



The World's
Carbon and
Graphite Source



THE WORLDWIDE SUPPLIER OF CHOICE FOR REFINED GRAPHITE AND OTHER CARBONS

Carbon Is Life.

Carbon is the basic building block of all organic substances and is therefore the basis of all living things. Because carbon combines readily with oxygen, giving off heat as a by-product, it is also a vital energy source.

Carbon is one of the most useful of all elements, and Asbury Carbons is the most experienced processor of carbon products for industry use today.

CARBONS ARE ASBURY

Amorphous carbons such as coal, petroleum coke, pitch coke, active carbon and carbon black have unique physical and chemical properties. These properties enable us to process amorphous carbons into a myriad of industrial products including chemical-reducing agents, carbide-forming reagents, metallurgical products, cathodic protection materials and absorbing carbons, just to name a few.

Carbon in the form of crystalline graphite possesses a combination of properties including lubricity, refractoriness, chemical inertness, as well as thermal and electrical conductivity. These properties make graphite the material of choice for thousands of end-use applications, including friction materials, crucibles, refractories, cements, lubricants, chemical tank linings, powder metal parts, polymer compounds, drilling fluids, electric motor brushes, batteries and artificial diamonds, fuel cells, fire retardants, gaskets and seals as well as cathodic protection, among many others.

FAMILY VALUES AT WORK

Asbury Carbons is a family-owned and -operated company dedicated to developing high-performance products that meet demands of traditional and emerging applications.

1895 — Harry M. Riddle founded what is today Asbury Carbons, Inc.

1903 — Harry M. Riddle opened Asbury's second plant.

1914 — Harry M. Riddle Jr. joined the company.

1928 — Asbury Carbons was incorporated.

1939 — Opened its third plant.

1951 — Harry M. Riddle III went to work for Asbury.

1960s — Expanded by purchasing Pettinos, Cummings Moore Graphite Co., Asbury Graphite Inc. of California and Grafimex.

1970s — Expansion continued with the purchase of Anthracite Industries, Asbury Wilkinson and Grafitos Mexicanos.

1980s — Continued expansion with the building of the Kittanning PA, plant as well as purchasing Asbury Fluxmaster and Asbury Quebec.

1990s — Expanded with the opening of Asbury Louisiana.

1998 — Purchased the graphite division of Dixon Ticonderoga.

2001 — Opened Asbury China.

2007 — Opened Asbury de Mexico.



THE MANUFACTURER AND SUPPLIER OF CHOICE

When it comes to carbon and non-carbon products for a wide and diverse range of industries and applications, Asbury Carbons gives you all the advantages:

- Offering the largest selection of high-quality products.
- Shipping from conveniently located facilities in North America, China and Mexico and from warehouses in Europe and Asia.
- To help keep freight costs low, we engage a worldwide network of distributors.
- Overseas shipments are available from East coast, West coast and Gulf ports.
- Packaging choices include drums, bags, bulk sacks, bulk trucks and barges.
- Asbury offers custom processing and packaging.

Asbury Carbons sets industry standards in the areas that matter most to our customers.

Quality — All Asbury Carbons products are made to strict specifications. Each of our manufacturing operations has fully developed and implemented quality systems to manage and control the total quality of our products.

Variety — Asbury Carbons offers a greater variety of carbon products than any other supplier. Our goal is to develop innovative products that surpass industry standards and provide our customers with a competitive edge.

Reliability — Asbury Carbons is a well-established graphite and carbon company with proven excellence since 1895. Each shipment can be furnished with a no-charge “Report of Analysis” certifying standard specifications and specially requested information.

Availability — Manufacturing facilities and major warehouses in the U.S. and Canada, as well as a facility in Asia, provide quick delivery and keep freight costs low.

Using our global resources of state-of-the art production facilities, R & D capabilities, mines, and distribution network enables Asbury Carbons to:

- Help you develop your graphite and carbon specifications and customized carbon blends.
- Custom process your order to tight specifications.
- Deliver your product promptly.
- Provide continuous support long after the delivery.



CARBOBEAD
COARSE

COARSE
FLAKE

CARBOBEAD
MEDIUM

PELLETS

ANTHRACITE
COAL

GRAPHITE
LUMPS

METALLURGICAL
COKE



The Finest Carbon Products on Earth.

Asbury Carbons, the world's largest independent processor and merchant of graphite, is a major supplier of natural and synthetic graphites, related carbon products, and a variety of other raw materials used in a wide range of industries in America and around the world.

