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Add: 535 QingShuiQiao Road 11th Floor Office Park Building Ningbo Hi-Tech Park
地址: 宁波市科技园区清水桥路535号新城国际11楼
Tel: 0086-574-87907888 电话: 0086-574-87907888
Fax: 0086-574-87917070 87265831 传真: 0086-574-87917070 87265831
Http://www.hongda-chem.com E-mail:info@hongda-chem.com

TransCarb

炭黑





BRIEF 公司简介 INTRODUCTION

Hongda Group Limited is located in Zhejiang Ningbo, which initiated its business in 1992 and is engaged itself in the field of technology creation, manufacturing and international trade, is an enterprise which specialize in the production of coating raw materials i.e. Photoinitiators. UV absorbers, fluorescent pigments, polyamide resins, titanium dioxide, carbon black and other additives. As one of our commitments to our customers, we attach great importance to research and development. We consistently provide best service and keep our credit in developing stable business with our oversea clients and manufacturers. Our professional marketing process guarantee the quality assurance, competitive price, timely and first class logistics. Brand of TransCarb series products have already been well accepted by customers all over the world.

洪大集团有限公司创始于1992年，专业生产有机颜料、荧光颜料、油漆颜料、钛白粉、炭黑以及各类助剂等技、工、贸一体型企业。公司创始至今，一直致力于技术开发和新产品的研制和生产。良好的服务和信誉始终体现与客户和生产厂家之间稳定的业务发展中。专业的营销运作程序对产品的质量，价格，包装、运输有着良好的保障。以TransCarb为品牌的炭黑产品已经得到了广大客户的肯定。

What Is Carbon Black?

Carbon black is fine powder made from incomplete combustion of carbonaceous materials (mainly of Petroleum). It's pure black beads or powder. The color strength, fineness, gravity are all varied with the change of raw materials and processing methods. Carbon black is not dissoluble in water, acid, alkali but can be burned into CO₂ in the air. The main element of carbon black is carbon, while including a very small volume of hydrogen, oxygen, sulfur, ash, tar and water.

什么是炭黑？

炭黑是一种由含碳原料（主要是石油）通过不完全燃烧而产生的微细粉末，一般呈纯黑色的细粒或粉状。其强度，细度，比重度均会随原料和制造方法的不同而有所差异。炭黑不溶于水，酸，碱，但能在空气中燃烧变为二氧化碳。炭黑的主要组成物质是碳元素，还含有少量的氢，氧，硫，灰分，焦油和水。

What Is Pigment Carbon Black?

The statistic of 2005 showed that the global output of carbon black is almost 8 million metric tons. 90% are for rubber-reinforcing application of rubber products and motor tires. The rest part about 10% is for applications of printing inks, plastics and paints, which are performed as pigments and named as pigment carbon black or say, Coloring Carbon Blacks.

什么是色素炭黑？

2005的统计表明，炭黑的全球输出产量大约为8000000吨，其中90%用于橡胶制品和汽车轮胎的橡胶补强应用。其余的10%则应用于印刷油墨，塑料和涂料，此时炭黑作为颜料使用，并被称为色素炭黑。



Structure(DBP Oil Absorption)

The original particle of pigment carbon black does not exist by single.They form congeries and agglomerates through physical process.The conglomerating size of furnace-processed pigment carbon black can be adjusted by changing of the technical craft,while gas-processed blacks can't be controlled.Conglomeration of original particles of carbon black is used to being called 'structure'. Pigment carbon black with high conglomeration is called high structure,while with low conglomeration is called low structure.The structure of agglomerates of pigment carbon black is presented by irregular chips.The structure can be measured by its DBP(DiButyl Phthalate) absorption.Usually,according to our experience,DBP absorption of low structure should be less than 70ml per 100g of pigment carbon black.However,for high structure pigment carbon black,the DBP absorption per 100g of pigment carbon black should be more than 110ml.Middle structure carbon black is between the above two on DBP.It's structure that gives substantial influence on performance of pigment carbon black while application.

