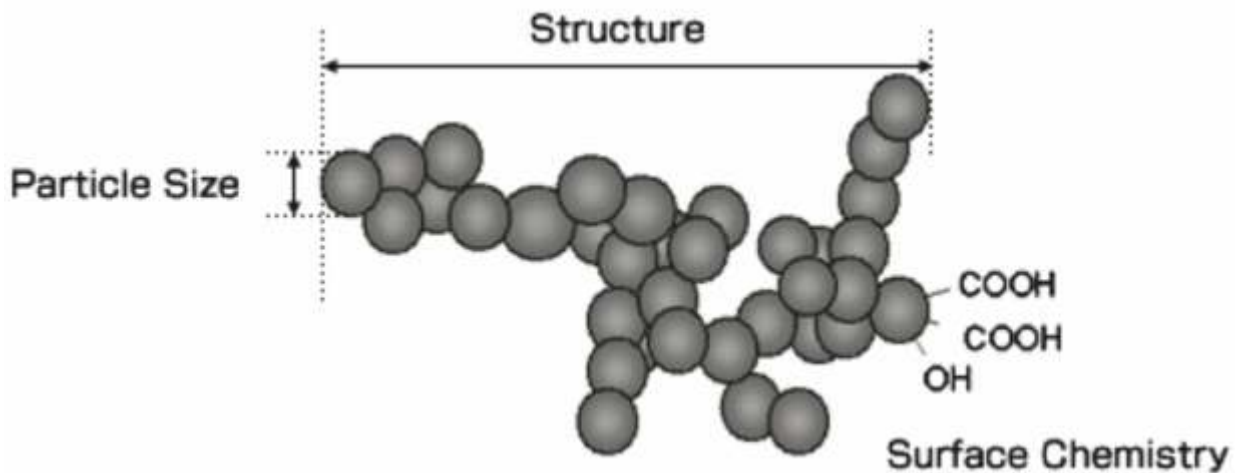


## MICROFINE CARBON BLACK - NORMAL CARBON BLACK

Microfine carbon black – The particle size of normal ASTM type carbon black, has been reduced to through microfining process, to achieve better dispersion and rheological properties, with lower requirement of additives to achieve superior dispersion.

### PARTICLE SIZE AND SHAPE



The particle size, shape and distribution of a pigment influence the rheological properties, shade, gloss, weathering characteristics and ease of dispersion.

■ Pigment particles can occur in three different forms:

- (i) Primary particles
- (ii) Aggregates
- (iii) Agglomerates.

■ Primary particles in a single 'piece' of pigment can be identified as an individual by microscopic examination.

■ Aggregates are primary particles that are firmly 'cemented' together at crystalline areas.

■ Agglomerates are comparatively loosely bound primary particles and aggregates that are joined at crystal corners and edges.

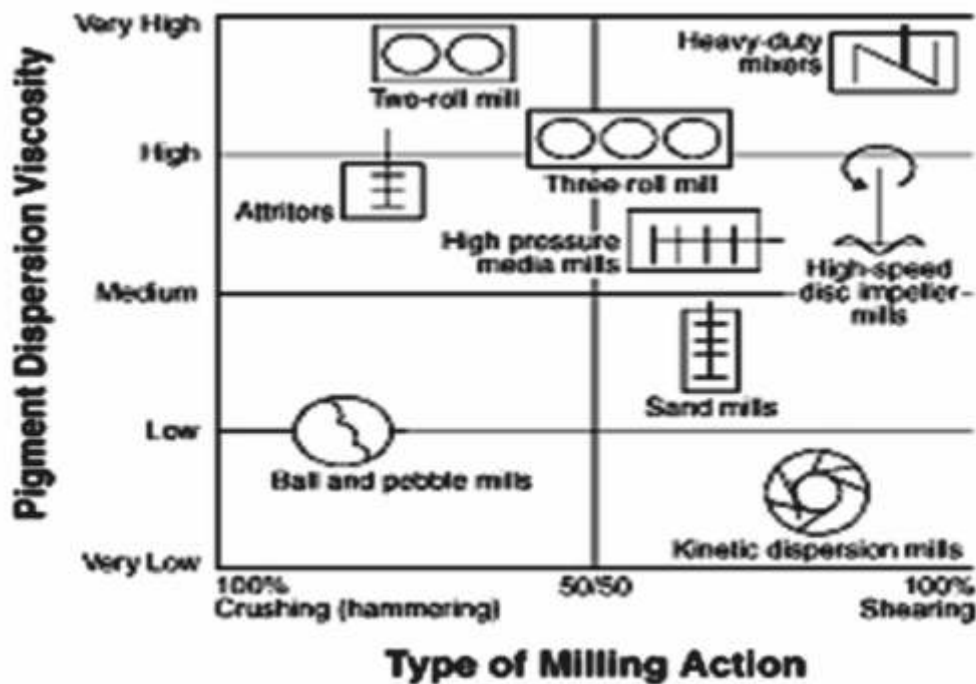
The particle size of the dispersed pigment agglomerates or primary particles is of great importance in determining the performance of paint systems.

