



GPM CARBON MVP PRESENTATION



WHAT IS THE ACTIVE CARBON?

Due to its physical and chemical properties, activated carbon is a unique and ideal purifying (sorption) material. Currently, it is difficult to name the sector of the economy where this unique adsorbent is not used. In fact, this is the second material after iron in the breadth of its application.

Activation is a thermal treatment of carbonaceous raw material under special conditions, leading to the formation of numerous pores, crevices and cracks, and is accompanied by a significant increase in the pore surface per unit mass of the target product. The specific surface area of activated carbon is its most important adsorption characteristic. The value of the specific surface area of pores of the best brands of activated carbons can reach 1800–2200 m² per 1 g of carbon. The higher this indicator, the wider the range of tasks for the environment purification can be performed by the adsorbent.

Main application fields of active coals:

- Chemical. Production of: chemical fibers, synthetic rubber, dyes, chemicals, etc.
- Medical. Production of: chemical and pharmaceutical reagents, antibiotics and vitamins, medicines and others.
- Nutritional. Production of: sugar, oils and fats, starch and molasses, wine and vodka drinks, cigarette filters and others.
- Metallurgical. Production of: flotation (enrichment) of non-ferrous metal ores, non-ferrous and ferrous metallurgy, gold mining.
- Gas and oil refining. Production of: separation and purification of the process streams, production of plasticizers.
- Atomic industry.

OUR RESULTS

- The technology that is tested and patented in 2015, 2016 and 2017.
- Activated carbon producing with a developed porous structure, 87-97% by mass consisting of carbon.
- Cooperation agreements with companies in Germany, Ukraine and Poland (Barrier GmbH, RedStar Ltd., MedPharma)
- Developed production center in the CIS area (32,000 square meters of territory and 9000 square meters of constructions)





GPM ACTIVE CARBON IN NUMBERS

Key characteristics of GPM Carbon:

- high bulk density of 780 g / dm³
- low ash content (water soluble <1%) ≤3%
- hardness ≥97%
- humidity ≤5%
- adsorption activity on iodine, 60%
- activity on methylene blue MG 45.2 mg / cm³
- benzene activity, dynamic 60g / dm³
- activity on ethyl chloride, dynamic 60 min

Parameters of microporous structure:

- Total pore volume - 0.26 cm³ / g
- The volume of micro-pores - 0.23 cm³ / g
- The volume of meso-pores - 0.01 cm³ / g
- The volume of macro-pores is 0.02 cm³ / g
- The adsorption energy in micro-pores - 23.8 kJ / mol
- The half-width of micro-pores $x_0 = 0.79$ nm
- Specific surface - 575 m² / g

PATENTS AND CERTIFICATES

- INCOLAB services Certificate of Sampling and Analysis 2015
- INCOLAB services Certificate of Sampling and Analysis 2016
- INCOLAB services Certificate of Sampling and Analysis 2017
- Express IR Quality Certificate 2018
- Laboratory Tests BWT BARRIER 2018
- BWT BARRIER Protocol of Intent 2018

INCOLAB SERVICES
COMMODITY SAMPLERS AND ANALYTICAL CHEMISTS

HEAD OFFICE AND LABORATORY Telephone: (812) 3360333333
252 st. Novosibirsk (812) 330008
Sverdlovsk (812) 330001
Russia (812) 330002
E-mail: info@incolab.ru

Certificate of Sampling and Analysis

TO WHOM IT MAY CONCERN

We have examined the samples of ash and report the following to be the result:

Date : 09 October 2015
Our ref. : 151013800E TA
Material : ANTHRACITE AR
Ex : 62397914 65152225 65174448
Lot : Average
Weight : 320.050 g
Place : St. Likhaya, Rostov region, Russia
Sampling date : 07 October 2015

We, the undersigned Incolab Services R.S.C., confirm to have attended the sampling the material of anthracite during the loading onto railway cars on 07 October 2015 at St.Likhaya.

SAMPLING
Sampling of anthracite was carried out during all loading in accordance with I.S.O. standards.

ANALYSIS

TOTAL MOISTURE	: 7.2 %	ISO 589
ASH IN DRY	: 7.5 %	ISO 1171
ASH AS RECEIVED	: 7.0 %	
VOLATILE MATTER DAF	: 4.0 %	ISO 562
VOLATILE MATTER IN DRY	: 3.7 %	
VOLATILE MATTER AS RECEIVED	: 3.4 %	
GROSS CALORIFIC VALUE IN DRY	: 7408 kcal/kg	ISO 1928
GROSS CALORIFIC VALUE AS RECEIVED	: 6875 kcal/kg	
NET CALORIFIC VALUE IN DRY	: 7339 kcal/kg	
NET CALORIFIC VALUE AS RECEIVED	: 6771 kcal/kg	
SULFUR IN DRY	: 0.42 %	ISO 351
SULFUR AS RECEIVED	: 0.38 %	
HYDROGEN IN DRY	: 1.40 %	ISO 29541
HYDROGEN AS RECEIVED	: 1.30 %	

SIZING TEST

+ 25 mm	: 67.3 %	ISO 1953
25 - 13 mm	: 9.4 %	
13 - 6 mm	: 9.8 %	
- 6 mm	: 13.5 %	
	: 100.0 %	

Sizing test was carried out using square mesh sieves

For and on behalf of:
Incolab Services R.S.C.

