

FAQS

1. What is the history of Carbon Black?

2. What is the Product of ACB Company known as?

3. What is Carbon Black?

4. How are Carbon Blacks Produced?

5. What are the main characteristics of Carbon Black?

6. What is it's Structure?

7. How is the structure of Carbon Black measured?

8. What are the other significant Properties of Carbon black ?

9. How are those determined?

1. What is the history of Carbon Black?

The earliest form of carbon was perhaps made as lamp black and used by Egyptians, Indians, Chinese and for writing, painting and as cosmetic. Even today in old homes in India Mascara is home made. This then became the "Lamp Black". Then followed the manufacture of "Channel black" where small gas burners and the soot was allowed to deposit on a steel "Channel" deriving its name from this method of manufacture.

"Thermal black" was manufactured by passing the natural gas over a heated Refractory checker works until the temperature dropped down. At this point the path of the gas is changed to another heated checker work, which is kept ready for production. Present method is a continuous process in specially designed furnaces called the "Reactors"

[\[Top\]](#) 

2. What is the Product of ACB Company known as?

Rubber Grade Oil Furnace Black.

[\[Top\]](#) 

3. What is Carbon Black?

Carbon Black essentially elemental carbon in the form of fine particles having a semi-graphitic structure in the form of randomly oriented condensed rings loosely held and with open edges having unsatisfied carbon bonds providing sites for chemical activity. Along with these sites are also hydroxyl and carboxyl ions and sulphur in functional groups and small quantities of condensed hydrocarbons are adsorbed on the surface of the carbon black. All of these provide the surface activity required for interacting with Rubber.

[\[Top\]](#) 

4. How are Carbon Blacks Produced?

Carbon Black is produced by incomplete combustion of aromatic oils. The incomplete combustion is achieved in the reactors in a continuous process in specially designed furnaces called the "Reactors". It is in the form of "Smoke" as in a very bad flare. The conversion mechanism is a combination of pyrolysis and regrouping of the particles to form "Aggragates". The desired charateristics are achived by quenching with water in controlled quantities at predetermined locations in the reactor.

The smoke is the admitted into a Bagfilter containing fiterbags made of glass fiber and specially treated. Here the carbon is seperated and the effluent gas containing combustibles are piped into heat recovery system.

The separated Carbon is conveyed to a pelletiser by suitable conveying system and is pelletized to form small round globules with addition of water and binder. The pelletized Black is then dried in a Rotary Drier. The fuel used is the waste gases from the process which have combustibles and very low in calorific value, burnt in a specially designed furnace. The product is then stored in silos for suitable packaging and selling.

[\[Top\]](#) 

5. What are the main characteristics of Carbon Black?

Carbon Blacks are charaterized by their "Particle Size or Surface Area per Unit weight" and "Structure". Depending on these It derives its ASTM designated numbers.

[\[Top\]](#) 

6. What is it's Structure?

It is the second most important property of carbon black. It is most strongly related to the degree of clustering or bonding of the primary particles.

[\[Top\]](#) 

7. How is the structure of Carbon Black measured?

It is measured by the absorption of Di-Butyl Phthalate (DBP)oil by the Carbon Black. It is estimated by mixing DBP oil in a specially designed bowl equipped with rotors in which oil is added slowly to the carbon black until a preset torque is reached. The machine cuts off at this point and the oil added in milliliters per 100 gms of the sample is reported as the DBP absorption Number.

[\[Top\]](#) 

8. What are the other significant Properties of Carbon black?

Aggregate size is the third fundamental property as it influences performance in rubber.

[\[Top\]](#) 

9. How are those determined?

It is normally determined in production by the tinting strength test. The test involves in mixing of carbon black with a large quantity of Zinc oxide powder with a plasticizer and measuring the hiding power of the black when tested for light reflectance. The more the hiding power the more is the tinting strength.

[\[Top\]](#) 