炭黑结构 (DBP吸油量)

炭黑的原始粒子不会单一存在，它们会通过物理过程形成聚集体和附聚物。其中炉法的炭黑的凝聚体大小可以通过技术工艺的变化而调整，相反气法炭黑的凝聚体大小则无法被控制。炭黑原始粒子间的凝聚即被称为“炭黑结构”。具体高凝聚度的颜料炭黑为高结构炭黑，反之凝聚程度较低的颜料炭黑则为低结构炭黑。色素炭黑的凝聚体呈现不规则的晶体结构。

此结构可以通过其对DBP（邻苯二甲酸二丁酯）的吸油量而测定。通常情况下，根据经验，低结构炭黑的DBP吸油量应低于70ml/100g；与此同时，高结构炭黑的DBP吸油量应高于110ml/100g；中度结构炭黑的对应值则处于上述两值之间。炭黑的结构会对色素炭黑在应用上的表现产生实质性的影响。



Tinting Strength

Tinting strength means the performance of color strength shown in the form of percentage,which is evaluated by the reflection rate of gray paste that mixture of the carbon black,titanium dioxide(or other white pigment like zinc oxide) and linseed stand oil,with reference to industry standard.

着色强度

着色强度是一种以百分比为形式体现的颜料着色力。该值是通过由炭黑，钛白粉（或其他白色颜料如氧化锌）和亚麻籽油组成的灰色混合物的反射率体现的。

Surface Area(Iodine Absorption)

Surface area of carbon black indicates the total surface area of carbon black particles per unit of mass or bulk volume,with units of m^2/g .Surface area,similar as particle size,shows performance characteristics of carbon black.To carbon black with smooth surface,its surface area and particle size are contrary to each other,which is the smaller the particle size,the bigger the surface area,and vice versa.So if we assume that carbon black particle is spherical,we could calculate specific surface area if we know its particle size.Surface of rubber carbon black is usually smooth and imperforate.Intermediate SAF and Super Abrasion Furnace carbon black have relatively small particle size and some micropores on surface. Pigment carbon black's surface area is larger than that of rubber carbon black which has same particle size because of different processing methods after-treatment which result in kind of oxidation on surface.

表面积 (吸碘值)

炭黑的表面积是指单位质量或本体体积的炭黑颗粒的总表面积，以 m^2/g 为单位，其值类似于颗粒大小，显示了炭黑的性能特点。表面光滑的炭黑，其表面积和粒径大小呈反比，即表面积越大的炭黑，其粒径越小，反之亦然。因此，若假设炭黑粒子为球形，便可通过其粒径大小测算出表面积的值。橡胶炭黑的表面一般呈平滑和无孔。中间体SAF和超耐炉法炭黑的颗粒则相对较小且表面具有一些微孔。由于不同的后处理方式而导致的炭黑表面的氧化反应，色素炭黑的表面积会大于具有相同粒径大小的橡胶炭黑表面积。

PH Value

The PH value is related to the amount of surface chemical functional group.Surface of furnace-processed pigment carbon black has less organic functional group and exiguous water soluble salt,which makes majority of pigment carbon black show neutral or alkali in PH value.In order to improve the viscosity,stability and fluidity,some types of pigment carbon black are improved on the quantity of organic functional group via surface treatment.Hence PH value of those types shows acid.

