Brochure & Product Catalogue

2024 English Edition


Phantom
Traders
Phantomtraders.ru

About Us

At Phantom Traders, we pride ourselves as being a trusted partner for businesses and individuals who seek to trade with Russia and other CIS Countries. Our team consists of professionals who have a deep understanding of the local market and the dynamics of international trade. We leverage our expertise and extensive network to provide customized solutions that meet the unique needs and requirements of our customers.

We specialize in sourcing and supplying a wide range of products, including but not limited to, agro- products, diary, metals , minerals, chemicals, Food, etc. Our extensive product range is sourced from reputable manufacturers and suppliers within Russia and CIS countries. We leverage our extensive logistics partners who provides reliable storage, transportation, delivery and trade finance solutions which ensure that trade is conducted safely and effectively bridging the impact of the limitations imposed by the sanctions on our manufacturers and suppliers.

Our innovative approach in marketing and establishment of foreign trade partnership program has earned us a reputable recognition by the chamber of commerce and industry. We are always looking for new opportunities to expand our reach and explore new markets, and we welcome partnerships and collaborations with businesses and individuals who share our vision to become the dependable solutions to our current challenges.

Our Mission Statement

Founded with a passion for trade and service solution. Phantom traders has evolved and adjusted its objective to confront the current realities of the international trade of the region by stepping up with its forward and innovative approach towards problem solving to absorb the limitation placed on the region foreign trade capabilities by the financial and trade sanctions and other political vices design to destabilize the regions robust trade potentials.

Our Partners

Phantom Traders has identified the key elements required to navigate around the challenges and has strategically secured alliance and MOU with major structural component required for effective international trading. including leading manufactures, suppliers, trade financiers, financial institutions, logistics and inspectors. backed by the regional institutions, agencies and also foreign partners.

MIRATORG agribusiness holding

PHOSAGRO

JRE MINERALS FOR HEALTHY LIVE

РУССКАЯ МЕДНАЯ КОМПАНИЯ

TANECO

ГЛАВПРОДУКТ

РФ ТОРГОВЫЙ ДОМ

ЗАКУПКА И ЭКСПОРТ СЕЛЬХОЗПРОДУКЦИИ

Products by Category

Fertilisers

Urea

Carbamide

A nitrogen-based fertilizer that is produced by reacting ammonia and carbon dioxide. Urea is the most widely used fertilizer in the world, as it provides a high concentration of nitrogen and is easy to store and transport. Urea can be applied to the soil or sprayed on the leaves of the plants. Urea improves the yield and quality of crops, but it also can cause environmental problems such as nitrate leaching and greenhouse gas emissions.

Chemical Formula

CH_4N_2O

Carbamide

Product Uses

Urea has many uses in agriculture, medicine, and as a component in the manufacturing of plastics. In agriculture, urea is commonly used as a fertilizer due to its high nitrogen content. It can be applied to soil or added to irrigation systems to promote plant growth and increase crop yield. In medicine, urea is used in topical creams and ointments to help moisturize and soften dry, rough skin. It is also used as a diagnostic tool in certain medical tests. In the manufacturing of plastics, urea is used as a component in the production of melamine, which is commonly used in the production of laminates, adhesives, and coatings. Overall, urea is a versatile compound with a wide range of applications in various industries.

Chemical Composition

Urea is composed of two nitrogen atoms, one carbonyl group, and two amine groups. It is a colorless and odorless substance that is commonly used as a fertilizer due to its high nitrogen content. Urea is also used in the production of various plastics, animal feed, and as a component in some skincare products. In addition, it is used in the medical field as a diuretic and in the treatment of certain skin conditions. Despite its many uses, it is important to note that urea can be harmful if ingested or if it comes into contact with the eyes or skin. Therefore, it is essential to handle this substance with care and to follow all safety precautions when working with it.

Product Specification	
Nitrogen Content	46%
Biuret Content	<1%
Moisture Content	<0.5%
Particle Size	1 - 4mm

DAP

Diammonium phosphate

A phosphorus-based fertilizer that is produced by reacting ammonia and phosphoric acid. DAP is the most widely used phosphorus fertilizer in the world, as it provides a balanced ratio of nitrogen and phosphorus and is suitable for most soils and crops. DAP can be applied to the soil before or during planting or as a top dressing. DAP enhances the root development and flowering of the plants, but it also can cause soil acidity and nutrient imbalance.

Chemical Formula

$(NH_4)_2HPO_4$

Diammonium Phosphate

Product Uses

Diammonium Phosphate has various uses such as a fertilizer, a fire retardant, and a food additive. As a fertilizer, Diammonium Phosphate provides essential nutrients such as nitrogen and phosphorus to plants, promoting healthy growth and increasing crop yields. It is also used as a fire retardant in the construction industry, due to its ability to slow down or prevent the spread of flames. Additionally, Diammonium Phosphate is commonly added to food products as a leavening agent, helping to create a lighter texture in baked goods. It is important to note that while Diammonium Phosphate has many beneficial uses, it should be handled with care as it can be harmful if ingested or inhaled in large quantities.

Chemical Composition

Diammonium Phosphate two ammonia molecules and one phosphate molecule. It is commonly used as a fertilizer in agriculture due to its high nitrogen content. Diammonium Phosphate is also used in the production of fire retardants, food additives, and yeast nutrients in winemaking. It is a white crystalline substance that is highly soluble in water, making it easily absorbed by plants. While it is a commonly used fertilizer, it is important to use it in moderation as overuse can lead to soil and water pollution. When used correctly, Diammonium Phosphate can provide essential nutrients to plants and improve crop yields.

Product Specification	
Nitrogen Content	18%
Phosphorus Content	20.1%
Moisture Content	<1.5%
Particle Size	1 - 4mm

MOP

Muriate of Potash

A potassium-based fertilizer that is produced by evaporating brine from potash deposits. MOP is the most widely used potassium fertilizer in the world, as it provides a high concentration of potassium and is relatively cheap and stable. MOP can be applied to the soil before or during planting or as a top dressing. MOP improves the water use efficiency and stress tolerance of the plants, but it also can cause soil salinity and chloride toxicity.

Chemical Formula

KCl

Pottasium Chloride

Product Uses

Muriate of Potash (MOP) is predominantly used as a soil fertilizer because it provides a readily available supply of potassium, a crucial nutrient for plant growth. Potassium regulates many essential processes in plants, including water uptake, enzyme activation, and photosynthesis. It is widely applied in agricultural fields, especially where soil potassium levels are low. It is suitable for all kinds of crops and soils, making it a versatile fertilizer choice. Aside from agriculture, MOP is used in the pharmaceutical and food industries as a potassium source, in much smaller quantities than in agriculture. Additionally, it finds application in industrial settings for water softening, de-icing roads, and in certain chemical processes.

Chemical Composition

Muriate of Potash is the common name for the chemical compound potassium chloride. It consists of one potassium ion (K^+) and one chloride ion (Cl^-). It is a simple ionic salt and is found naturally in evaporite minerals. The compound is solid at room temperature, highly soluble in water, and its solutions are neutral in pH. Muriate of Potash is typically extracted from underground ore deposits or from evaporated sea beds, after which it is purified and prepared for use as a fertilizer.

Product Specification	
Potassium Content	60%
Chloride Content	47%
Moisture Content	<0.5%
Particle Size	0.5 - 3mm

NPK

Nitrogen, Phosphorus & Potassium

A compound fertilizer that contains nitrogen, phosphorus, and potassium in various proportions. NPK is a balanced and complete fertilizer that can provide all the essential nutrients for crop growth and development. NPK can be produced by blending or granulating different fertilizers or by chemical synthesis.

Chemical Formula

NPK 10-20-10

Composition Ratio

Product Uses

NPK fertilizers are multi-nutrient plant fertilizers containing varying percentages of nitrogen (N), phosphorus (P), and potassium (K). They provide a comprehensive nutrient supply to plants, catering to their primary nutritional needs. These fertilizers help in improving crop yield and quality, enhancing root growth, flower and fruit development, and resistance to pests and diseases. NPK fertilizers are used in various agricultural practices, from large-scale farming to home gardening. The specific N-P-K ratio is selected based on the particular needs of the plants being cultivated and the nutrient profile of the soil. NPK, representing nitrogen (N), phosphorus (P), and potassium (K), is a crucial fertilizer blend for enhancing plant growth and development.

Chemical Composition

NPK is not a single chemical compound but a mixture of several compounds. Nitrogen is often provided by compounds such as urea (NH_2CONH_2) or ammonium nitrate (NH_4NO_3). Phosphorus is typically supplied in the form of monoammonium phosphate ($NH_4H_2PO_4$) or diammonium phosphate ($(NH_4)_2HPO_4$). Potassium is usually added as potassium chloride (KCl) or potassium sulfate (K_2SO_4). The specific chemical composition varies depending on the N-P-K ratio, which is tailored to the particular needs of different crops and growing conditions.

Product Specification	
Nitrogen Content	10-20%
Density	1.1 - 1.5g/cm3
Moisture Content	<2%
Particle Size	1 - 4mm

Mineral Fuels and Oils

Coal

Anthracite, Bituminous & Lignite

A solid, black, combustible substance that is formed from the accumulation and compression of plant matter over millions of years. Coal is mined from underground or surface deposits and burned to produce heat or electricity. Coal is the most abundant fossil fuel in the world, but it also produces a lot of greenhouse gases and air pollutants when burned.

Calorific Value

Anthracite: 26-33 MJ/kg

Bituminous: 24-35 MJ/kg

Sub-bituminous: 18-23 MJ/kg

Lignite: 14-17 MJ/kg

Product Uses

The primary use of coal is for electricity generation; coal-fired power plants burn coal to produce steam for turbines that generate electricity. It is also a vital source of industrial energy, used as a raw material to produce steel and cement. Metallurgical coal, or coking coal, is a vital ingredient in the steelmaking process. Thermal coal, on the other hand, is used for heat and power production. Besides, coal is used to produce synthetic gas, a mixture of carbon monoxide and hydrogen, which can be used as a fuel or as an intermediate product in the chemical industry. Coal tar, a byproduct of coal processing, is used in the manufacture of plastics, pharmaceuticals, and dyes. Activated carbon, used in water filtration systems, is produced from coal.

