AC-1350 & AC-1350P

USP-Grade Activated Charcoal (from Certified Organic Coconut Shells)

Key Features:

- Highly activated charcoal (Iodine Number = 1350) from certified organic coconut shells
- Fully compliant to the US Pharmacopoeial (USP) standards
- Helps neutralize toxins & metabolic wastes and reduce their reabsorptions in the gastrointestinal tract

Indications:

- Adsorbing poisons & endotoxins*
- Reduce the risk of dehydration in gastroenteritis
- Support blood ammonia levels in chronic liver disease
- Support the integrity of nephrons in chronic kidney disease by controlling the serum levels of uremic wastes and phosphate

*Not intended to replace conventional treatments

Description:

Active carbon (AC), also known as activated charcoal, is a form of carbon processed under high temperature and pressure to have small, low-volume pores that increase the surface area available for adsorption or chemical reactions. It has been well-recognized for its use to neutralize toxins in poisoning, as well as many other applications in the purification process.

The binding capacity of activated charcoal (AC) is expressed as **"iodine number,"** which is **the number of milligrams of iodine bound by one gram of activated charcoal.** Pharmaceutical grade AC has an iodine number usually in the range of 600–1100 mg/g.

AC-1350 & AC-1350P contain **high potency, USP-grade** AC, with an **iodine number of 1350 mg/g** to provide better therapeutic value when compared to many AC products that utilize food-grade materials.

Use in Antidoting & Gastroenteritis

There is a range of different activated charcoals (AC), but only pharmaceutical-grade activated charcoals (AC) should be used in clinical toxicology.

Food-grade AC are generally used for the purpose of food-processing to remove impurities and are considered less suitable for adsorbing xenobiotics due to their lower contact surface area and less stringent specifications regarding microbial and chemical contaminants.

Studies have demonstrated AC's capability of binding most prescription medications, such as acetaminophen, paracetamol, acetylsalicylic acid, NSAIDs, valproic acid, and calcium channel blockers. [1],[2]

AC-1350 **126 Vegetarian Capsules**
Serving Size 3 capsules **42 servings per container**
Ingredients (per 3 capsules):
Activated Charcoal (USP-Grade) (1,350 IN†).....1,080 mg
(from certified organic coconut shells)
Ginger Extract (25:1) (*Zingiber officinale*).....24 mg
(equivalent to 600 mg of dried herb)

Other Ingredients: L-leucine, hypromellose (capsule)

Suggested Use: Adults - Take 2-3 capsules, 2-3 times per day, or as directed by a health care practitioner. Take at least 2 hours away from other medications or supplements.

AC-1350P **approx. 142 grams (powder)**
Serving Size 1 Scoop **30 servings per container**
Ingredients (per scoop):
Activated Charcoal (USP-Grade) (1,350 IN†).....4,700 mg
(from certified organic coconut shells)
Ginger Extract (25:1) (*Zingiber officinale*).....8 mg
(equivalent to 200 mg of dried herb)

Suggested Use: Adults - Take 1 scoop, 2-3 times per day, or as directed by a health care practitioner. Take at least 2 hours away from other medications or supplements.

† IN (Iodine Number) = milligram iodine adsorbed per gram

AC has also been shown to adsorb poisons such as cyanide [3] and methanol [4]; however, many poisonous substances are rapidly absorbed into the system; therefore, the window of opportunity for AC as an antidote is very narrow, and requires a much higher starting dose ranging between 50-100 g within seconds to minutes after the ingestion of poison.

Another common use of AC is in diarrheal management in cases of gastroenteritis. AC can neutralize the binding abilities of the offending particles (ie.

endotoxins or viral shedding) in the gastrointestinal tract, making it a suitable supportive remedy to the conventional diarrhea treatments.[12]

Use in Chronic Kidney Disease (CKD)

Many patients with chronic kidney disease (CKD) eventually need to go on chronic dialysis despite staying on a low-protein diet due to the risk of complications such as hyperuremia, hyperphosphatemia, and vascular calcification. While dialysis is a valid therapeutic option, it greatly affects the quality of life for end-stage renal disease (ESRD) patients.

Uremic toxins such as **indoxyl sulfate** are one of **the leading promoters in the progression of chronic kidney disease (CKD)** as they have been shown to **cause glomerulosclerosis and interstitial fibrosis,** resulting in loss of nephrons and kidney function.[5] Indoxyl sulfate is derived from the following pathway: **L-tryptophan >> indole >> indoxyl >> indoxyl sulfate,** where L-tryptophan is primarily converted to indole by the intestinal bacteria.

AC, being a powerful intestinal adsorbent, can help to bind uremic toxins, as well as excessive phosphate, in the lumen, reducing the reabsorption of any substances that would further burden the kidneys.

In a double-blind, placebo-controlled RCT,[6] patients with moderate to severe CKD and elevated serum indoxyl sulfate levels were selected. Eligible patients were randomly assigned to 1 of 3 doses of AC (0.9, 2.1, or 3.0 g) or placebo 3 times daily for 12 weeks. **AC was able to decrease serum indoxyl sulfate levels, as well as improving malaise in patients, in a dose-dependent fashion.** AC also did not affect serum creatinine levels.

A clinical trial studied the beneficial effect of low protein diet combined with oral AC in elderly ESRD patients (mean age 84 years; GFR 11 mL/min).[7] The patients were asked to go on a low protein diet (0.8g/kg/day) and oral activated charcoal (15 g BID). All of the subjects had no signs of significant metabolic acidosis or hyperkalemia, nor any significant gastrointestinal symptoms. After 10 months of the treatment period, a significant decrease in blood urea and creatinine levels was observed. Moreover, **all subjects were able to defer the need for emergency dialysis during this time**.

In another RCT involving patients with stages 3 & 4 CKD, oral AC (600-1200 mg TID) for 12 months was shown to **significantly delay the onset of hyperphosphatemia (p=0.000), as well as vascular calcifications (p<0.01)**.[8]

Uses in Chronic Liver Disease

Hepatic encephalopathy (HE) is one of the most common complications from chronic liver disease impairing neuropsychological function. HE is mainly the result of excess ammonia accumulating in the body, with the majority of its production coming from colonic bacteria with urease enzyme activity, such as Enterobacteriaceae, Proteus, and Clostridium species. [9] Other factors affecting the body's ammonia levels include kidney function and acid-base homeostasis.

AC is able to lower serum ammonia levels through direct binding of the molecules in the intestinal lumen[10], reversing the symptoms of HE.[11]

Reference:

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