PH值

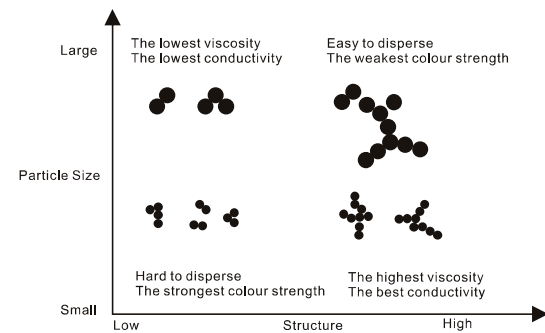
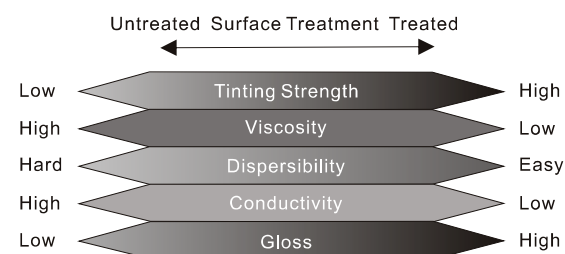
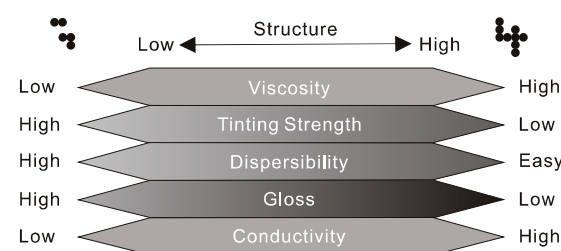
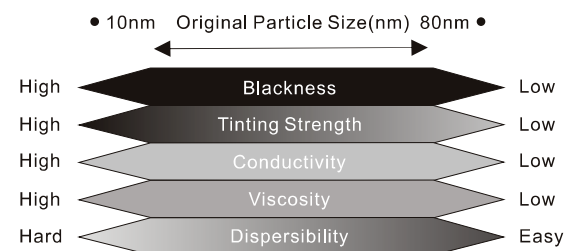
PH值与物质表面化学官能团的数量有着密切的关系。由于炉法处理的炭黑表面具有较少的有机官能团和微量的水溶性盐，这使大多数炉法炭黑的PH值呈中性或碱性。为了提高炭黑的粘度，稳定性和流动性，某些类型的炭黑可以通过表面处理增加其有机官能团的数量，使其PH值呈现酸性。

Effect of particle size & surface area on final performance

Performance	Small particle size/High surface area	Large particle size/Low surface area	Performance	Small particle size/High surface area	Large particle size/Low surface area
Masstone	Darker	Lighter	Tinting strength	Higher	Lower
Viscosity	Higher	Lower	Conductivity	Higher	Lower
UV protection	Better	Poor	Dispersibility	Difficult	Easier
Wetting	Slower	Faster	Cost	Higher	Lower

粒径和表面积对炭黑性能的最终影响

性能	小粒径/大表面积	大粒径/小表面积	性能	小粒径/大表面积	大粒径/小表面积
色调	相对深	相对浅	着色强度	相对强	相对弱
粘度	相对高	相对低	导电性	相对高	相对弱
抗UV	相对强	相对弱	分散性	相对难	相对易
润湿	相对慢	相对快	成本	相对高	相对低