Chemical Composition

Coal's chemical composition varies widely and includes a complex mix of hydrocarbons, primarily aromatic hydrocarbons, along with varying amounts of heteroatomic compounds containing sulfur, nitrogen, and oxygen. Coal also contains inorganic constituents called mineral matter, which remain as ash after combustion. Depending on the type of coal and its source, it can have different proportions of volatile matter, fixed carbon, water, and ash. The quality and energy content of coal is also influenced by its carbon content; higher-grade coals such as anthracite have higher carbon content and thus higher energy content compared to lower-grade coals like lignite and sub-bituminous coal.

Product Specification	
Ash Content	5-40%.
Volatile Matter	15 - 40%
Sulfur Content	1 - 3%
Density	1.3 - 1.4g/cm3

Petroleum

Crude Oil

A liquid, yellowish, flammable substance that is composed of a mixture of hydrocarbons and other organic compounds. Petroleum is formed from the decomposition of marine organisms under high pressure and temperature over millions of years.

Did You Know

Scientists also discovered Petroleum on **Titan**, one of **Saturn's** moons. This has sparked discussions on the prescence/possibility of extraterrestrial oil wells

Product Uses

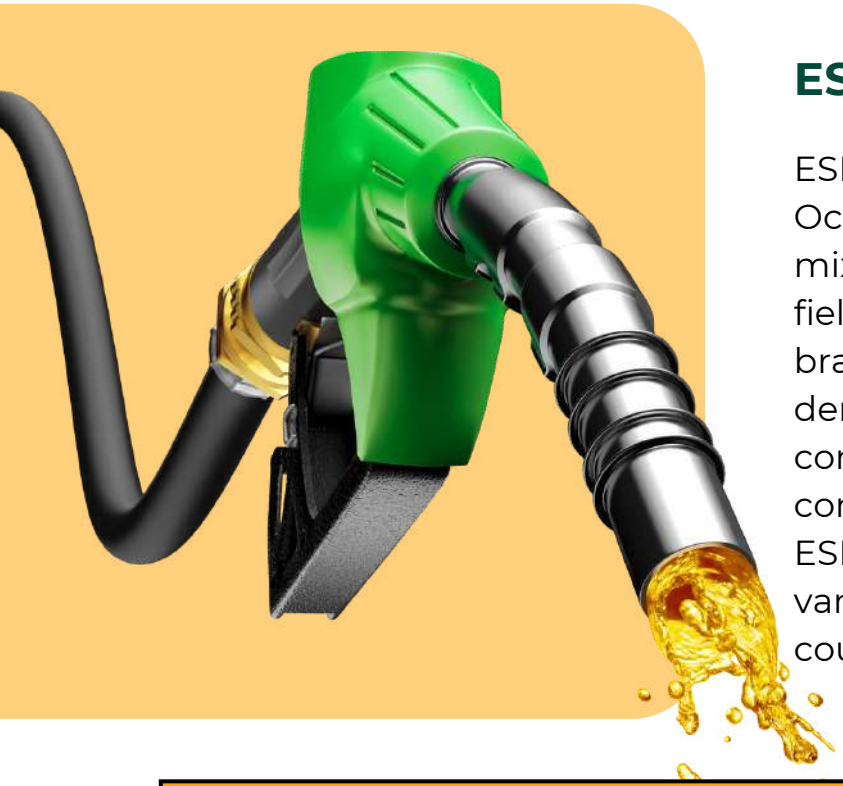
Beyond fuel, petroleum is the raw material for many chemical products, including pharmaceuticals, solvents, fertilizers, pesticides, and plastics. The petrochemical industry relies on petroleum as a feedstock for the production of ethylene, propylene, benzene, toluene, xylene, and methanol, which are precursors to a vast array of goods from synthetic fibers and rubbers to solvents and industrial chemicals. Lubricants such as motor oil and grease are also produced from petroleum. Asphalt derived from petroleum is used in road construction, roofing, and waterproofing applications. In the energy sector, heavy fractions of petroleum are used for heating oil and are converted into electricity in power generation. Additionally, petroleum coke, a byproduct of refining, is employed in metallurgical processes.

Chemical Composition

Petroleum is primarily composed of hydrocarbons, which are molecules made up of hydrogen and carbon atoms. These hydrocarbons come in various forms, including alkanes (paraffins), cycloalkanes (naphthenes), and aromatic hydrocarbons. The composition of petroleum varies significantly based on its source and geological formation, affecting its physical and chemical properties. Apart from hydrocarbons, petroleum can contain small amounts of other elements such as sulfur, nitrogen, oxygen, and metals like vanadium and nickel. These non-hydrocarbon components and the complexity of hydrocarbons determine the quality and type of the crude oil and its suitability for refining into different products.

Product Specification	
Calorific Value	42-47 MJ/kg
Density (API Gravity)	10 (heavy crude) to over 50 (light crude)
Sulfur Content	0.5% (sweet crude) to >3% (sour crude)
Viscosity	10 centipoise to >10,000 centipoise

Product Variations

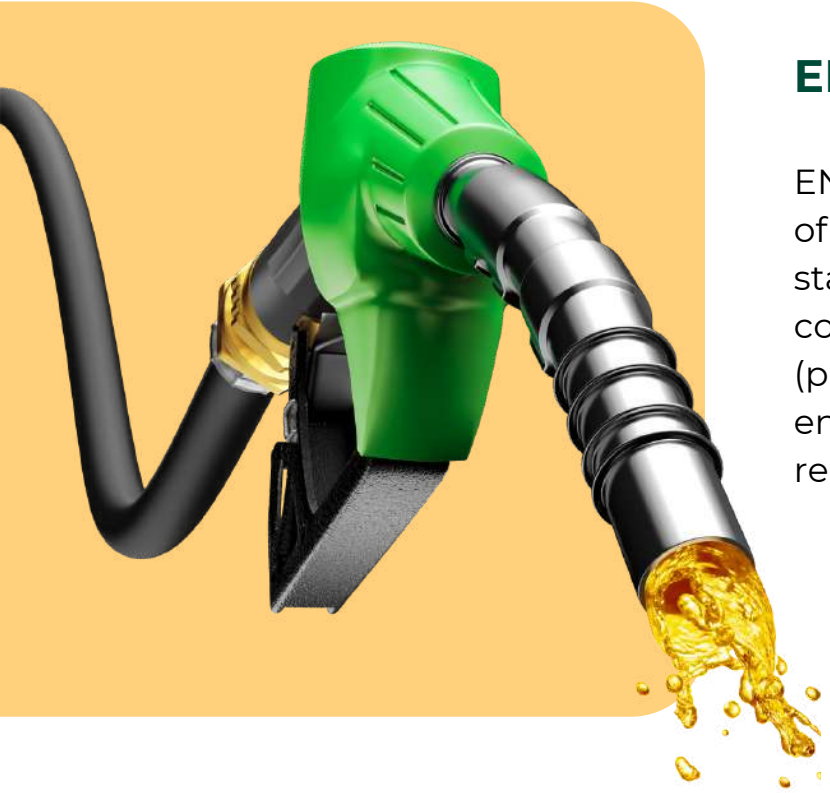


ESPO

ESPO (Eastern Siberia Pacific Ocean) is an oil grade obtained by mixing raw materials from different fields in Eastern Siberia. The ESPO brand is characterized by a fairly low density of 34.8 ° API and low sulfur content — 0.53-0.62%. Russian companies export goods via the ESPO oil pipeline. Basically, this variety has been tried by Asian countries and the United States.

Product Specifications	
Density	ρ15 - 0.8508 g/cm3
API Density	34
Water Content	-0.35%
Sulfur Content	0.535%
Kinematic Viscosity	20° - 6.949
Paraffins	3.3%

Product Variations

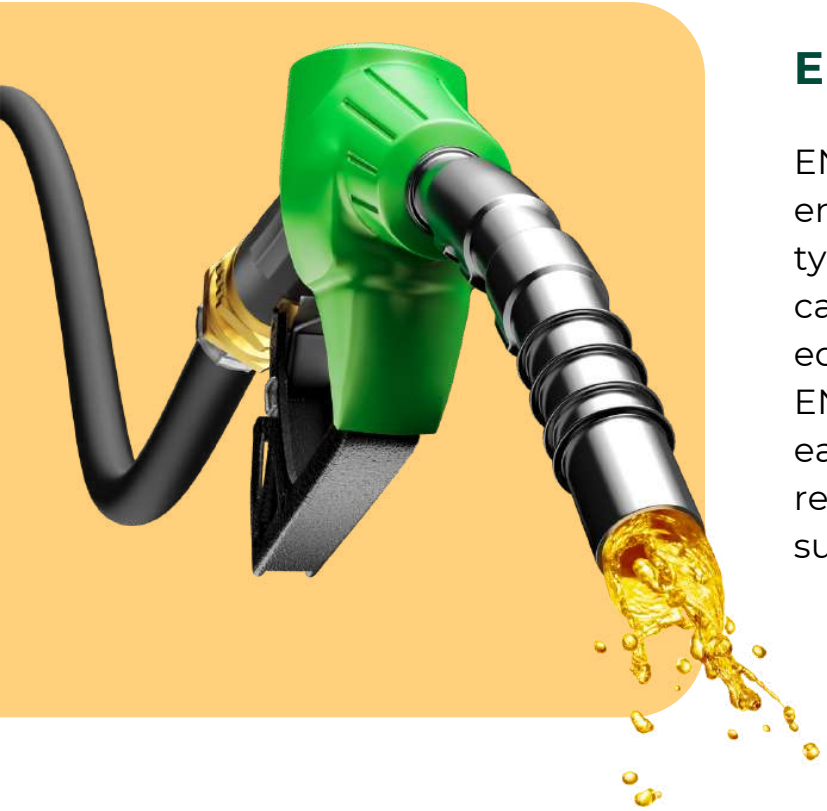


EN590 - 10ppm

EN 590 10 ppm is an ecological type of diesel fuel conforming to Euro 5 standards. It has a low sulfur content - only 10 parts per million (ppm). It is intended for use in diesel engines that meet the requirements of Euro 5.

