

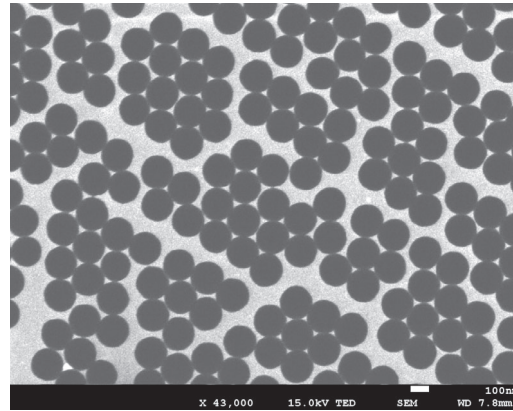
多機能親水性微粒子

# RX-6-AQシリーズ (開発品)

RX-6-AQ シリーズは、当社独自技術により開発した、有機系サブミクロン多機能親水性微粒子です。低粘度の水分散体を実現することで、従来の親水性有機微粒子の課題であった、水系組成物への配合性を高めています。それにより、各種コーティング剤やフィルムへの親水性やアンチブロッキング性の付与が期待できます。また、微粒子設計技術により、結着性、空孔形成性、吸湿性を強化したラインナップも取り揃えております。

## 特徴

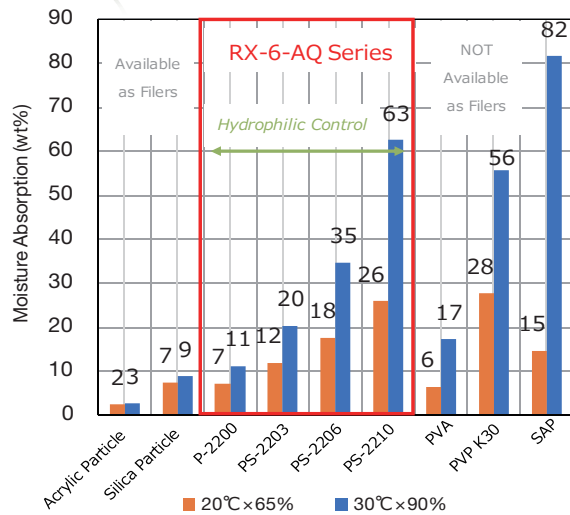
- 100-500nm内で粒子径を制御可能
- 真球状でシャープな粒度分布
- 低粘度の水分散体
- 親水性レベルを制御可能
- 再分散性の高い粉体(粉体タイプ)
- 弱アルカリで溶解(空孔形成タイプ)



## 物性

### 表面親水性(吸湿性)

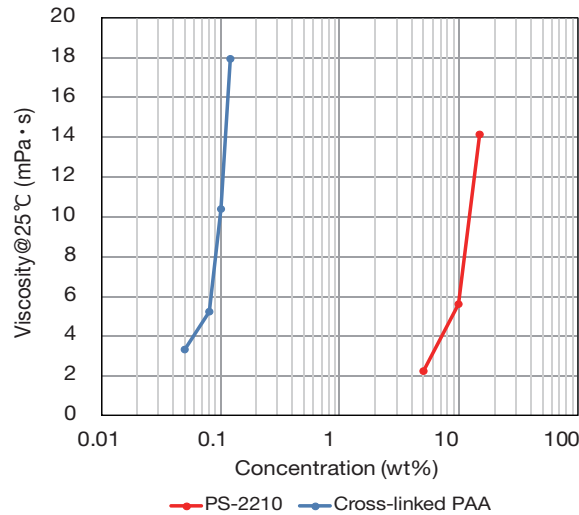
- 親水性の制御可能。
- 低湿度領域でも高い吸湿性。



Predrying: 105°C 30min  
 Moisture absorption (wt%)  
 = (increase amount@24h/initial weight)\*100  
 Acrylic Particle : EPOSTAR™ MX, Silica Particle : SEAHOSTAR™ KE-P  
 PVP K30 : Polyvinylpyrrolidone K-30  
 produced by Nippon Shokubai CO., LTD. (same as below)  
 SAP : Fujifilm Wako Pure Chemical CO., LTD.