The size of particles of pigments may range between 1 μ and 60 μ diameters.

Most pigments and extenders used in paints are Crystalline in nature. Non-crystalline pigments such as the carbon blacks are also used in the paint industry.

The optical properties of carbon black are influenced by both the sizes of the primary particles and the sizes of the dispersed agglomerates or aggregates. Theoretical calculations, based on Mie theory and empirical results have shown that the degree of blackness (jetness) obtained from a carbon black increases as the mean size of the agglomerate is decreased. Accordingly, jetness increases as primary particle size is decreased but only after all agglomerates are dispersed to their component aggregates. It is for this reason that dispersion conditions and dispersion stability play such important roles in determining paint film color characteristics.

The black paint the maximum blue undertone is achieved from well dispersed pigments having the smallest particle sizes given the importance of excellent dispersion, the other important consideration in achieving good color with carbon black is the proper selection of a dispersing apparatus. Dispersion mills utilize a mixture of crushing and shearing energy, different mills give different relative amounts of the two types of energy, Figure below



For in this case to use of the micronized carbon black will improve the dispersion with low demand additive and also to reduce the dispersion time.

**TABLE 1 : PARTICLE SIZE AND PERFORMANCE**

LARGE PARTICLE		SMALL PARTICLE
Lighter	Jetness	Darker
Lower	Tint Strength	Higher
Less	UV Protection	More
Lower	Conductivity	Higher
Lower	Viscosity	Higher
Better	Dispersibility	Worse

**TABLE 2: STRUCTURE AND PERFORMANCE**

LARGE STRUCTURE		HIGH STRUCTURE
Darker	Jetness	Lighter
Higher	Tint Strength	Lower
Lower	Conductivity	Higher
Lower	Viscosity	Higher
Worse	Dispersibility	Better

**DISPERSION RATIO OF MICROFINE CARBON BLACK VS NORMAL CARBON BLACK**



## MICRONIZED CARBON BLACK TYPICAL SPECIFICATION

TEST PARAMETERS	UNIT	ASTM METHOD	N220 MICRONIZED CARBON BLACK	N330 MICRONIZED CARBON BLACK	N326 MICRONIZED CARBON BLACK
Appearance			Black Fine Powder	Black Fine Powder	Black Fine Powder
Iodine No	mg/g	D 1510-03	121 ± 5	82 ± 5	82 ± 5
DBP Absorption	cc/100g	D 2414-05	114 ± 5	102 ± 5	72 ± 5
Tint Strength	% ITRB	D 3265	116 ± 5	104 ± 5	111 ± 5
Heating Loss	%	D 1509	1 max	1.5 max	1.5 max
Ash Content	%	D 1506	1 max	1 max	1 max
Sieve Residue 350 BSS mesh	%	D 1514	0.6max	0.6max	0.6max

Available in 25 kg bags across all our warehouses.