Product Specifications	
Density at 25°C	Max 1
Ash Content	Max 0.01% Wt
Sulfur content	Max 10 ppm
Flash point	Min 64˚C
Viscosity at 40˚C	Min-Max 2.0-4.5 cSt

Product Variations



EN590 - 50ppm

EN590 - 50PPM is an environmentally friendly fuel for all types of diesel engines of passenger cars, trucks, buses and special equipment. The fuel complies with EN 590 standards and differs from earlier standards in more stringent requirements for the content of sulfur and polyaromatic substances.

Product Specifications	
Density at 15°C	Max 0.85
Ash content	Max 0.01% Wt
Sulfur content	Max 50 ppm
Flash point	Min 65 ˚C
Viscosity at 40°C	Min-Max 2.0-4.5 cSt

LNG

Liquefied Natural Gas

A form of natural gas that is cooled to a liquid state for easier storage and transportation. LNG is mainly used as a fuel for power generation, heating, and vehicles. LNG reduces greenhouse gas emissions and air pollution compared to other fossil fuels, but it also requires high capital and energy costs for liquefaction and regasification.

Chemical Formula

CH_4

Methane

Product Uses

Liquefied Natural Gas (LNG) is natural gas that has been cooled to a liquid state, at about -162 degrees Celsius, for storage and transportation purposes. It is used extensively as an energy source due to its high energy density, which makes it cost-effective to transport over long distances where pipelines do not exist. LNG is used across a wide range of applications. In the residential and commercial sectors, it is used for heating and cooking, similar to natural gas. In industrial settings, LNG serves as a fuel for high-heat processes and as a feedstock for the production of chemicals and fertilizers. A growing use of LNG is in the transportation sector, where it is used as a cleaner alternative to diesel fuel for heavy-duty vehicles, ships, and even some railway locomotives.

Chemical Composition

LNG is predominantly composed of methane (CH_4). However, during the liquefaction process, most of the other components found in its gaseous state, such as water, carbon dioxide, sulfur, and heavier hydrocarbons, are removed as they can freeze under the conditions used to liquefy the methane or cause difficulties in the liquefaction process. As a result, LNG is typically at least 95% methane, with small amounts of ethane, propane, butane, and some nitrogen. The exact composition of LNG can vary depending on the source of the natural gas and the specifics of the liquefaction process.

Product Specification	
Calorific Value	24 MJ/L
Boiling Point	-162 degrees Celsius
Purity	95% methane
Relative density (specific gravity)	0.41 - 0.5

Natural Gas

Methane

A gaseous, colorless, odorless substance that is mainly composed of methane and other hydrocarbons. Natural gas is formed from the same process as petroleum, but it remains in a gaseous state due to lower pressure and temperature. Natural gas is extracted from wells or pipelines and used as a fuel for heating, cooking, vehicles, power plants, and industrial processes. Natural gas is the cleanest burning fossil fuel, but it still emits carbon dioxide and methane when burned.

Chemical Formula

CH_4

Methane

Product Uses

Natural gas is a versatile, clean-burning fossil fuel that has become a vital energy source worldwide. It is primarily used for heating and generating electricity. Residential and commercial buildings use it for space heating, water heating, and cooking. It's also employed in various industrial processes as a heat source and as a raw material to produce chemicals, fertilizers, and hydrogen. Natural gas is increasingly popular in power generation due to its lower carbon emissions compared to coal and oil, playing a significant role in efforts to reduce greenhouse gas emissions. It's also used in cogeneration systems that produce both electricity and heat simultaneously, achieving high levels of energy efficiency.

Chemical Composition

Natural gas is predominantly composed of methane (CH_4), a simple hydrocarbon with one carbon atom and four hydrogen atoms. However, it also contains varying amounts of other higher alkanes like ethane (C2H6), propane (C3H8), and butane (C4H10), as well as traces of other gases such as carbon dioxide (CO2), nitrogen (N2), hydrogen sulfide (H2S), and in some cases, helium (He). The exact composition of natural gas can vary greatly depending on the source and treatment before it reaches the consumer. The presence of these additional components is typically removed to increase the energy content and to meet the specifications for transportation and use.

Product Specification	
Calorific Value	35-45 MJ/m^3
Methane Content	85%
Sulfur content	4 mg/m^3
Moisture content	<65 mg/m^3

Aviation Fuel

Fuel for Jet A-1 gas turbine engines

Aviation fuel, specifically designed for use in aircraft engines, is a specialized type of petroleum-based fuel or kerosene. It is known for its high quality and stringent specifications to ensure safety, performance, and efficiency in aviation operations.

Product Uses

Aviation fuel is primarily used as a propellant for aircraft. Jet fuels, such as Jet A or Jet A-1, are kerosene-based and utilized by commercial airliners, cargo aircraft, private jets, and military aircraft with turbine engines. They are formulated to perform in a wide range of environmental conditions, maintaining fluidity at low temperatures and stability at high temperatures. On the other hand, aviation gasoline (avgas) is used for piston-engine aircraft, such as small private planes and vintage aircraft. This type of fuel is tailored to deliver high power output while preventing engine knocking. Aviation fuels are also equipped with additives to enhance performance, including anti-knock compounds, corrosion inhibitors, thermal stability improvers, and icing inhibitors.

Chemical Formula

C_nH_n

Hydrocarbons

Chemical Composition

Aviation fuels are made up of a complex mixture of hydrocarbons, including alkanes, cycloalkanes, and aromatic hydrocarbons, tailored to meet specific requirements of aviation engines. The exact composition varies depending on the type of fuel. Jet A and Jet A-1 typically consist of hydrocarbons with 12 to 15 carbon atoms per molecule, while aviation gasoline (avgas) contains a mixture of hydrocarbons including alkanes, olefins, and aromatics, as well as additives such as tetraethyl lead (TEL) to enhance octane ratings (though unleaded avgas versions are increasingly available). Along with energy content, the chemical composition of aviation fuel is optimized for a low freezing point, high thermal stability, and suitability for high-altitude performance.

Product Specification	
Freezing Point	-40°C or lower
Flash Point	38°C
Energy Content	42.8 MJ/kg
Octane Rating (AVGAS)	Avgas 100LL has an octane rating of 100

Petroleum Coke

Predominantly Carbon

A solid, black, carbon-rich by-product of petroleum refining. Petroleum coke is used as a fuel for industrial processes, such as cement production, steel making, and power generation. Petroleum coke has a high calorific value and low ash content, but it also emits a lot of sulfur dioxide and carbon dioxide when burned.

Chemical Formula

C

Carbon

Product Uses

Petroleum coke, often referred to as petcoke, is a carbon-rich solid material that derives from oil refinery coker units during the processing of heavy residual oil. It is used extensively as a fuel in the cement and power generation industries due to its high calorific value and low ash content. As a cheaper alternative to coal, petcoke can be used in the steel industry for the iron ore sintering process, which prepares the iron ore for steel making. In addition to its fuel uses, calcined petcoke, which is the product of the calcination process, is an essential raw material in aluminum production where it is used to manufacture anodes for the aluminum smelting process. Calcined petcoke is also used in the production of titanium dioxide, a pigment used in paint, plastics, and food coloring.

Chemical Composition

Petroleum coke is primarily composed of carbon (over 80% by weight), and its chemical composition is largely dependent on the composition of the feedstock and the coking process. It also contains hydrogen, nitrogen, sulfur, and oxygen, but in much lower quantities compared to the carbon content. The sulfur content can vary significantly, with some petcoke having a sulfur content as high as several percent. The presence of metals such as vanadium, nickel, and iron is also common in petcoke, and their concentrations can affect the material's usability and environmental impact.

Product Specification	
Calorific value	35-38MJ/kg
Ash content	0.5-1%
Moisture content	5-10%
Volatile matter	8-12%
Sulfur	4%

Heating Oil

Bunker Oil, Marine Fuel, or Heavy Oil

Heating oil, also known as No. 2 heating oil, is a low-viscosity liquid petroleum product used as a fuel oil for furnaces or boilers in buildings for heat generation. It is one of the most efficient heating fuels available and is easily transported and stored.

Did You Know?

Heating oil does not have a unique chemical formula; it is a mixture of hydrocarbons, primarily in the C12-C20 range.

Product Uses

Heating oil is extensively used in residential and commercial settings for space heating and water heating. It is a popular choice in areas where natural gas is not readily available, particularly in the northeastern United States and in rural regions. Heating oil systems include a tank where the oil is stored and a furnace or boiler where the oil is burned to produce heat. The heat is then distributed throughout the building via a network of pipes, vents, or radiators. In addition to heating spaces, heating oil can also be used to heat water in a tank or through a tankless system, providing hot water for use in kitchens, bathrooms, and other applications. The efficiency of heating oil allows for quick heat generation, making it a reliable fuel source in cold climates.

Chemical Composition

Heating oil is predominantly made up of hydrocarbons, including alkanes (paraffins), cycloalkanes (naphthenes), and aromatic hydrocarbons. The exact composition varies depending on the crude oil source and the refining process. It is similar to diesel fuel and can sometimes contain small amounts of sulfur, although ultra-low sulfur varieties are becoming standard. Additives may be included to improve the fuel's performance and stability, preventing issues such as gelling in cold temperatures and promoting efficient combustion.

Product Specification	
Sulfur content	15 ppm
Flash Point	52°C
Viscosity	1.3-7.7 cSt at 40°C
Pour Point	Lower than the lowest expected temperature of the area where it will be used, to avoid gelling in cold climates.

LPG

Liquefied Petroleum Gas

Liquefied Petroleum Gas (LPG) is a versatile, clean-burning, and efficient fuel that consists primarily of propane, butane, and mixtures thereof. It is stored and transported in pressurized tanks as a liquid and can be used as both a fuel and a raw material in a variety of applications.

Chemical Formula

Propane: C_3H_8
Butane: C_4H_{10}

Product Uses

LPG is widely used as a fuel for heating, cooking, and hot water systems in residential and commercial buildings, especially in areas where natural gas is not available. In the industrial sector, it is employed as a fuel for heat treatment processes, drying, kilning, and powering industrial ovens, as well as in manufacturing operations as a feedstock for the production of plastics and other chemicals.

In the agricultural sector, LPG is used to power machinery, dry crops, and heat greenhouses. Its portability and clean combustion make it an ideal energy source for off-grid applications and areas with limited infrastructure. The automotive industry also utilizes LPG as an alternative to petrol and diesel.

