

# APPIE

## SAP TEST POWDERS 3

APPIE prepares and distributes the test powders named **SAP test powders 3** which are suited to **SAP 14-12 : 2012** (APPIE Standard).

SAP test powders 3 includes four test powders which have smaller size distribution compared to the JIS Z 8901 Test powders 1, and they can be used for the performance test of various dust collectors and air filters as well as for durability test of various instruments when they are exposed to dust particles. SAP test powders 3 are classified into four classes, their used material are quarts sand, talc, sintered KANTO loam, and calcium carbonate heavy and their chemical compositions are same to the used material of JIS Z 8901 Test powders 1.

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## SAP test powders 3

Classification (used material)	Range of D50 (Median diameter)	Package
SAP test powders 3, Class 1 (STP3-1) (Quartz sand)	1.7~2.6 $\mu\text{m}$	1.5 kg
SAP test powders 3, Class 2 (STP3-2) (Talc)	3.6~6.1 $\mu\text{m}$	1.0 kg
SAP test powders 3, Class 3 (STP3-3) (Sintered KANTO loam)	1.7~2.5 $\mu\text{m}$	2.0 kg
SAP test powders 3, Class 4 (STP3-4) (Calcium carbonate heavy)	0.75~1.3 $\mu\text{m}$	1.5 kg

\* Each vial is 3000 ml.



## SAP Test Powders 3 Class 1 (STP3-1) (Quartz sand)

**Material used:** Quarts sand ( $\text{SiO}_2 > 95\%$ )

particle density:  $\rho_p = 2.6 \sim 2.7 \text{ g/cm}^3$

**Size distribution** — measured by the laser diffraction scattering method

Particle size range which gives the undersize of 10–90%.

**SAP test powders 3, Class 1 (Quartz sand)**

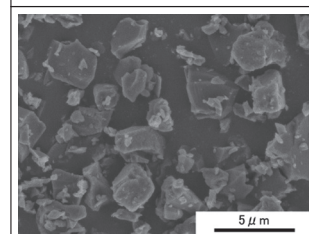
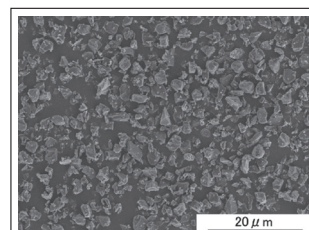
**Electron microscopic picture**

Undersize (%)	STP3-1 (Quartz sand) Particle size range	
	LL ( $\mu\text{m}$ )	UL ( $\mu\text{m}$ )
10	0.75	1.1
20	1.1	1.7
30	1.3	2.0
40	1.5	2.3
50	1.7	2.6
60	1.9	2.8
70	2.0	3.0
80	2.3	3.4
90	2.8	4.1

**Undersize:** Volume fraction of particles smaller than a specified size to the total volume of particles (cumulative fraction in percentage)

**LL:** Lower limit    **UL:** Upper limit

**SAP test powders 3,  
Class 1 (Quartz sand)**



## SAP Test Powders 3 Class 2 (STP3-2) (Talc)

**Material used:** Talc ( $3\text{MgO} \cdot 4\text{SiO}_2 \cdot \text{H}_2\text{O}$ )

particle density:  $\rho_p = 2.7 \sim 2.9 \text{ g/cm}^3$

**Size distribution** — measured by the laser diffraction scattering method  
Particle size range which gives the undersize of 10-90%.

### SAP test powders 3, Class 2 (Talc)

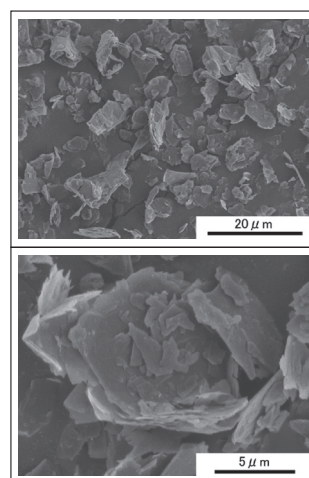
Undersize (%)	STP3-2 (Talc) Particle size range	
	LL ( $\mu\text{m}$ )	UL ( $\mu\text{m}$ )
10	1.7	2.9
20	2.3	3.9
30	2.7	4.6
40	3.1	5.3
50	3.6	6.1
60	4.0	6.9
70	4.4	7.6
80	5.1	8.7
90	6.3	11

**Undersize:** Volume fraction of particles smaller than a specified size to the total volume of particles (cumulative fraction in percentage)

**LL:** Lower limit    **UL:** Upper limit

### Electron microscopic picture

SAP test powders 3,  
Class 2 (Talc)



## SAP Test Powders 3 Class 3 (STP3-3) (Sintered KANTO loam)

**Material used:** Sintered KANTO loam

particle density:  $\rho_p = 2.9 \sim 3.1 \text{ g/cm}^3$

**Size distribution** — measured by the laser diffraction scattering method  
Particle size range which gives the undersizes of 10-90%.

### SAP test powders 3, Class 3 (Sintered KANTO Loam)

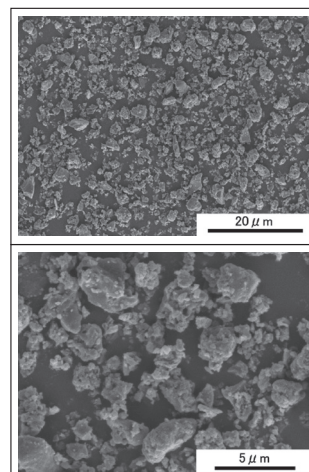
Undersize (%)	STP3-3 (Sintered KANTO Loam) Particle size range	
	LL ( $\mu\text{m}$ )	UL ( $\mu\text{m}$ )
10	0.89	1.3
20	1.2	1.7
30	1.4	2.0
40	1.5	2.3
50	1.7	2.5
60	1.8	2.7
70	2.0	2.9
80	2.4	3.5
90	2.9	4.2

**Undersize:** Volume fraction of particles smaller than a specified size to the total volume of particles (cumulative fraction in percentage)

**LL:** Lower limit    **UL:** Upper limit

### Electron microscopic picture

SAP test powders 3,  
Class 3 (Sintered KANTO Loam)



## SAP Test Powders 3 Class 4 (STP3-4) (Calcium carbonate heavy)

**Material used:** Calcium carbonate heavy ( $\text{CaCO}_3$ )  
 particle density :  $\rho_p = 2.7 \sim 2.8 \text{ g/cm}^3$

**Size distribution** — measured by the laser diffraction scattering method  
 Particle size range which gives the undersizes of 10-90%.

SAP test powders 3, Class 4 (Calcium carbonate heavy)

Undersize (%)	STP3-4 (Calcium carbonate heavy) Particle size range	
	LL ( $\mu\text{m}$ )	UL ( $\mu\text{m}$ )
10	0.31	0.54
20	0.38	0.65
30	0.45	0.79
40	0.57	0.97
50	0.75	1.3
60	0.95	1.7
70	1.2	2.0
80	1.4	2.4
90	1.7	3.0

**Undersize:** Volume fraction of particles smaller than a specified size to the total volume of particles (cumulative fraction in percentage)

**LL:** Lower limit    **UL:** Upper limit

Electron microscopic picture

SAP test powders 3,  
Class 4 (Calcium carbonate heavy)