### 水分散粘度

- ポリアクリル酸系に比べ、極めて低い。
- 各種樹脂への配合性が良好。

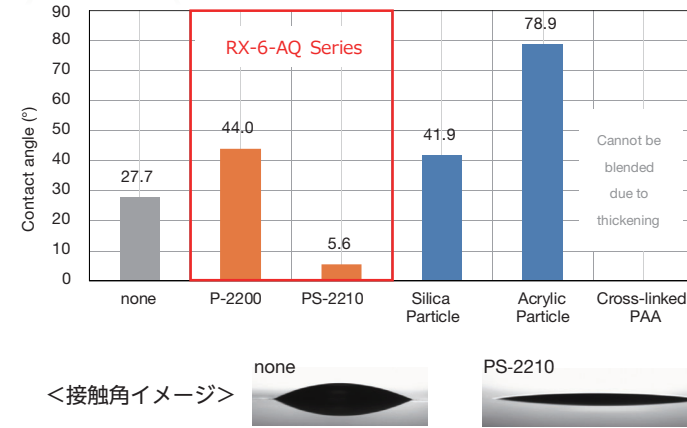


Cone & plate viscometer  
 Temperature: 25°C  
 Cross-linked PAA: 20 CLPAH,  
 Produced by Fujifilm Wako Pure Chemical CO., LTD.

## 機能

### 発現機能① 親水性

- 水系塗料への配合性が良好であり、シリカ微粒子配合塗膜と同等の親水性を有機微粒子で実現。
- さらに、親水性が高いタイプでは、塗膜への親水性付与も可能。



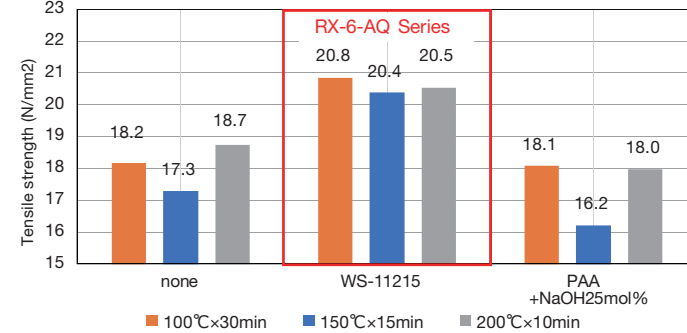
Test panel: AI (A1050P)  
 Primer: Ultra sealer III, Produced by Nippon Paint CO., LTD.  
 Wet coating thickness: 11.5µm Dry condition: 100°C×10min  
 Binder: PEG(Mw=3400)/PVA117=50/50(wt%)  
 Particle amount: 20wt% vs binder solid content  
 Wet coating thickness: 11.5µm Dry condition: 200°C×60s

#### ■用途例

親水性付与剤、吸湿剤、耐汚染塗料  
 マット剤、アンチブロッキング剤

### 発現機能② 結着性

- 高い極性官能基量により、高温から低温まで、幅広い温度領域で結着性を発現することが可能。



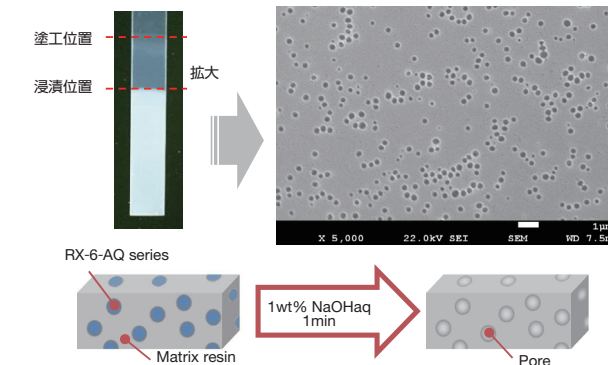
Test sheet: Quantitative filter paper 5c  
 Produced by Advantec Toyo CO., LTD.  
 Immersion processing: 1wt% polymer solution 1min  
 PAA: MW=5,000  
 Produced by Fujifilm Wako Pure Chemical CO., LTD.