Chemical Composition

LPG is composed mainly of propane (C_3H_8) and butane (C_4H_{10}), with the proportion of these gases varying depending on the source and the intended use of the gas. Commercial LPG can also contain small amounts of other hydrocarbon gases like propylene and butylene. LPG is colorless, odorless, and non-toxic, although an odorant such as ethanethiol or thiophene is usually added to help detect leaks. Its composition makes it an efficient energy source with a high calorific value, and it burns with a clean flame and very low levels of sulfur emissions.

Product Specification	
Calorific Value	Propane: 46 MJ/kg Butane: 49 MJ/kg
Vapour Pressure	2 - 8 bar at 20°C
Boiling Point	Propane: -42°C Butane: -2°C
Purity	>95%

Bitumen

Asphalt

A thick, sticky, black substance that is obtained from the distillation of crude oil or natural bitumen deposits. Bitumen is used as a binder for asphalt and roofing materials, as well as a waterproofing and sealing agent. Bitumen has a high viscosity and durability, but it also poses environmental and health risks due to its toxicity and flammability.

Product Uses

Bitumen is predominantly used in the construction and maintenance of roads, highways, and airport runways as a binding agent mixed with aggregate particles to form asphalt concrete. Its waterproofing qualities make it ideal for roofing applications; it is used to make roofing felts or as a sealant for roofing shingles. Bitumen is also employed in the construction industry for damp proofing and waterproofing flat roofs, in the production of insulating materials, and as a component in sealants, adhesives, and paints. In civil engineering, bitumen serves as a foundational layer for various kinds of infrastructural projects, such as lining canals and reservoirs, providing a barrier to moisture in foundations, and underpinning tunnels and bridges.

FACTS

Bitumen from the Dead Sea was used by the Egyptians for **embalming** mummies, owing to its preservative properties.

Chemical Composition

Bitumen is a complex mixture of organic liquids that are highly viscous, black, sticky, entirely soluble in carbon disulfide, and composed primarily of highly condensed polycyclic aromatic hydrocarbons. The composition of bitumen varies depending on the crude oil source and the refining process. It typically contains sulfur, nitrogen, oxygen, and various metal traces alongside hydrocarbons. The specific constituents include asphaltenes (high molecular weight phenols and heterocyclic compounds), saturates (straight and branched chain paraffinic hydrocarbons), aromatics (cyclic hydrocarbons), and resins (polar aromatics).

Product Specification	
Viscosity	60-300 pa.s
Penetration	20-300 dmm
Softening point	40-60^{o}C
Flash point	220^{o}C

Iron and Steel

Pig Iron

Crude Iron

Pig iron is a brittle and high-carbon form of iron that is produced by smelting iron ore in a blast furnace. It contains around 4% carbon, along with other impurities such as sulfur, silicon, and manganese. Due to its high carbon content, pig iron is not suitable for use in most applications, and is generally used as an intermediate product for making steel, cast iron, and alloys.

FACTS

The name is derived from the traditional shape of the molds used in its production. When molten iron was poured into sand molds from a blast furnace, it would cool into ingots called "pigs."

Product Uses

Pig iron serves as a crucial intermediary in steel production, providing the base material for further refinement. It's employed in foundries and steel mills to produce various steel grades for construction, manufacturing, and other industrial applications.

In addition to its functional role in steel production, pig iron can also have unique visual and artistic appeal. Some designers and artists have incorporated pig iron into their creations, utilizing its distinctive texture and industrial aesthetic to add character and interest to their pieces. Whether it's in the form of raw materials or finished products, pig iron can serve as a versatile and intriguing element in design.

Chemical Composition

Pig iron primarily consists of about 92-94% iron and 3-4% carbon. It also contains varying amounts of other elements such as silicon (Si), manganese (Mn), sulfur (S), and phosphorus (P). The high carbon content makes it very brittle and not useful for most applications until it is further refined. Silicon is typically present in the range of 1-3%, manganese around 0.5-1%, sulfur 0.02-0.07%, and phosphorus 0.07-0.12%. The exact composition can vary based on the ores used and the conditions within the blast furnace.

Product Specification	
Carbon Content	3.5% to 4.5%
Silicon Content	1.0% and 3.0%
Manganese Content	0.5% to 1.0%
Sulfur Content	0.07%

Steel

Intermediate Steel Products

These are semi-finished items that require further processing before being transformed into finished goods. They include slabs, blooms, and billets, which are cast from molten steel and are the starting materials for a variety of steel products.

Product Uses

Semi-finished steel products are the building blocks for a wide range of steel goods. Slabs are generally rolled to make flat products like plates, sheets, and strips, which are extensively used in industries such as shipbuilding, automotive, construction, and appliances. Blooms are further processed into structural steel shapes like beams, girders, and rails, which are critical in construction and infrastructure projects, such as buildings, bridges, and railways. Billets are rolled into bars and rods, used for reinforced concrete structures, manufacturing, and automotive parts. These semi-finished products are also employed in the production of pipes and tubes, which are pivotal in the oil and gas industry, as well as in energy and utilities.

FACTS

The Eiffel Tower, a marvel of engineering and design, could be considered an homage to semi-finished steel, as it required over **18,000** individual iron parts, akin to semi-finished steel forms, all fabricated off-site and then assembled to create the iconic structure.

Chemical Composition

Semi-finished steel is predominantly iron with a carbon content typically between 0.2% and 2.0%. The exact chemical composition can vary depending on the type of steel required. Other elements are present in varying amounts, often including silicon (Si), manganese (Mn), phosphorus (P), sulfur (S), and sometimes small quantities of chromium (Cr), nickel (Ni), and molybdenum (Mo) among others. These elements are added to achieve certain properties like strength, ductility, and resistance to corrosion. The precise amount of each element is carefully controlled during the steelmaking process to ensure the final product meets specific requirements for its intended use.

Product Specification	
Carbon Content	0.2% - 2.0%.
Dimensional Specifications	Slabs, blooms, and billets are categorized by their cross-sectional dimensions (width and thickness for slabs; square side length for blooms and billets) and length.
Tensile Strength	The range of tensile strength varies based on the specific steel grade produced, often tailored to the intended application.
Surface Quality	Semi-finished products usually have a surface free from defects that could affect the quality of the finished product, such as cracks, seams, or surface scabs.

Ferro-alloys

Alloying Elements

Ferro-alloys, commonly referred to as alloying elements, are essential components in the steelmaking industry. These alloys consist of various combinations of iron and other elements, imparting specific properties to steel, enhancing its strength, corrosion resistance, and other crucial characteristics.

Product Uses

Ferro-alloys play a vital role in steel production by introducing specific alloying elements to enhance the performance of the final steel product. Silicon (Si) and manganese (Mn) are commonly used to deoxidize and desulfurize molten steel, improving its quality and preventing the formation of undesirable impurities. Ferro-chromium (Fe-Cr) and ferro-molybdenum (Fe-Mo) contribute to the corrosion resistance and high-temperature strength of stainless steel. These alloys enable steel manufacturers to tailor the properties of steel according to the intended application, making it suitable for a wide range of industries, including automotive, construction, and aerospace.

FACTS

The chromium content in ferrochrome is what gives stainless steel its superpower-like resistance to rust and corrosion.

Chemical Composition

Ferro-alloys encompass a range of compositions. Ferro-silicon typically contains iron (Fe) and silicon (Si), while ferro-chromium includes iron (Fe) and chromium (Cr), and ferro-molybdenum comprises iron (Fe) and molybdenum (Mo). The precise ratios are adjusted to achieve the desired alloying effects. These alloys are crucial for achieving the desired properties in steel, influencing factors such as hardness, ductility, and corrosion resistance.

Product Specification	
Carbon Content	< 0.2%
Particle Size	10-50 mm
Melting Point	Varies by alloy type (e.g., Ferro-silicon melts around 1200°C)
Alloy Content Tolerance	±1%

Finished steel

End-product Steel

Finished steel, also known as end-product steel, represents the final stage in the steel manufacturing process. This refined material undergoes stringent quality control measures to meet specific standards, ensuring consistent performance and reliability. Finished steel is ready for direct use in various applications across industries.

Product Uses

Finished steel is a versatile material employed in an extensive array of applications. It serves as the backbone for construction, contributing to the creation of buildings, bridges, and infrastructure. In the automotive sector, finished steel is utilized to manufacture vehicle components, ensuring strength and safety.

Additionally, this material finds application in machinery, appliances, and consumer goods, showcasing its adaptability and reliability.

The properties of finished steel, such as hardness, ductility, and corrosion resistance, are carefully balanced to meet the diverse requirements of different end-users.

FACTS

The iconic Golden Gate Bridge in San Francisco required a staggering **83,000** tons of steel to complete

Chemical Composition

Finished steel consists primarily of iron (Fe) with controlled amounts of carbon (C), manganese (Mn), sulfur (S), and phosphorus (P). Alloying elements like chromium (Cr), nickel (Ni), and molybdenum (Mo) may be included to enhance specific properties. The precise composition varies depending on the grade of finished steel, ensuring it meets the mechanical and chemical specifications required for its intended applications.

Product Specification	
Tensile Strength	600 MPa
Yield Strength	400 MPa
Hardness	150-200 HB (Brinell hardness)
Surface Finish	Pickled and Oiled

Cereals

Wheat

Triticum Aestivum

Wheat, scientifically known as Triticum aestivum, is a staple cereal grain and one of the most widely cultivated and consumed crops globally. This versatile grain serves as a primary source of dietary energy for a significant portion of the world's population.

FUN FACT

Archaeological evidence suggests that wheat cultivation dates back over **10,000** years, making it one of the oldest cultivated crops

Product Uses

Wheat has a diverse range of uses, with its primary application being in the production of various food products. It is milled into flour, a key ingredient in the baking industry, used to make bread, pastries, and pasta. Beyond its role in the culinary world, wheat is also utilized in animal feed, providing essential nutrients for livestock. Additionally, wheat straw finds use in agriculture for animal bedding, thatching, and as a raw material for paper production. Its adaptability and nutritional value make wheat a vital component of the global food supply chain. Wheat is one of the most widely cultivated and consumed crops in the world, with an estimated 750 million tons produced annually. It is grown in almost every continent and is a staple food in many countries.

