	✗
Manganese Dioxide	Various	✓	✓	✗

**pure,
clean &
safe.**

Media Comparison



GROWTH PARTNER - YOUR GROWTH PARTNER - YOUR GROWTH PARTNER



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