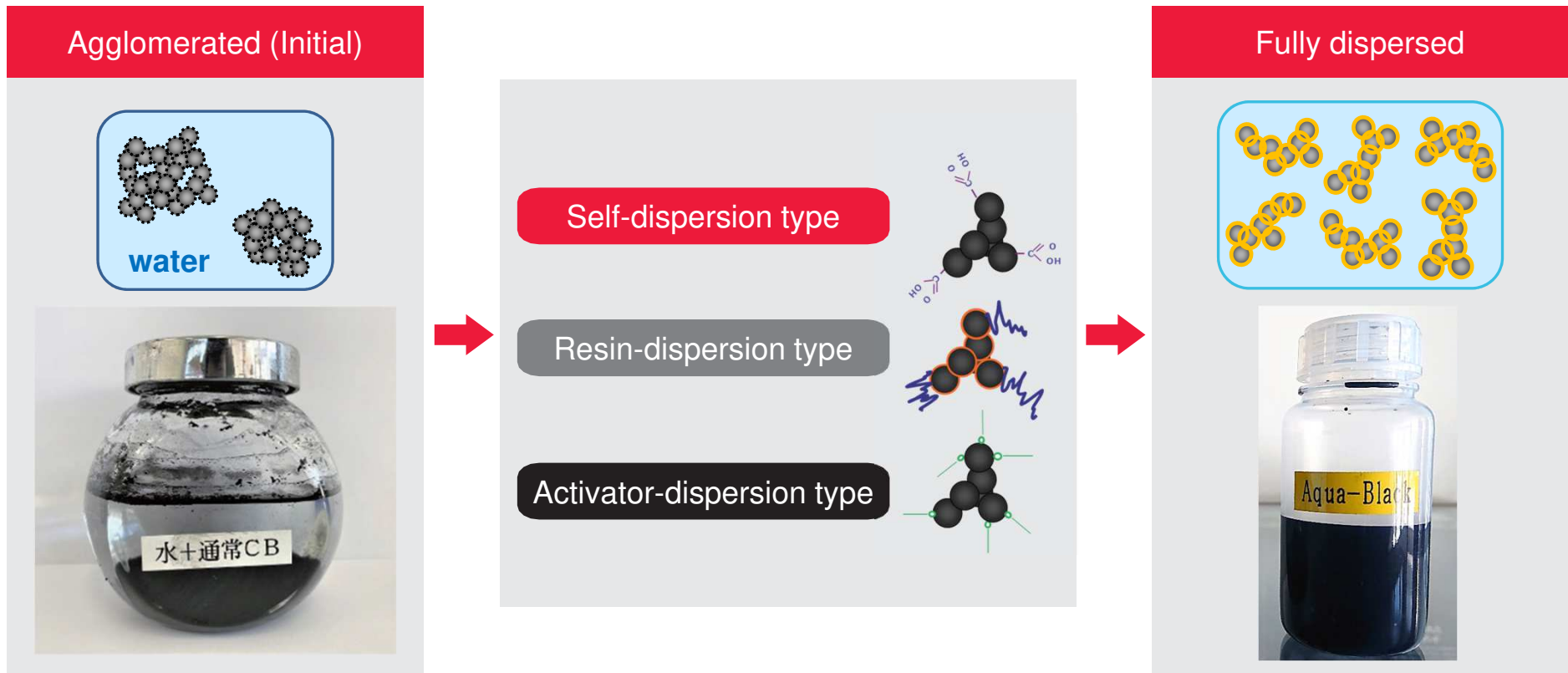
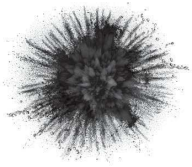


# What is Aqua-Black<sup>®</sup>?

Carbon black dispersion for black ink developed for inkjet applications.  
The contents consist only of carbon black and water.

Some treatment is required to disperse carbon black, which is lipophilic, in water.  
In general, the resin-dispersion type is often used. Aqua-Black<sup>®</sup> is self-dispersion type.