Chemical Composition

The chemical composition of wheat includes carbohydrates (mainly starch), proteins (gluten being a significant component), fats, fiber, vitamins (B-complex vitamins, vitamin E), and minerals (iron, zinc, magnesium). The balance of these components varies between wheat varieties and is influenced by factors such as soil conditions and cultivation practices. The gluten content, a protein responsible for the elastic texture of dough, is a crucial factor in determining the suitability of wheat for baking purposes.

Product Specification	
Moisture Content	12%
Protein Content	10-15%
Test Weight	78 kg/hL
Falling Number	300 seconds

Corn

Zea Mays

Corn, scientifically known as Zea mays or maize, is a widely cultivated cereal grain that serves as a staple food in many parts of the world. With its distinctive cobs and kernels, corn is a versatile crop used for various purposes beyond direct consumption.

FUN FACT

Corn does not have a single chemical formula, as it is a complex biological organism. However, it can be noted that corn primarily consists of carbohydrates, including starch, and contains proteins, fats, vitamins, and minerals.

Product Uses

Corn has a broad range of applications, making it a crucial commodity in agriculture and industry. Primarily, it is a staple in human diets, consumed as a vegetable, or processed into cornmeal, corn syrup, and various other food products.

Corn is also a key ingredient in animal feed, providing essential nutrients for livestock. In addition to its role in food production, corn is used in industrial processes for ethanol production, as a raw material in the manufacturing of starch, oils, and bio-based plastics.

Its versatility and high yield make corn a valuable and multifunctional crop with implications for both food security and industrial sustainability.

Chemical Composition

The chemical composition of corn includes carbohydrates (predominantly starch), proteins, fats, fiber, vitamins (B-complex vitamins, vitamin C), and minerals (phosphorus, potassium). The balance of these components varies among different corn varieties and is influenced by factors such as soil conditions and cultivation practices. Corn is particularly valued for its high carbohydrate content, making it a significant energy source in both human and animal diets.

Product Specification	
Moisture Content	14%
Protein Content	8-12%
Oil Content	3-5%
Kernel Size (average length)	12-16 mm

Barley

Hordeum Vulgare

Barley is a major cereal grain commonly found in temperate climates globally and one of the first domesticated grains in agriculture. It is a versatile crop known for its rich, nutlike flavor and chewy, pasta-like consistency when cooked. Barley is primarily used as feed for livestock, as well as in the production of malt for beer and whiskey, and is also consumed by humans in a variety of foods.

FUN FACT

Barley is one of the oldest cultivated grains, with evidence of its use in human diets dating back to at least **10,000** years

Product Uses

Barley is widely used for multiple purposes. A significant portion of harvested barley is used for animal feed due to its high fiber content. It's an important component of livestock rations for cattle, horses, poultry, and pigs. Another primary use of barley is in the production of malt, which is a key ingredient in brewing beer and distilling whiskey. The malting process involves soaking the barley to allow it to germinate and then drying it to harness enzymes that convert starches into fermentable sugars. For human consumption, barley is often found in health foods, soups, stews, and bread. Hulled or "whole grain" barley is a nutritious addition to meals, as it preserves more of the fiber and nutrients.

Chemical Composition

Barley grain is composed mainly of carbohydrates, primarily in the form of starch, which accounts for about 50-60% of its weight. It is a good source of dietary fiber, both soluble and insoluble, which is beneficial for digestive health. The protein content in barley ranges from 7-12%, and while it contains a lower level of lysine, it is rich in other essential amino acids. Barley also contains vitamins, particularly B-group vitamins like niacin, thiamin, riboflavin, and folate. Its mineral content includes phosphorus, potassium, calcium, and magnesium. Additionally, barley contains various antioxidants, such as tocopherols, flavonoids, and phenolic acids.

Product Specification	
Moisture Content	12-14%
Protein Content	7 - 12% of dry weight
Test Weight	48lb/bu or 620kg/m^3
Germination Rate	> 95%

Oats

Avena Sativa

Oats are a cereal grain known for their health benefits and are widely cultivated in temperate regions around the world. They have a higher soluble fiber content compared to other grains, which has been linked to lowering blood cholesterol and stabilizing blood glucose levels. Oats are commonly processed into rolled oats or oatmeal and are used in a variety of food products.

FUN FACT

Oats are often used by farmers in crop rotation systems because they can help reduce weed pressure and diseases in crops that follow.

Product Uses

Oats are a nutritious grain used extensively in the food industry and for personal consumption due to their health benefits. They are most commonly rolled or crushed into oatmeal, or ground into fine oat flour. Oatmeal is often eaten as porridge but is also used in a variety of baked goods, such as oatcakes, oat cookies, and oat bread. Oats are also an ingredient in many cold cereals, in particular muesli and granola. Beyond human consumption, oats have applications in skincare products, owing to their soothing effect on the skin, and are found in various creams and lotions. They are also used to feed animals, especially horses, providing a nutritious supplement to their diet.

Chemical Composition

Oats are a rich source of carbohydrates, making up approximately 60-70% of their composition, with a unique type of fiber called beta-glucan known for its benefits in lowering cholesterol and improving heart health. They have a higher protein content than many other cereals, around 10-17%, providing a good balance of essential amino acids. Oats are relatively high in fat, which contributes to their creamy texture when cooked. The lipid content is mainly unsaturated and includes healthy fats such as linoleic acid. They also contain a good range of micronutrients, including manganese, selenium, phosphorus, magnesium, iron, zinc, and B vitamins, particularly vitamin B1 (thiamine). Oats are also known for their antioxidant compounds, including avenanthramides, which are almost unique to oats.

Product Specification	
Moisture Content	13 - 14%
Protein Content	10 - 17% of dry weight
Test Weight	32lb/bu or 410kg/m^3
Purity	99%

Rye

Secale Cereale

Rye is a cereal grain that belongs to the wheat tribe and is closely related to barley and wheat. It is known for its hardiness and ability to thrive in poor soils and cold conditions, making it a staple grain in many parts of the world. Rye grains are used for flour, rye bread, rye beer, some whiskeys, some vodkas, and animal fodder.

Product Uses

Rye is a versatile grain with a deep, rich taste and is primarily used for baking a variety of bread, which is denser and darker than bread made from wheat. The whole rye grains are also used in making porridge, crisp bread, and crackers. In the beverage industry, rye is valued for its distinctive flavor and is used to produce rye beer and some types of whiskey, imparting a spicy, fruity flavor that is characteristic of rye-based alcoholic beverages. It is also used in the production of some vodkas, particularly those from Eastern European countries. As a fodder crop, rye is used to feed livestock, and it is also planted as a cover crop to prevent soil erosion, improve soil structure, and add organic matter to the soil, enhancing its fertility.

Did You Know?

Rye can cross-breed with wheat to produce triticale, which combines the quality of wheat with the hardiness of rye.

Chemical Composition

Rye grain contains carbohydrates predominantly in the form of dietary fiber (both soluble and insoluble), making it a high-fiber food source. It is also a good source of protein, with a range of essential amino acids, though it has a lower lysine content than wheat. Rye contains minerals such as magnesium, iron, and phosphorus. It also has a variety of vitamins, including several B-vitamins (e.g., niacin, thiamin, and riboflavin) and vitamin E. Rye has a notable content of various phytonutrients and antioxidants, including phenolic acids, lignans, and alkylresorcinols.

Product Specification	
Moisture Content	< 14%
Protein Content	10 - 14% of dry weight
Test Weight	50 - 58lb/bu or 630 - 730kg/m^3
Falling Number	> 160s

Animal/ Vegetable Fats and Oils

Sunflower Oil

Helianthus Oil

Sunflower oil, extracted from the seeds of the sunflower plant (Helianthus annuus), is a non-volatile oil commonly used in food as a frying oil, and in cosmetic formulations as an emollient. It is prized for its light taste, frying performance, and health benefits.

Did You Know?

Sunflower oil can be used to power diesel engines when converted into biodiesel.

Product Uses

Sunflower oil is widely used in cooking and food preparation. Its high smoke point makes it an excellent choice for frying, sautéing, and other high-heat cooking methods. The oil is also used in salad dressings, margarines, and spreads, providing a mild, unobtrusive flavor that complements other ingredients. Due to its light texture, it's a favorite for use in baked goods, from breads to cakes, offering a moist consistency without a heavy, greasy feel.

Beyond culinary applications, sunflower oil is incorporated into cosmetic products as a hydrating agent. It is found in a variety of skincare products, including creams, lotions, and serums, where it helps to nourish and soften the skin.

Chemical Composition

Sunflower oil is predominantly composed of linoleic acid (a polyunsaturated fatty acid) and oleic acid (a monounsaturated fatty acid). The typical oil contains 65 to 75% linoleic acid and 14 to 40% oleic acid, depending on the variety. It also contains palmitic acid and stearic acid, which are saturated fats, in smaller amounts. Additionally, sunflower oil is a source of lecithin, tocopherols, carotenoids, and waxes. Its tocopherol content is mainly composed of alpha-tocopherol, which is a form of vitamin E, known for its antioxidant properties.

Product Specification	
Moisture and Volatile Matter	Maximum 0.2% - This ensures the oil's stability and prevents rancidity.
Free Fatty Acids	Maximum 0.1% expressed as oleic acid - Indicates the oil's freshness and good processing practices.
Peroxide Value	Maximum 10 meq/kg - Peroxide value is a crucial indicator of the initial stages of oxidation in the oil.
Color (Lovibond Scale)	Typically, refined sunflower oil has a pale yellow color, measured as Y10, R1.5 in a 5¼ inch cell on the Lovibond scale, indicating its purity and level of refinement.

Rapeseed Oil

Canola Oil (for low erucic acid varieties)

Rapeseed oil is a clear, golden-yellow vegetable oil obtained from the seeds of the rapeseed plant (Brassica napus), known for its low saturated fat content. It is widely used in food preparation and industrial applications due to its favorable nutritional profile and versatile properties.

Product Uses

Rapeseed oil is a versatile kitchen staple, suitable for a variety of culinary uses including frying, baking, grilling, and salad dressings due to its light flavor and high smoke point. It's particularly favored for its low levels of saturated fats and balance of omega-6 and omega-3 fatty acids, contributing to a heart-healthy diet. In addition to its culinary uses, rapeseed oil is used in the production of biodiesel as an eco-friendly alternative to fossil fuels. The oil also serves the non-food industry by being a component in lubricants, hydraulic fluids, and plastics. In the beauty industry, rapeseed oil is utilized for its emollient properties, finding its way into creams, lotions, and soaps. Its high vitamin E content also makes it a good choice for skincare products, promoting skin health and providing antioxidant benefits.