N系列炭黑 N Series carbon black

N774	29±4	72±7	57-69	29±9	25-35	/	1.5	490±40	0.7	NO	0.001	0.1	10	6.0-9.0	-4.1±1.6
N660	36±6	90±7	66-82	34±9	29-41	/	1.5	440±40	0.7	NO	0.001	0.1	10	6.0-9.0	-2.6±1.6
N650	36±6	123±7	76-93	35±9	30-42	/	1.5	360±40	0.7	NO	0.001	0.1	10	6.0-9.0	-1.0±1.6
N550	43±6	121±7	77-93	39±9	34-46	/	1.5	360±40	0.7	NO	0.001	0.1	10	6.0-9.0	-0.9±1.6
N539	43±6	111±7	73-89	38±9	33-45	/	1.5	385±40	0.7	NO	0.001	0.1	10	6.0-9.0	-1.6±1.6
N375	90±7	114±7	88-104	91±9	86-100	106-122	2.5	345±40	0.7	NO	0.001	0.1	10	6.0-9.0	0.1±1.6
N351	68±7	120±7	87-103	70±9	64-78	92-108	2.5	345±40	0.7	NO	0.001	0.1	10	6.0-9.0	0.8±1.7
N347	90±7	124±7	91-107	83±9	78-92	97-113	2.5	335±40	0.7	NO	0.001	0.1	10	6.0-9.0	0.2±1.6
N339	90±7	120±7	91-107	88±9	84-98	103-119	2.5	345±40	0.7	NO	0.001	0.1	10	6.0-9.0	0.6±1.6
N330	82±7	102±7	80-96	75±9	71-85	96-112	2.5	380±40	0.7	NO	0.001	0.1	10	6.0-9.0	-0.7±1.6
N326	82±7	72±7	62-74	76±9	71-85	103-119	2.5	455±40	0.7	NO	0.001	0.1	10	6.0-9.0	-3.8±1.6
N299	108±7	124±7	96-112	97±9	97-111	105-121	2.5	335±40	0.7	NO	0.001	0.1	10	6.0-9.0	0.4±1.6
N294	120±7	125±7	94-110	112±9	112-126	115-131	2.5	320±40	0.7	NO	0.001	0.1	10	6.0-9.0	-0.4±1.9
N220	121±7	114±7	90-106	106±9	107-121	108-124	2.5	355±40	0.7	NO	0.001	0.1	10	6.0-9.0	-2.1±1.7
N219	118±7	78±6	67-91	/	100-123	115-131	2.5	440±40	0.7	NO	0.001	0.1	10	6.0-9.0	-3.9±1.6
N110	145±8	113±7	89-105	115±9	120-134	115-131	3	345±40	0.7	NO	0.001	0.1	10	6.0-9.0	-3.5±1.6
检测项目 Item	吸碘值 Iodine absorption g/kg	DBP吸收值 DBP absorption 10 ⁻¹ m ³ /kg	压缩样DBP吸收值 CDBP absorption 10 ⁻¹ m ³ /kg	STSA 10 ³ m ² /kg	氮吸附比表面积 BET(NSA)absorption 10 ³ m ² /kg	着色强度 Tint Strength %	加热减量 Loss at ≤ %	倾注密度 Density kg/m ³	灰分 Ash % ≤	杂质 Impurity	500μm筛余物 Sieve Residue 500 μm % ≤	45 μm筛余物 Sieve Residue 45 μm % ≤	细粉含量 Fines % ≤	PH	300%定伸应力 300% Modulus MPa

Conductive Carbon Black

It is one kind of carbon black with a low resistance or a high resistance property, which means, its products can be conductive or antistatic. This kind of carbon black is characterized by small particle size, high and roughness specific surface area, high structure, clean surface (less compounds) etc. It can make the rubber or plastic conductive, so that it will be used to manufacture different kinds of conductive or antistatic products, such as antistatic or conductive rubber, plastic products, cable shielding materials etc.

导电炭黑

具有低电阻或高电阻性能的炭黑。可赋予制品导电或防静电作用。其特点为粒径小，比表面积大且粗糙，结构高，表面洁净（化合物少）等。其能够使橡胶或塑料具有一定的导电性能，用于不同的导电或防静电制品，如防静电或导电橡胶、塑料制品、电缆屏蔽料等。

检测项目 Item	氮吸附比 表面积BET (NSA) absorption 10 ³ m ² /kg	倾注密度 Density (kg/cm ³)	DBP吸收值 DBP absorption 10 ⁻⁵ m ³ /kg	着色强度 Tint strength (%)	灰分 Ash Content (%)	加热 减量 Heat loss (%)	325 μm 筛余物 325 mesh Sieve Residue (ppm)	35 μm 筛余物 325 mesh Sieve Residue (ppm)	粒径 Particle Size (nm)	PH
HD6007	37	356	124	52	0.1	0.4	25	0	40-48	6.1
HD6008	71	325	128	93	0.1	0.4	24	0	26-30	8.0

HD6007: For outer of the wire 适用于外层电缆
HD6008: For inner of the wire 适用于内层电缆



High Performance
Open Communication
Novel Innovation
Global Perspective
Developable Strategy
Awesome Potential