NATURAL GRAPHITE

Amorphous graphite is a naturally occurring seam mineral formed from the geologic metamorphism of anthracite coal. It is called "amorphous" because to the naked eye, macroscopic graphite crystals are not visible. This form of graphite has an "amorphous" appearance.

Carbon content: 70 – 88%

Particle sizes: 5" – 1 μ m

Flake graphite is a naturally occurring form of graphite. Its properties include high thermal and electric conductivity, and low spring-back (excellent molding characteristics). Flake graphite is used in many applications including powder metallurgy, fuel cell bipolar plates, coatings, thermal materials, friction moderators, electrically conductive materials, refractories, general lubricant applications, pencils, gaskets, rubber compounds and other advanced polymer systems.

Carbon content: 70 – 99.9%

Particle sizes: 20 mesh – 1 μ m

Expandable flake graphite is an intercalation compound of graphite, which exfoliates when heated. This material is manufactured by treating flake graphite with various intercalation reagents. These reagents migrate between the graphene layers of a graphite crystal and remain as stable species. If exposed to a rapid increase in temperature, the decomposition of the intercalants develops enough force to push apart the graphene layers resulting in an increase in the volume of the graphite of up to 300 times, a lowering of bulk density and approximately a 10-fold increase in surface area.

Carbon content: 85 – 99%

Expansion ratio: 70 – 300 ml/g

pH: 2 – 8

Vein graphite is a naturally occurring pyrolytic carbon. This form of graphite is believed to be deposited as solid graphite directly from a fluid phase, creating an extremely high degree of crystallinity. Vein graphite is utilized extensively in formed graphite products for electrical applications. High-quality electrical motor brushes and other current-carrying carbons are based on formulations using vein graphite. It is also used in friction applications, such as advanced brake and clutch formulations, as well as most applications that utilize flake graphite.

Carbon content: 80 – 99%

Particle sizes: 2" – 1 μ m

SYNTHETIC GRAPHITE

Synthetic graphite is a manufactured product made by the high-temperature treatment of certain amorphous carbon materials. Ultra-high processing temperatures ensure purity higher than 99 percent. Synthetic graphite is used in many applications including friction, foundry, electrical carbons, fuel cell bipolar plates, coatings, electrolytic processes, corrosion products, conductive fillers, rubber and plastic compounds, and drilling. It is available in primary, secondary and purified forms.

Carbon content: 98 – 99.9%

Particle sizes: 3/8" – 1µm

Graphco is a unique continuous graphitized material manufactured using a proprietary thermal process. It is made from only the highest quality petroleum coke, thermally engineered to provide a consistent, high-purity product. Graphco offers the benefits of conventional synthetic graphite such as high electrical and thermal conductivity, and low ash and sulfur content. The Graphco manufacturing process results in semi-graphite with high compressibility, which is effective in products and processes that require a powder or granular graphite with high spring-back.

Carbon content: 98 – 99.9%

Particle sizes: 3/8" – 1µm

PELLETIZED CARBONS

Asbury offers graphite pellets that are made from high-quality synthetic or flake graphite fines. Blended graphite pellets are also available. These pellets have proven to be very effective as carbon raisers, trim carbon and cover carbon in the hot metals industry. All pellets are manufactured with a proprietary binder that imparts rigidity and toughness to the pellet. Graphite pellets are much cleaner to handle than other carbon products.

SURFACE ENHANCED FLAKE GRAPHITE

Surface enhanced flake graphite (SEFG) is a form of natural flake graphite, processed using a proprietary combination of chemical treatment and mechanical milling. This processing results in a morphology that enhances graphite's suitability in applications such as heat transfer materials and solid and fluid phase lubrication. SEFG has about twice the surface area expected for similarly sized conventional flake graphite.



Carbon comes in many forms and Asbury works with all of them to meet and exceed industry specifications and demands.

COKES

Calcined petroleum coke is a manufactured carbon product that results from the thermal processing of residual oil. Green petroleum coke is calcined at temperatures from 1300 – 1400° C, which removes virtually all residual hydrocarbons and moisture, ensuring exceptional purity. Petroleum coke is used in applications where high-quality, non-graphitic carbons are required, including foundry products, wear moderators for PTFE compounds, rubber compounds, reducing reagents, ceramic packing media, oxygen exclusion from molten metals, manufactured carbon shapes, alloys, cathodic backfill, drilling additives, case hardening, seals, mechanical carbons and flooring.