Did You Know?

Rapeseed oil is used to make eco-friendly oil paints for artists, offering a less toxic alternative to traditional oil paints made from linseed or flax

Chemical Composition

Rapeseed oil is predominantly made up of monounsaturated fats, specifically oleic acid, which comprises about 60% of its total fat content. It also contains significant amounts of polyunsaturated fats, including linoleic acid (omega-6 fatty acid) and alpha-linolenic acid (omega-3 fatty acid), in a relatively balanced ratio which is beneficial for cardiovascular health. The saturated fat content is relatively low, around 7%. Rapeseed oil is a good source of vitamin E, particularly gamma-tocopherol, and contains only trace amounts of erucic acid, especially in the canola varieties. Phytosterols, which can lower cholesterol absorption, are also present.

Product Specification	
Erucic Acid Content	For canola oil, a maximum of 2%
Peroxide Value	Maximum 7.5 meq/kg
Smoke Point	Approximately 400°F (204°C)
Iodine Value	110 - 126 g/100g

Soybean Oil

Soya Oil

Soybean oil is a vegetable oil extracted from the seeds of the soybean plant (Glycine max). It is one of the most widely consumed cooking oils and is a significant part of the global edible oil market. Due to its neutral flavor and high smoke point, soybean oil is a versatile ingredient in both commercial food production and home cooking.

FUN FACT

Soybean oil is a renewable resource and its use in biodiesel production helps reduce the carbon footprint compared to fossil fuels.

Product Uses

Soybean oil is extensively used in the food industry for frying, baking, and as a condiment for salads due to its neutral taste and high smoke point, which makes it a flexible choice for various culinary applications. It is also commonly used in the production of margarine and shortening. In addition, soybean oil is an ingredient in a multitude of processed foods, including mayonnaise, salad dressings, frozen foods, and commercially baked goods. Outside of the kitchen, soybean oil is used in industrial applications, such as the production of paints, plastics, and biofuels. It also appears in products like soaps, moisturizers, and cosmetics, contributing hydrating properties. The oil can be chemically transformed into a variety of products, including isoflavones and vitamin E.

Chemical Composition

Soybean oil is primarily composed of polyunsaturated fatty acids, mainly linoleic acid (omega-6) which constitutes about 53% of its fat content. It also contains about 23% monounsaturated fats (oleic acid) and 15% saturated fats, including palmitic and stearic acids. The oil is rich in Vitamin E, particularly gamma-tocopherol, and contains phytosterols that can contribute to cholesterol reduction. It is also a source of lecithin, which can be used as an emulsifier in food products.

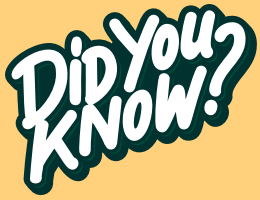
Product Specification	
Free Fatty Acid (as oleic)	Maximum 0.1%
Peroxide Value	Maximum 2 meq/kg
Moisture and Volatiles	Maximum 0.1%
Color (Lovibond Cell 5 1/4 inch)	Not more than 4.0 Yellow and 0.4 Red

Butter

Butter is a dairy product created by churning cream or milk to separate the solid components from the liquid. It is valued for its rich flavor, creamy texture, and versatility in cooking and baking. Butter is a traditional staple in many cuisines and is used both as a condiment and an ingredient.

Product Uses

Butter plays a critical role in both savory and sweet culinary traditions around the world. It provides a rich flavor and a tender crumb to baked goods like pastries, cakes, and cookies. In cooking, it serves as a base for sauces, clarifies into ghee for various traditional dishes, and enhances the taste of everything from sautéed vegetables to steaks. Butter's ability to carry and meld flavors makes it an essential ingredient in finishing dishes, while its fat content contributes to the golden crust on baked goods and fried foods. Beyond the kitchen, butter is sometimes used in skin care for its moisturizing properties, although this is less common with the availability of modern cosmetics.



The earliest known use of butter dates back to 2000 BCE, and it was not only used as food but also as medicine and a form of currency in some cultures.

Chemical Composition

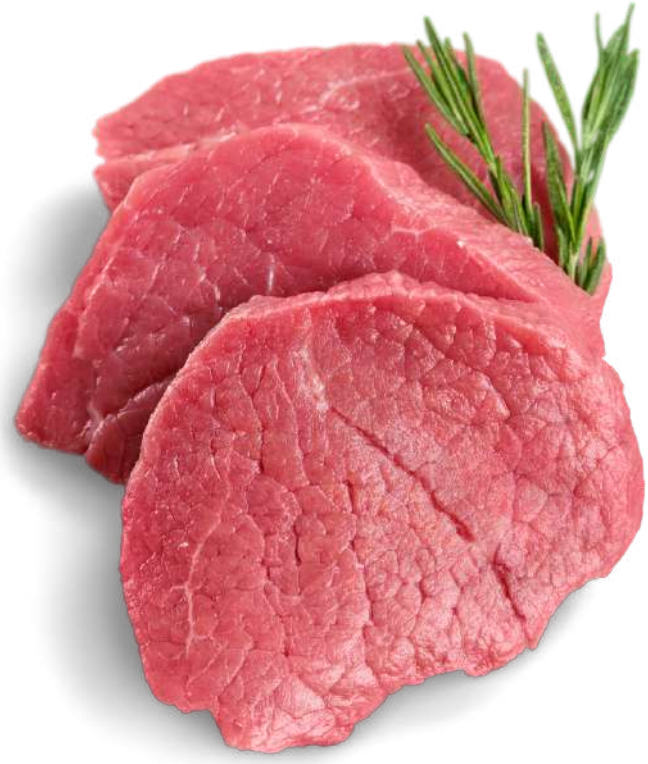
Butter is composed of approximately 80% milk fat, 16% water, and 4% milk solids non-fat. The milk fat itself is a complex mixture of triglycerides, with a significant amount of short- and medium-chain fatty acids, which contribute to its melting behavior and flavor. Butter contains trace amounts of carotenoids, which give it a yellow hue. It is also a source of fat-soluble vitamins, such as A, D, E, and K. The exact composition of butter can vary depending on the diet of the cows, the breed, and the processing method used.

Product Specification	
Fat Content	Minimum 80%
Moisture Content	Maximum 16%
Salt Content	0.5% - 2.0% (for salted butter)
pH Level	Typically between 6.1 - 6.4 for unsalted butter

Animal Produce

Meat

Meat refers to the animal flesh that is consumed as food. It is a significant source of protein and essential nutrients in many diets, and it comes from a variety of animals, including cattle, pigs, sheep, and poultry.



FACTS

Meat has been a part of the human diet for millions of years, and early hunter-gatherer societies considered it a prized source of nutrition.

Product Uses

Meat is a highly versatile food product used worldwide in countless dishes and culinary traditions. It can be prepared in many ways, including roasting, grilling, frying, stewing, and smoking, each method imparting distinct flavors and textures. Meat is often the centerpiece of a meal, providing a rich source of high-quality protein and essential amino acids necessary for muscle growth and repair. It also supplies key vitamins and minerals such as B vitamins, iron, and zinc. Meat is not only a staple in home kitchens but also a primary ingredient in the food industry, appearing in processed forms such as sausages, deli meats, and canned goods. Moreover, it plays a significant role in cultural traditions and festivities, often featured in celebratory feasts and rituals.

Chemical Composition

Meat is primarily composed of water, protein, and fat. The protein content is rich in essential amino acids, which are crucial for human health. The fat content can vary widely, with leaner cuts containing less fat. Meat also contains various vitamins and minerals, including B vitamins (particularly B12), iron, and zinc. The fat composition includes saturated and unsaturated fats, and the presence of connective tissue proteins like collagen and elastin.

Product Specification	
Protein Content	18% - 25% - This range depends on the type of meat and the cut.
Fat Content	Varies widely, from 2% - 30% or more - Lean cuts provide less fat, while marbled meats offer a higher fat content.
Moisture Content	Approximately 50% - 75% - Moisture levels vary depending on the type of meat and how it is processed and cooked.
pH Level	5.5 - 6.2 post-rigor mortis - The pH level of meat influences its color, flavor, and shelf life.

Fish

Fish is the edible flesh of an aquatic animal, consumed globally as a critical source of protein, omega-3 fatty acids, vitamins, and minerals. The diversity of edible fish includes both freshwater and marine species.

FACTS

Fish is among the most widely traded food commodities in the world, and it plays a crucial role in global food security.

Product Uses

Fish is a staple food in many cultures, prized for its nutritional value and versatility in cooking. It can be grilled, baked, fried, steamed, poached, or eaten raw, as in sushi. Fish is central to numerous cuisines and is often eaten for its omega-3 fatty acid content, which is beneficial for heart health. Apart from being served as a main dish, fish is also used in salads, soups, and stews. It is preserved through methods like smoking, drying, and canning, which not only extend its shelf life but also add unique flavors. In addition to its dietary uses, certain fish by-products are utilized in non-food industries; for example, fish oil is used in dietary supplements, and fishmeal serves as high-quality animal feed.

Chemical Composition

Fish muscle contains 75% to 80% water, 15% to 20% protein, and 1% to 15% fat. The protein in fish is high-quality, containing all the essential amino acids. The fat is rich in polyunsaturated fatty acids, particularly omega-3 fatty acids like EPA and DHA. Fish is also a good source of vitamins, especially B-complex vitamins and fat-soluble vitamins like A and D, and minerals such as iodine, selenium, and zinc.

Product Specification	
Protein Content	Approximately 15% - 20%
Fat Content	1% - 15% - But varies greatly among different species
Moisture Content	Approximately 60% - 80%
Omega-3 Fatty Acids (EPA and DHA)	Varies, but often 1g per 100g of fish

Milk Powder

Dry Milk, Milk Powder, Dried Milk

Milk powder is a dairy product made by evaporating milk to dryness. This process results in a powder with a long shelf life that retains most of the nutritional value of the original milk. It is an efficient way to transport and store milk without refrigeration.

FACTS

Milk powder was first developed in the 1800s and played a significant role in the provision of milk in areas without adequate refrigeration throughout history.