#### ■用途例

繊維補強剤、各種バインダー

### 発現機能③ 空孔形成性

- 弱アルカリ、室温、短時間など、温和な条件で空孔形成が可能。



Test film: PET A4300 Produced by Toyobo CO., LTD.  
 Binder: Nichigo-POLYESTER™ by Mitsubishi Chemical CO., LTD.  
 Particle amount: 20wt% vs binder solid content  
 Wet coating thickness: 52µm Dry condition: 100°C×10min  
 Pore-forming condition: 1wt% NaOH aq 1min

#### ■用途例

空孔形成剤、繊維処理剤

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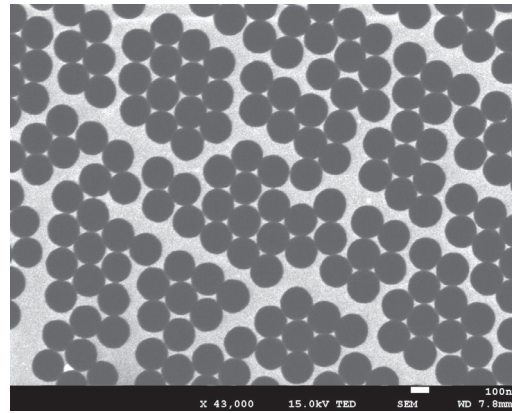
# Multi-functional Hydrophilic Particles

## RX-6-AQ Series (Product in Development)

The RX-6-AQ series are modified acrylic submicron multifunctional hydrophilic particles born from our unique technologies. By low viscosity dispersion in water, it has a high affinity with aqueous resins. As a result, it can provide various coating agents and films with hydrophilicity effect. We also provide particles with enhanced binding, pore-forming, and hygroscopic properties.

### Features

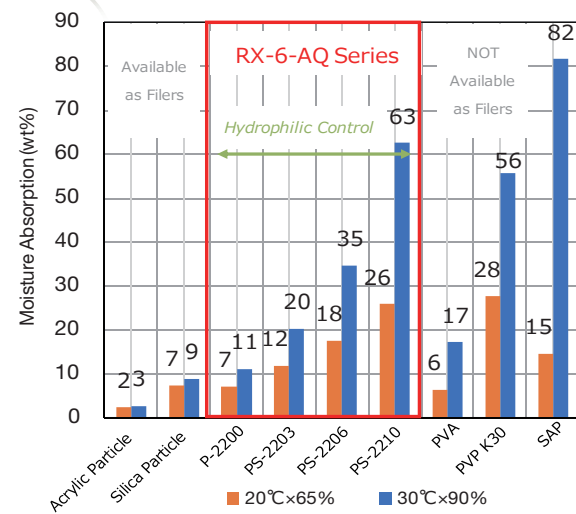
- 1 Particle size adjustable from 100 nm to 500 nm
- 2 Fine spherical particle
- 3 Narrow particle size distribution
- 4 Low viscosity dispersion in water
- 5 Hydrophilic level control
- 6 Excellent dispersibility powder (Powder type)
- 7 Dissolved in weakly basic solvent (Pore-forming type)



### Properties

#### Surface Hydrophilicity (Hygroscopicity)

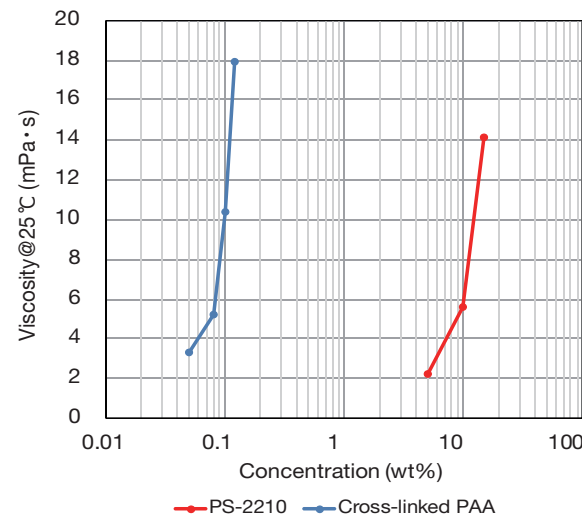
- Hydrophilic control equivalent to silica or PVP.
- High hygroscopicity in low humidity conditions.



Predrying: 105°C 30min  
 Moisture absorption (wt%) = (increase amount@24h/initial weight)\*100  
 Acrylic Particle : EPOSTAR™ MX, Silica Particle : SEAHOSTAR™KE-P  
 PVP K30 : Polyvinylpyrrolidone K-30 produced by Nippon Shokubai CO., LTD. (same as below)  
 SAP : Fujifilm Wako Pure Chemical CO., LTD.

#### Viscosity dispersion in water

- Extremely low viscosity compared to PAA.
- Good dispersibility in resins.