Joint Stock Company "BWT BARRIER RUS"
INN 5001017207, KPP 50995001, BIN 1025000510061
RF, 142407, Moscow region,
Noginsk district, territory Noginsk-Technopark, 2 Tel: +7 (495) 529 42 93, +7 (495) 529 42 95. Fax: +7 (495) 529 42 97
E-mail: info@barrier.ru www.barrier.ru

BWT BARRIER
BEST WATER FILTER TECHNOLOGIES

Test report № LPI 060818-1
From «06» August 2018

Table 1 (Continued)

Controlled indicator	Test result	±A	Requirements ND	ND on the method of determination
5. Iodine number, mg / g	1114	32	≥ 1100	LPI DP -007 (ASTM D 4607)
6. Dustiness, units abs.	0,03	-	≤ 0,12	LPI DP -004
7. pH of water extracts, units pH	9,8	0,2	9,0±11,0	LPI DP -005 (ASTM D 6851)
8. 8. Moisture content, %	3,2	-	≤ 5,0	LPI DP -008 (ASTM D 2867)
9. Total ash content, %	5,2	-	≤ 3,0	LPI DP -009 (ASTM D 2866)

Note: in bold outline in the column "Test result" are highlighted the values that do not meet the established requirements for the relevant indicator.

Head of LPI

Vorobyov A.A.

Particle size distribution 1.0-3.0 mm
Packing: bags of big bag weighing 900 kg.

Qualitative indicators

Name of the indicator	TU	Actually
Mass fraction of ash not more,%	7	6.7
Mass fraction of sulfur, not more,%	1	0.86
Carbon content,%	70	89.14
Material specific density, not less, g / cm ³	1.6	1.6
Bulk density of the material, g / cm ³	0.7-0.9	0.9
Porosity:		
* Maximum not more,%	60	60
* Maximum not less,%	32	36
Mechanical strength of the material:		
* Grindability not more than,%	4.0	1.5
* Abrasion not more,%	0.3	0.1
Chemical resistance of the material:		
* Increase in dry residue no more, mg / dm ³	10	7.8
* Increase in oxidizability not more than, mg/dm ³	10	3.86
* Increase of silicic acid, not more than, mg / dm ³	10	1.7
Specific effective activity of natural radionuclides, not more than, Bq / kg	370	14
Volatile matter yield not more than,%	3.5	3.3

Responsible executor

quality control GPM Carbon _____ /Yasenov P.N./

Joint Stock Company "BWT BARRIER RUS"
5001017207 INN, KPP 50995001, BIN 1025000510061
OF the Russian Federation, 142407, Moscow oblast,
Noginsk district, territory of Noginsk-Technopark, 2 Tel.: +7 (495) 529 42 93, +7 (495) 529 42 95. Fax: +7 (495) 529 42 97
E-mail: info@barrier.ru www.barrier.ru

BWT BARRIER
BEST WATER FILTER TECHNOLOGIES

November 20, 2018

Protocol of intent

After negotiations with Professor Mukhin V.M., Kasinov I.A., representing Express.ir sro, Czech Republic, and representatives of «BWT BARRIER RUS», JSC, an agreement was reached on the possibility and prospects of using activated carbon of the brand GPM Carbon in products «BWT BARRIER RUS», JSC (filters for purification of drinking water).

«BWT BARRIER RUS», JSC, offers to hold a working meeting with representatives of Express.ir s.r.o. in December 2018 to discuss the following issues:

1. Possible purchase volumes of GPM Carbon brand activated carbon.
2. Purchase prices for activated carbons brand GPM Carbon.

According to the results of the working meeting, sign a Letter of Intent indicating the roadmap of joint actions.

General Director



I.O. Melnikov

OUR CONTACTS

Address:

Drtinova 557/10, 150 00 Praha 5, The Czech Republic

Email:

marketing@gpm-planet.com

office@gpm-planet.uk

Phone number:

+420 777 509 826

Folow us:

<https://www.facebook.com/GPMCarbon/>

<https://medium.com/@carbonproject2018/>

<https://twitter.com/GPMCarbon>

<https://t.me/gpmcarbon>