Product Uses

Milk powder is incredibly versatile and used globally in both commercial food production and home cooking. It is a practical alternative to fresh milk, especially in areas where milk's availability or storage life is limited. It is reconstituted with water to provide liquid milk and can be used in beverages like tea and coffee. Milk powder is also a key ingredient in a wide range of products, including confectionery, baked goods, chocolate, ice cream, yogurt, and baby formula. In addition to its versatility, milk powder has several other benefits. It has a longer shelf life than fresh milk, making it a great option for emergency food supplies or for those who cannot access fresh milk regularly. It is also a more cost-effective option, as it is often cheaper than fresh milk and can be bought in bulk.

Chemical Composition

Milk powder contains the same basic components as liquid milk, including lactose, milk proteins, and milk fat. The protein content is primarily casein and whey proteins. It is rich in calcium and other minerals, as well as vitamins, particularly those of the B-complex group and vitamins A and D when fortified. The fat content can vary depending on whether it's whole milk powder, partly skimmed, or non-fat.

Product Specification	
Protein Content	26% - 31% (for non-fat dry milk)
Fat Content	Whole milk powder: 26% - 40%; Non-fat dry milk: max 1.5%
Moisture Content	Maximum 5%
Lactose Content	36% - 52% (depending on the type of milk powder)
Solubility Index	Maximum 1.0 ml

Condensed Milk

Sweetened Condensed Milk

Condensed milk is cow's milk from which water has been removed and to which sugar has been added, yielding a thick, sweet product that can last for years without refrigeration if unopened. It is known for its rich, creamy texture and sweet taste.

FACTS

Condensed milk was used by soldiers as a field ration during the American Civil War and became a staple in the diets of the troops.

Product Uses

Condensed milk is widely used in the preparation of desserts and sweets across the globe. It serves as a key ingredient in numerous recipes, including pies, puddings, fudge, and ice cream, where it adds sweetness and creamy texture. It is also commonly used in beverages, such as coffee and tea, to impart a rich sweetness. Many cultures use condensed milk in traditional dishes; for example, it is drizzled over shaved ice in Southeast Asia, mixed into rice puddings in Latin America, and blended into sweet chutneys in South Asia. Condensed milk is also a preferred ingredient in confectionery for creating caramel flavors and textures without the need for extensive cooking. Its use in no-bake recipes is particularly valued for its ability to solidify when mixed with acidic ingredients like lemon juice.

Chemical Composition

Condensed milk's primary components are milk solids (proteins, lactose), milk fat, and added sugar, which acts as a preservative. The concentration of milk solids provides a rich source of calcium and proteins. The high sugar content, often 40-45% of the total weight, not only sweetens the product but also significantly lowers its water activity, thus inhibiting microbial growth and extending shelf life. Vitamins A and D are commonly added to enhance its nutritional profile.

Product Specification	
Milk Solids Content	28% - 32% - This reflects the concentration of the non-fat milk solids in the product.
Milk Fat Content	8% - 9% - The fat content contributes to the richness and creamy mouthfeel.
Sugar Content	Approximately 40% - 45% - This high percentage of sugar acts as a natural preservative and sweetens the product.
Moisture Content	Maximum 26% - The reduced moisture content is crucial for the product’s viscosity and shelf life.
pH Level	6.0 - 6.5 - A neutral to slightly acidic pH is typical for sweetened condensed milk.

Copper and Copper articles

Copper Wire

Electrical Wire, Enameled Copper Wire, Bare Copper Wire

Copper wire is a highly conductive, flexible, and ductile metal wire used extensively in electrical wiring, electronics, and telecommunications. It is prized for its excellent thermal and electrical conductivity and is commonly used in both commercial and residential applications.

Facts

Copper was the first metal to be manipulated by humans and has been used for over **10,000** years.

Product Uses

Copper wire is the most widely used conductor for transmitting electricity. It is found in power generation, power transmission, power distribution, telecommunications, electronics circuitry, and countless types of electrical equipment. Copper's high conductivity makes it the standard by which other conductive metals are measured, and as such, it is used to create electrical cables and coils. In the construction industry, copper wiring is used for building wiring systems, such as for power and lighting circuits, due to its durability and high conductivity. In electronics, copper is used in the production of printed circuit boards, electromagnets, and vacuum tubes. The automotive industry uses copper wire extensively in vehicles for wiring harnesses, electric motors, and various sensors.

Chemical Composition

Copper wire is typically made of pure copper, which is a soft, malleable, and ductile metal with high thermal and electrical conductivity. The chemical composition is primarily copper (Cu), often with trace amounts of other elements to enhance its properties, such as oxygen, silver, or tin, depending on the specific application of the wire. For specialized applications, copper can be alloyed to increase hardness, reduce corrosion, or improve solderability.

Product Specification	
Nitrogen Content	
Biuret Content	
Moisture Content	
Particle Size	

Source Company:

Copper Alloys

Bronze, Brass, Cupronickel

Copper alloys are metal alloys that have copper as their principal component. They have high corrosion resistance, electrical and thermal conductivity, and can be made more durable by the addition of other elements such as tin or zinc. These materials are widely used across various industries due to their enhanced properties.

Product Uses

Copper alloys are employed in a wide array of applications due to their excellent thermal and electrical conductivity, durability, and corrosion resistance. Brass, a copper-zinc alloy, is commonly used in plumbing fixtures, decorative items, and musical instruments. Bronze, an alloy of copper and tin, is renowned for its strength and wear resistance and is used in bearings, bushings, and marine hardware. Cupronickel, which combines copper with nickel, is especially resistant to corrosion in saltwater and is used in marine fittings, coins, and heat exchangers. Copper-nickel alloys are also used in desalination plants and in the chemical industry due to their resistance to biofouling and corrosion.

Facts

The oldest metal statue in the world, the Copper Bull discovered in the ancient city of Ur (in modern-day Iraq), was made from a copper alloy over **4,500** years ago.

Chemical Composition

Copper alloys consist mainly of copper, with varying amounts of other elements to modify the material's properties. The precise composition depends on the specific alloy and its intended use. For example, brass typically contains 65% copper and 35% zinc, while bronze may contain about 88% copper and 12% tin. Additives like lead may be included in brass to improve machinability, or aluminum can be added to copper to create aluminum bronze, which is valued for its higher strength.

Product Specification	
Copper Content	Typically ranges from 55% to 99% depending on the alloy.
Zinc Content (for Brass)	Up to 45%
Tin Content (for Bronze)	Approximately 12% (varies)
Nickel Content (for Cupronickel)	5% - 30%
Melting Point	Varies - For example, brass melts at about 900°C to 940°C, bronze at about 850°C to 1000°C, and cupronickel at about 1100°C to 1240°C. The melting point is an important factor in manufacturing and processing these alloys.

Copper Cathode

Electrolytic Copper, Refined Copper, Cathode Copper

Copper cathodes are high-purity forms of copper suitable for use in the production of high-quality copper products. They are the primary raw material used in the manufacturing of copper rods and wires, and they are obtained through the electrolysis process, where impure copper is refined to achieve a purity level suitable for electrical applications.

Facts

Copper cathodes are so pure that they are often used to make copper crystals for decorative purposes and scientific equipment.

Product Uses

Copper cathodes are essential for the production of copper rods and wires, which are then drawn and used in the electrical industry to make power cables, electric motors, and transformers due to their excellent conductivity. The high purity of copper cathode makes it ideal for conducting electricity with minimal resistance, which is crucial for efficient power distribution. Besides electrical applications, copper cathodes are used to produce copper tubes for plumbing, heating, and cooling systems, and in the automotive industry for various components. In the construction industry, copper produced from cathodes is utilized for roofing, cladding, and rainwater systems. Moreover, they are used in the production of alloys such as brass and bronze.

Chemical Composition

Copper cathodes are composed of pure copper, typically 99.99% (Grade A) copper after the electrolytic refining process. The remaining 0.01% may consist of trace amounts of silver, iron, and other elements that do not significantly affect the copper's conductivity and properties.

Product Specification	
Copper Purity	99.99% Cu
Dimension	Typically measures 1m x 1m x 12mm
Weight	Approximately 50-80 kg per sheet
Electrical Conductivity	Greater than 100% IACS (International Annealed Copper Standard)
Impurities	Less than 0.01% (100 ppm) - Impurities include elements like silver, bismuth, lead, and nickel, among others.

Wood and Wood articles

Sawn Timber

Lumber, Rough-sawn Wood, Timber Planks

Sawn timber refers to wood that has been processed by sawing, typically in a sawmill, into beams, planks, and other shapes used in construction and woodworking. It is a versatile and sustainable building material, widely used for structural and decorative purposes due to its strength, natural beauty, and ease of use.

FACTS

Sawn timber is one of the oldest building materials known to mankind and has been used for thousands of years due to its renewable nature and ease of processing.

Product Uses

Sawn timber is extensively used in the construction industry for framing houses, making roof rafters, floor joists, and in the construction of wooden trusses and other structural elements. It is also used for creating outdoor structures such as decks, pergolas, and fences. In addition, sawn timber serves as a primary material for furniture-making, cabinetry, and flooring due to its aesthetic qualities and workability. The versatility of sawn timber allows it to be further processed into engineered wood products such as plywood, particleboard, and fiberboard. Sawn timber is also employed in the manufacturing of doors, window frames, and moldings. For industrial applications, sawn timber is used to create pallets, crates, and boxes for packaging and shipping.

Chemical Composition

Sawn timber's chemical composition is primarily cellulose, hemicellulose, and lignin. Cellulose provides strength and rigidity, hemicellulose contributes to the wood's mechanical properties, and lignin bonds the fibers together, providing compressive strength. The exact chemical composition varies depending on the wood species but typically contains carbon (C), hydrogen (H), and oxygen (O) as the main elements, along with trace amounts of nitrogen (N), calcium (Ca), potassium (K), and magnesium (Mg).

Product Specification	
Moisture Content	12-15%
Density	500-800 kg/m^3 - Varies depending on the species of wood and affects the wood's strength and load-bearing capacity.
Thickness	Typically ranges from 19 mm to 300 mm
Width and Length	Widths can range from 75 mm to 300 mm, and lengths from 2 m to 6 m - Standard dimensions vary by region and intended use, allowing for a wide range of applications in construction and manufacturing.