Carbon content: 97 – 99.5%

Particle sizes: 1" – 1µm

Pitch coke is a high-purity carbon residue manufactured by the high-temperature calcination of coal tar pitch. Pitch coke is low in impurities such as sulfur and vanadium. It is a unique solid carbon that has a wide range of potential uses. Pitch coke may be suitable for many applications that currently utilize calcined petroleum coke.

Carbon content: 97 – 99.5%

Particle sizes: 1" – 1µm

Isotropic coke can be green (non-calcined) or a calcined material. These cokes have uniqueness that give directionality to the properties of the coke.

Carbon content: 90 – 99.9%

Particle sizes: 1/8" – 5µm

Metallurgical coke (met coke) is manufactured by destructive distillation of bituminous coal. As a result of this heat treatment process, it has a very low volatile content, yet retains its original ash constituents. Metallurgical coke is used where a high-quality, tough, resilient, high-wearing carbon is required. Applications include conductive flooring, friction materials, foundry coatings, foundry carbon raisers, corrosion materials, drilling applications, reducing agents, heat treatment, ceramic packing media, electrolytic processes and oxygen exclusion.

Carbon content: 85 – 92%

Particle sizes: 1/2" – 20µm

COALS

Anthracite coal (hard coal) is a naturally occurring low-ash, low-volatile, homogenous coal with a high BTU value. It is used in products and processes where low-conductive, low-cost, black mineral filler is required. Anthracite coal also performs well as a filler in rubber compounds and as a pigment. It can also be used in the steel industry as a charge carbon or slag foamer.

Charge Carbon: 85%

Particle sizes: 2" – 10µm

Injection Carbon: 77%

Particle sizes: 1/4" – 0µm

Calcined anthracite [electrically calcined anthracite (ECA) / gas calcined anthracite (GCA)] is manufactured by heating high-grade anthracite coal to temperatures as high as 2000° C. ECA has a higher carbon content and relatively higher thermal and electrical conductivity than conventional anthracite coal. As a result of Asbury's unique processing, our ECA has low moisture, volatile and sulfur content. It can be used in the manufacture of prebake electrodes, Soderberg and tamping pastes, and carbon blocks — and is an excellent smelting additive due to its high purity and consistency.

Carbon content: 85 – 90%

Particle sizes: 2" – 10µm

Bituminous coal is a form of soft coal that is also known as "Sea Coal". Depending on the maturity of the coal source, its volatile content can vary between about 30 to 60%. The volatile content is composed primarily of hydrocarbon substances. This hydrocarbon content results in a coal that is low in electrical conductivity. Bituminous coal is used as a filler, additive, or component of any system that requires a high-volatile coal.

Carbon content: 50 – 60%

Particle sizes: 20 mesh – 44µm

OTHER CARBONS/COKES

- Bed Coke
- Fluid Coke
- Coked-Out Pitch



SPECIALTY CARBONS

Asbury Carbons has developed, through its expertise in processing and mineral purchasing, both specialty and non-carbon products for industry demands.

Activated carbons display effective adsorptive qualities and durability. Made from coal, lignite, peat and coconut shell, activated carbon materials can be used as adsorbents for many organic and inorganic substances in both gas and liquid streams — and can be used to remove toxic agents from waste water and to process effluent gas. Activated carbon is an excellent decolorizer that can remove even persistent organic dyes from aqueous and non-aqueous liquid systems.

Carbon black is a unique amorphous carbon solid with the finest primary particle size of all the common industrial carbons. Its properties are a function of the fuel source used in its manufacturing process. Carbon black is graded by its ability to color (known as tint), surface area, primary particle size, structure and conductivity (in the case of electrically conductive blacks). Asbury supplies a number of grades of carbon black for applications such as pigmentation, thermal materials, ultraviolet protection, electrically conductive plastics, rubber, flow enhancement, static dissipation in non-conductive particles and polymer reinforcement.

Carbon and graphite fibers are state of the art when it comes to high-strength, high-modulus, temperature resistant fibers. Asbury offers both polyacrylonitrile (PAN) and pitch-based fibers available in chopped and milled forms. Various types of sizing are also available to provide the right fiber surface chemistry for your system.

Hard Carbon is a proprietary blend of cokes and carbons that create hard particles. These particles impart wear resistance to the materials in which they are incorporated.

Semi-graphitized coke is a high-purity carbon residue that is low in impurities and sulfur, with relatively high thermal conductivity. It is a unique solid carbon that has a wide range of potential uses. Applications that call for calcined petroleum coke also benefit from this high-purity, low-sulfur product.