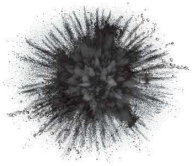
# Characteristics of each dispersing method and Strong points of Aqua-Black®

## ● Effect of surface treatment technology applied to Aqua-Black®

- Excellent dispersion stability due to imparting the hydrophilic groups
- to the surface of carbon black through chemical bonding.
- High color development (blackness) on paper
- Since it does not contain dispersing aids, Ink designs are highly flexible.

Features	Self-dispersion	Resin-dispersion	Activator-dispersion
Dispersant	Not available	Water-soluble resin	Surfactant
Form of introduction of hydrophilic group	Chemical bond	Adsorption	Adsorption
Dispersion stabilization	Electrostatic repulsion only	Mainly steric hindrance	Mainly electrostatic repulsion
Stability to flux	<b>Superior</b>	Ordinary	Generally inferior
Stability to salts	<b>Inferior</b>	Superior	Ordinary
Floating matter in the system	Not available	Available	Available

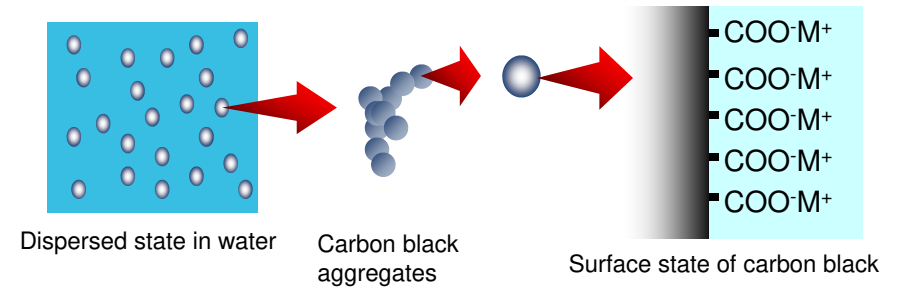
Source : Journal of the Imaging Society of Japan Volume 41 Issue 2 (2002)  
Self Dispersed Pigment Type Inkjet Ink Sunao SATAKE



# Aqua-Black<sup>®</sup> 162

- ▶ Better weather resistance and print density than dyes.
- ▶ Satisfies the performance requirements for inkjet applications with good color development and sedimentation properties.

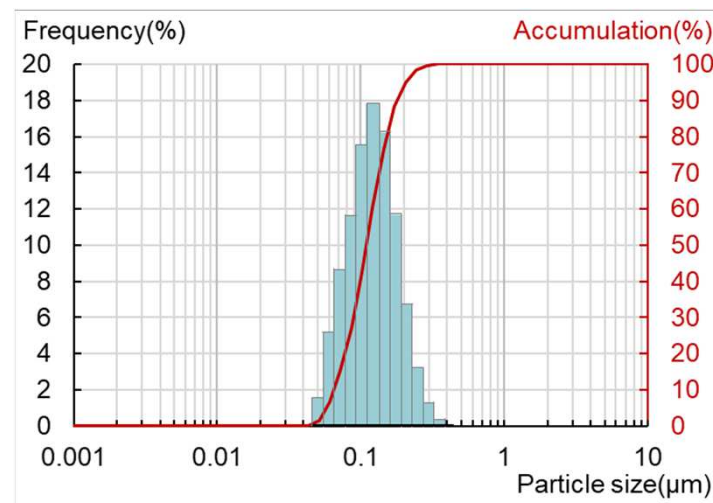
● Fig.1 Model diagram of self-dispersing carbon black



● Table1. Property of Aqua-Black<sup>®</sup>162

Surface Functionality	Carboxy group
Viscosity	6.5mPas
pH	6.5
Surface Tension	72mN/m
Solid Concentration	19.2wt%
Stability	4 weeks at 343K
Particle Size Distribution	
Mean	110nm
99%	260nm

● Fig.2 Particle size distribution of Aqua-Black<sup>®</sup>162 (Representative example)



● Fig.3 Color development of Aqua-Black<sup>®</sup>162 (Representative example)

※Sedimentation rate is about 20%.