Plywood

Cross-Laminated Wood, Layered Wood

Plywood is a versatile engineered wood product made from multiple layers of thin veneers that are glued together with adjacent layers having their wood grain rotated up to 90 degrees to one another. It is renowned for its strength, durability, and resistance to cracking, shrinking, and warping.

FACTS

The world's first jet-powered aircraft, the de Havilland Comet, had plywood incorporated into its design to save weight without sacrificing strength.

Product Uses

Plywood is a ubiquitous material in the construction industry, used for a multitude of structural, interior, and exterior applications. It serves as sheathing in walls, flooring, and roof decking due to its dimensional stability and strength. Plywood is also a popular choice for formwork in concrete construction because it's reusable and can give a smooth finish to concrete surfaces. In cabinetry and furniture-making, plywood is favored for its ability to withstand heavy loads and resist moisture, making it perfect for kitchen and bathroom furniture. It is also commonly used in the manufacturing of doors, panels, and worktops. For decorative purposes, plywood with high-quality hardwood veneers is used in visible areas to provide an aesthetically pleasing appearance.

Chemical Composition

Plywood is composed of several layers of wood veneer bonded with adhesives. The most commonly used adhesives are urea-formaldehyde, phenol-formaldehyde, or melamine-formaldehyde, which provide strong, durable bonds and can be tailored to enhance the plywood's resistance to water, fire, or microbial growth. The wood veneer itself is mainly cellulose, hemicellulose, and lignin, with the exact composition varying based on the wood species used.

Product Specification	
Thickness	Ranges from 3 mm to 25 mm - This variety allows for use in different applications, from lightweight paneling to heavy-duty construction.
Size	Typically 1,220 x 2,440 mm (4 x 8 feet) - The standard sheet size is convenient for transportation and handling, while also reducing waste during installation.
Grade	A
Moisture Content	Usually around 10-13% - Proper moisture content prevents warping or splitting under different environmental conditions.

Fiberboard

Medium and High Density Fiberboard

Fiberboard is an engineered wood product made from wood fibers, which are combined with wax and a resin binder under heat and pressure to form panels. It comes in various densities, such as medium-density fiberboard (MDF) and high-density fiberboard (HDF), offering a smooth, uniform surface that is free of knots and grain patterns.

FACTS

Fiberboard can be made from a variety of fiber sources, including recycled paper, bamboo, and agricultural byproducts, making it an environmentally friendly option when sourced sustainably.

Product Uses

Fiberboard is used in the furniture industry for the manufacture of affordable, lightweight, and easy-to-assemble furniture. It is ideal for flat-pack furniture and shelving due to its smooth surface that can be easily painted, veneered, or laminated. MDF, in particular, is commonly used for constructing cabinets, desks, and wardrobes. In construction, fiberboard serves as a material for interior walls, flooring underlayment, and baseboards. It offers soundproofing and insulation properties, making it suitable for acoustic panels. HDF, with its greater strength, is used for more demanding applications such as flooring, particularly laminate flooring. Fiberboard is also employed in the production of door skins, and in the automotive industry, it is used for interior panels and in the production of moldings.

Chemical Composition

Fiberboard is primarily composed of wood fibers, which are cellulosic materials bound together with various synthetic resins. Urea-formaldehyde, phenol-formaldehyde, and melamine resins are the most common binders used. Additives such as wax, paraffin, or other water-resistant chemicals may be included to improve moisture resistance. The exact composition will depend on the fiberboard type and intended use.

Product Specification	
Density	MDF: 600-800 kg/m^3 HDF: Above 800 kg/m^3
Thickness	Ranges from 3 mm to 40 mm
Size	Typically 1,220 x 2,440 mm (4 x 8 feet)
Formaldehyde Emission Class	E1 (< 0.1 ppm)

Wood Charcoal

Charred wood, Lump charcoal

Wood charcoal is a lightweight, black residue, consisting of carbon and remaining ash, produced by removing water and other volatile constituents from plant materials. Charcoal is usually produced by slow pyrolysis, the heating of wood in the absence of oxygen.

FUN FACT

Wood charcoal can be "activated" to create activated carbon, which has a surface area of over **3,000** square meters per gram—equivalent to the area of a football field.

Product Uses

Wood charcoal has been a staple fuel for heating and cooking for centuries, especially in grilling and barbecuing, where it's valued for the rich, smoky flavor it imparts to food. It ignites quickly and burns at a higher temperature than wood, making it efficient for cooking. Beyond culinary uses, activated charcoal —a form of wood charcoal that has been treated to increase its absorptive properties—is used in water purification, air filtration, and toxin removal in medical emergencies. It's also used in metal production as a reducing agent in the smelting process. In agriculture, charcoal can be used as a soil amendment, known as biochar, to increase soil fertility, conserve water, and store carbon. It's seen as a potential tool for carbon sequestration to mitigate climate change.

Chemical Composition

Wood charcoal primarily consists of carbon. The carbon content can be as high as 95% depending on the pyrolysis temperature. It also contains small amounts of residual hydrogen, nitrogen, sulfur, and oxygen. The ash content, which remains after combustion, includes minerals that were part of the original wood, such as calcium, potassium, and magnesium.

Product Specification	
Carbon Content	Usually greater than 70%
Ash Content	Less than 5%
Moisture Content	Less than 10%
Fixed Carbon	Around 75-85%

Fruits and Vegetables

Beetroot

Beetroot is an annual, biennial or perennial herbaceous plant; a species of the genus Beetroot of the Amaranth family, the Mareve subfamily.
An important agricultural plant, for the sake of root crops, it is cultivated everywhere over large areas as a vegetable crop.

Product Uses

Beetroot is celebrated for its wide range of culinary and health applications. In the kitchen, it can be pickled, juiced, steamed, or even incorporated into desserts for a natural sweetness and color boost. Its vibrant pigment, betanin, is also used as a natural food colorant. Nutritionally, beetroot is embraced for its potential health benefits; it's rich in fiber, which aids in digestion and promotes gut health. The nitrates present in beetroot are converted to nitric oxide in the body, which can help lower blood pressure and enhance athletic performance by improving blood flow and oxygen delivery. Beetroot's antioxidant properties help protect cells from damage, and it's also a good source of folate, essential for DNA repair and cell health.

Did You Know?

The nitrates in beetroot are believed to enhance athletic performance. Some studies suggest that athletes who consume beetroot juice before competing may improve their endurance.

Chemical Composition

Beetroot's chemical composition is rich and varied, consisting of an array of vitamins and minerals, including vitamin C, folate (vitamin B9), vitamin B6, magnesium, potassium, phosphorous, iron, and manganese. It's a significant source of dietary fiber, both soluble and insoluble, contributing to digestive health. The pigments that give beetroot its characteristic color are betalains, which have antioxidant and anti-inflammatory properties. Betalains are divided into two categories: betacyanins (like betanin) and betaxanthins. Beetroot also contains a high level of nitrates, which the body converts into bioactive nitric oxide, and phytochemicals such as flavonoids and polyphenols.

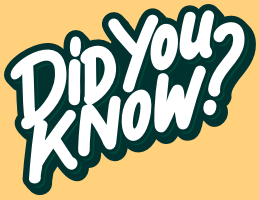
Product Specification	
Nutritional Content (per 100g of raw beetroot)	Energy: Approximately 43 kcal Protein: 1.6 g Dietary Fiber: 2.8 g Sugars: 6.8 g
Vitamins and Minerals (per 100g of raw beetroot)	Folate (Vitamin B9): 109 µg Vitamin C: 4.9 mg Potassium: 325 mg Magnesium: 23 mg
Physical Characteristics	Diameter: Typically 3 to 10 cm Weight: Commonly 100 to 200 grams for a medium-sized beetroot
Shelf Life	Fresh Beetroot: Up to 2 weeks Cooked Beetroot: 3 to 4 days

Beet Sugar

Beet sugar is a type of sugar extracted from the root of sugar beets. It is a refined form of sucrose and is virtually indistinguishable from cane sugar in terms of composition and functionality. It appears as white, crystalline granules or powder and is known for its pure, sweet taste. Beet sugar is widely used as a sweetener in various food products and as an ingredient in the culinary arts.

Product Uses

Beet sugar is widely used in the culinary world due to its fine granules and highly soluble nature, making it ideal for both cooking and baking applications. It's used to sweeten beverages like tea, coffee, and lemonade, as well as to create confections such as candies, chocolates, and gummies. In baking, it contributes to the structure of cakes and cookies and provides sweetness to pastries and desserts. Beet sugar also plays a critical role in the fermentation industry, as it serves as a key ingredient in the production of alcoholic beverages, including certain spirits and beers. Additionally, it acts as a preservative by inhibiting microbial growth in various food products, such as jams, jellies, and preserves.



Beet sugar accounts for about 20% of the world's sugar production. The rest comes from sugar cane.

Chemical Composition

The primary chemical component of beet sugar is sucrose, which is a disaccharide composed of one molecule of glucose and one molecule of fructose linked by a glycosidic bond. During the refining process, the sugar is purified, and impurities are removed, resulting in a product that is over 99% sucrose. The remaining composition includes trace amounts of other sugars such as glucose and fructose, along with water and a minuscule fraction of minerals. Beet sugar and cane sugar are chemically identical, as both contain pure sucrose, and any differences in taste or color are due to the presence of different trace compounds or molasses in the unrefined or less refined forms.

Product Specification	
Sucrose Content	≥ 99.9%
Color	ICUMSA rating of ≤ 45 IU
Granulation	Fine to medium grain size, typically around 0.5 mm to 0.8 mm
Moisture Content	≤ 0.04% (to ensure free-flowing granules and prevent clumping)
Solubility	Solubility in Water at 20°C: Approximately 2000 g/L

Contact Us

Phantom Traders is a leading trading company in Russia. Our company was founded with a vision to offer the highest quality products and services to our customers, with a commitment to reliability and excellence.

VISIT OUR WEBSITE

EMAIL

Info@phantomtraders.ru

PHONE

+7 (495) 235-08-67

ADDRESS

Perm, Promyshlennaya

We pride ourselves on being a trusted partner for businesses and individuals who seek to trade in Russia. Our team consists of professionals who have a deep understanding of the local market and the dynamics of international trade. We leverage our expertise and extensive network to provide customized solutions for customers.


HYSTER
DRINK BEER OUTSIDE