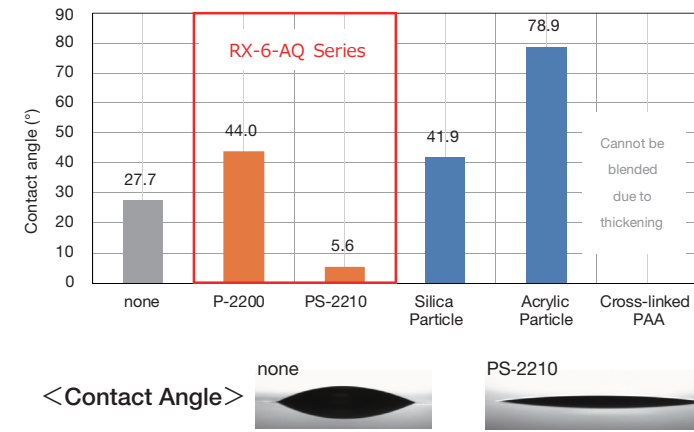


Cone & plate viscometer  
 Temperature: 25°C  
 Cross-linked PAA: 20 CLPAH,  
 Produced by Fujifilm Wako Pure Chemical CO., LTD.

### Functions

#### Functions① Hydrophilicity

- Good dispersibility in aqueous paints, and organic particles achieve hydrophilicity equivalent to silica particle blended coating film. In addition, with high hydrophilic type, it can provide coating film with hydrophilicity.

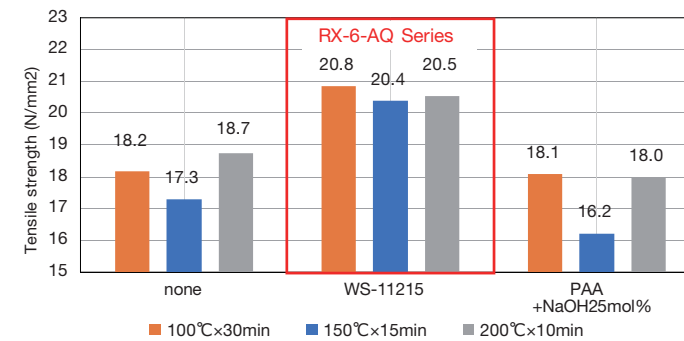


Test panel: Al (A1050P)  
 Primer: Ultra sealer III, Produced by Nippon Paint CO., LTD.  
 Wet coating thickness: 11.5µm Dry condition: 100°C×10min  
 Binder: PEG(Mw=3400)/PVA117=50/50(wt%)  
 Particle amount: 20wt% vs binder solid content  
 Wet coating thickness: 11.5µm Dry condition: 200°C×60s

- Applications  
 Hydrophilic Modifier, Moisture-Absorbing Agent, Stain-Resistant Paint, Matting Agent, Anti-Blocking Agent

#### Functions② Binding property

- By high amount of polar functional groups, it can provide binding properties in a wide temperature range.

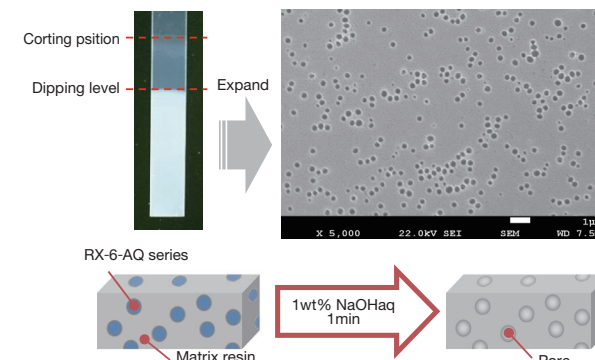


Test sheet: Quantitative filter paper 5c  
 Produced by Advantec Toyo CO., LTD.  
 Immersion processing: 1wt% polymer solution 1min  
 PAA: MW=5,000  
 Produced by Fujifilm Wako Pure Chemical CO., LTD.

- Applications  
 Fiber-Reinforcing Agent, Various Binders

#### Functions③ Pore-forming property

- Pore formation is possible under mild conditions such as weakly basic solvent, room temperature, and short time.



Test film: PET A4300 Produced by Toyobo CO., LTD.  
 Binder: Nichigo-POLYESTER™ by Mitsubishi Chemical CO., LTD.  
 Particle amount: 20wt% vs binder solid content  
 Wet coating thickness: 7µm Dry condition: 100°C×10min  
 Pore-forming condition: 1wt% NaOH aq 1min

- Applications  
 Pore-Forming Agent, Fiber-Processing Agent

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