



Powdered Activated Carbon (Trade Names – MWC, AquaNuchar, SA, SA-20, SN, SN-20, HD, SA-1 500, PCL, SA-T, RGC, AG, CP-20, CP-T)

Overview

Ingevity's NUCHAR® activated carbon products are derived from wood - assuring greater purity and superior performance through higher surface area and pore volume per gram than other raw material alternatives. Ingevity manufactures wood-based activated carbon in the U.S. and China to provide customers around the world with a dependable product supply. Ingevity manufacturing sites that make powdered carbons are located at Covington, Virginia, U.S.; Wickliffe, Kentucky, U.S.; and Zhuhai, Guangdong, China.

Chemical identity

Activated Carbon, CAS 7440-44-0

Uses and applications

Ingevity's NUCHAR® powdered activated carbons have been used for more than 90 years to purify a wide variety of food, water and chemical products. Uses include municipal and point-of-use water treatment, catalysis and decolorization, deodorization and contaminant reduction of chemicals, pharmaceuticals, foods and beverages. Extraordinarily large surface area and pore volume make NUCHAR® powdered activated carbons the product of choice for liquid-phase purification in batch and continuous dosage applications. Controlled particle size distribution results in a combination of fast kinetics, high capacity, good settling and suspension characteristics, and low-pressure filtration. Available in a variety of grades, they cover a range of pore size distributions, surface chemistries and purity levels.

Food – Ingevity's NUCHAR® powdered activated carbons are used in the purification and decolorization of different types of liquid phase batch processes for a variety of food products, including sugars, edible oils and candy. A wide range of surface areas, pore size distribution, particle size distributions and pH are offered to meet any food ingredient purification needs.

Beverage – Ingevity's NUCHAR® powdered activated carbons are used in the purification and decolorization of different types of liquid phase batch processes for a variety of beverages, including juices, concentrates, wine, beer, malt alternatives and distilled spirits. These carbons adsorb high molecular weight color bodies, off flavors, and impurities due to their large volume of meso and macro pores. A wide range of surface areas, pore size distribution, particle size distributions and pH are offered to meet any beverage processing need.

Sweeteners – Ingevity's NUCHAR® activated carbon products have been used for more than 75 years in the purification and decolorization of different types of sweeteners that are used in a variety of food products including corn syrups, high fructose corn syrup, cane and beet sugars, maltodextrin, molasses, and others. NUCHAR® activated carbons are used in batch treatment process to decolorize and purify sweeteners during their manufacturing process by adsorbing high molecular weight color bodies and impurities. This method is a cost-effective way to achieve purity and color targets using minimal capital equipment where dosage levels may vary. The capital expense of fixed bed granular carbon vessels and piping systems can be avoided with batch mixing and filter press/leaf filters to remove the carbon from the final product.

Chemicals – Ingevity's NUCHAR® powdered activated carbons are used in the purification and decolorization of different types of liquid phase batch processes for use in a variety of chemicals and chemical intermediates. They have been used for over 90 years by producers of fine chemicals, soda ash, caustic soda, fatty acids, glycerin, amine solutions, citric acid, monosodium glutamate and more.



Municipal Drinking Water – Ingevity’s NUCHAR® powdered activated carbons are widely recognized as effective for purifying drinking water and industrial water/beverage water, and are suited for the reduction of MIB and Geosmin taste and odor components, TOC, and herbicides such as atrazine. The high-quality aspects of these carbons allow for the use of fewer pounds of carbon to achieve higher levels of taste, odor, color and agricultural organics removal in municipal water supplies. Low ash content prevents the formation of scale in treatment systems and low density allows the carbon to stay in suspension longer for more effective removal.

Point of Use/Point of Entry Water Filtration – Ingevity’s NUCHAR® RGC, AquaGuard®, and SN products are particularly suited for the reduction of chlorine, taste and odor components using composite wound and block filters. AquaGuard® has been a key to maintaining the taste of beverage fountain drinks in many commercial settings for years. The high-quality aspects of Ingevity powdered POU/POE carbons allows for the use of fewer pounds of carbon to achieve higher levels of chloramine, chlorine, taste and odor removal in point-of-use water filters and pitchers.

Agriculture – Ingevity’s high-surface area NUCHAR® AG is tailored for the protection of grass seed after planting and before over-spraying with herbicides. It is also well-suited for the remediation of excess pesticides, insecticides and herbicides on turf grass, golf courses and highway medians. The high pore volume and low density of AG helps keep it in suspension longer in the field spray tank, leading to more efficient application, more time spraying and less time mixing. Its fine grind also helps to keep the spray nozzles clear. NUCHAR® AG has been field proven for over 4 years and has become the grass seed farmer’s choice.

Other uses – Wastewater filtration, flue gas treatment, catalysis/catalyst support, and metals removal

Physical/chemical properties

Black solid powder

Odorless

Class St 1 explosive

Consult the specific safety data sheet (SDS) and product data bulletin for more details or contact the company directly for more information.

Health effects

Always refer to the specific safety data sheet (SDS) for detailed information on safety. Never enter a confined space containing wet activated carbon. Wet activated carbon will adsorb oxygen and asphyxiation may result.

This material is not a skin irritant, eye irritant, or corrosive agent although it is considered a nuisance particulate and exposure can be irritating.

Environmental effects

Always refer to the specific safety data sheet (SDS) for more detailed information.

There are no known significant environmental effects or critical hazards from Ingevity's activated carbon products. The product itself and its products of degradation are not toxic.

Exposure and risk management recommendations

Always refer to the specific safety data sheet (SDS) for detailed information on exposure and first aid measures.

Workplace – Possible routes of entry – eye contact, dermal contact, inhalation



Consult with the current guidelines for exposure limits for nuisance particulates and in some cases, phosphoric acid.

Keep containers tightly closed and in a cool, well-ventilated area.

Avoid creating dusty conditions.

Fine dust clouds may form explosive mixtures with air.

Consumer use – Consumer use and exposure should be negligible.

Environment – The generation of waste should be avoided or minimized wherever possible. The most likely affected media in release scenarios would be to air, ground or water. Cleanup efforts should avoid dispersal of spilled material and runoff onto soil, waterways, drains and sewers. If emergency personnel are unavailable, vacuum or carefully scoop up spilled material and place in an appropriate container for proper disposal in a manner compliant with all applicable regulatory requirements.

Conclusion

Many NUCHAR® powdered activated carbon products are Certified to NSF/ANSI 61 and NSF/ANSI 42. Please consult the NSF website (www.nsf.org) for a current listing of certified products.

NUCHAR® powdered activated carbon products also meet the food grade quality of activated carbons as defined in the current edition of the Food Chemicals Codex. Per 21 CFR 170.30(c)(1), activated carbons that meet FCC specs are considered GRAS for use in processing where the carbon is removed.

No warranties of use or otherwise are expressly made or implied from this information. Final determination of suitability of any material is the sole responsibility of the user. All material may present unknown hazards and should be used with caution.