Carbon content: 97 – 99.5%

Particle sizes: 1" – 1 μ m

GRAPHITE LUBRICANTS AND COATINGS

Asbury's comprehensive line of water, oil and solvent based graphite coatings are formulated for high-performance dry lubrication, release, electrical conductivity or thermal resistance — depending on the demands of your application.

- Stable dispersions from 150µm to true colloids
- Graphite dispersion concentrates for lubricant or coating producers
- Fine graphite powders in small packages
- Graphite in grease, wax stick and aerosol spray form for easy application
- Specialty coatings for various applications
- Custom formulations can be developed or co-engineered
- Non graphitic coatings and lubricants
- Custom packaging available on all products

SOLID GRAPHITE

Asbury offers solid graphite in various shapes and sizes to meet your production needs for runout tables, furnace liners, extrusion rings, ingot molds, stirring rods, degassing tubes, crucibles, lubricating blocks, trays, boats, floats, glass molds, and other uses. Our products use extruded and isostatically pressed materials to meet or exceed your needs and expectations as we will customize to your specifications.

NON-CARBON PRODUCTS

Asbury supplies a broad range of products using high-quality raw materials to meet or exceed customer specifications. All forms of packaging are available, from bags to bulk shipments:

- Aluminum fluxes
- Aluminum modifiers and grain refiners
- Antimony trisulfide
- Bentonite
- Boron nitride
- Degasser tablets
- Fluoride
- Fluxes for non-ferrous metals
- Gilsonite
- Mica
- Molybdenum disulfide
- Potassium titanate
- Sicacell
- Talc
- Titanium-boron alloys
- Zinc sulfide



A World of Solutions.

Asbury Carbons is the worldwide leader in the mining, manufacturing and distribution of a full spectrum of carbon products and selected non-carbon products.



WORLDWIDE LOCATIONS

Asbury Carbons

Sales Offices/Plants	
Plants	
Sales Offices	
Sales Headquarters	
Source Countries for Raw Materials	
Warehouses	
Sales Agents	



PRODUCT DIVISIONS

- Asbury Graphite Mills, Inc.
Asbury, NJ
Kittanning, PA
- Asbury Graphite of California
Rodeo, CA
- Anthracite Industries
Sunbury, PA
- Cummings-Moore Graphite
Detroit, MI
- Southwestern Graphite
DeQuincy, LA
- Asbury Graphite China
Shandong Province, China
- Asbury Carbons de Mexico
Graphitos Mexicanos de Asbury S.A .de C.V.
Grafitos Mexicanos S.A. de C.V.
- Asbury Fluxmaster
Thorold, Ontario, Canada
- Asbury Wilkinson
Mississauga, Ontario, Canada
Chateauguay, Quebec, Canada

All Asbury divisions are ISO-9000:2000 certified or compliant.



INDUSTRIES AND APPLICATIONS

Please call or email us to request a Market Brochure on:

- Carbon Anode Backfill
- Cast Metals
- Expandable Graphite
- Friction Products
- Industrial Lubricants
- Powder Metallurgy
- Products for the Aluminum Industry

Please call or email us to request a Technical Flyer on:

- Activated Carbon
- Bakery Lubricants
- Batteries
- Carbobeads
- Carbon Black
- Carbon Brushes
- Carbon Fibers
- Carbon Molded Shapes
- Carbon Raiser – Ferrous
- Cement Additives
- Ceramics
- Chemicals, Composites and Catalysts
- Conductive Coatings
- Custom Processing
- Distribution/Resale
- Drilling Additives – Loss Circulation
- Drilling Additives – Lubrication
- Drilling Additives – Seepage control
- Electrically Conductive Polymers
- Filtration Carbon
- Fire Retardants
- Flooring – Anti-Static/Conductive
- Foundry Coatings
- Fuel Cells
- Gaskets and Seals
- Glass Manufacturing
- Graphite for Lubricant Manufacturers
- High-Temperature Coatings
- Insulation Materials
- Metal Topping Additives – Carbons
- Non-Ferrous Industry
- Paint and Coatings
- Plastic Additives
- Railroad Lubricants
- Refractories
- Rubber Additives
- Sealing Materials
- Steel Mills/Ferrous Foundries
- Surface Enhanced Flake Graphite
- Welding



**Please contact Asbury Carbons today,
for the solutions of tomorrow.**

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