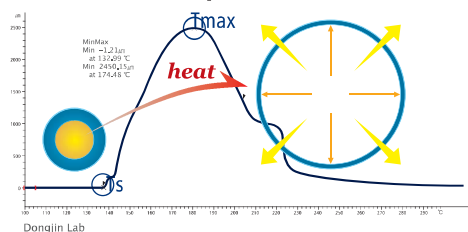


UNICELL-MS Series

Description

UNICELL-MS series is a thermal expandable microsphere. It is an unexpanded type which is composed of polymeric shell and volatile core. These particle sizes range from 10 to 100 μ m. Densities range from 1.05 to 1.20g/cc.

Structure and Expansion Mechanism



Feature

- Excellent expandability and thermal stability
- Excellent solvent resistance
- Various grades and wide choice
- Suitability for customers' demands

When UNICELL-MS is heated to Tg of its shell, It starts expanding dramatically. We call this point Ts. And more heated, It expands to about 40~50 times volumetrically. Its shell thins down critically and it forms hollow sphere. We call this point Tmax. If it is more heated above Tmax or for long time, the particle may shrink or collapse.

Products

Dry type

Item	Specification			Application
	APS(μ m)	Ts(°C)	Tmax(°C)	
MS140DS / D	15 $\pm$ 5 / 25 $\pm$ 5	90 $\pm$ 5	120 $\pm$ 5	1
MS145DS / D	12.5 $\pm$ 3.5 / 20 $\pm$ 4	106 $\pm$ 6	140 $\pm$ 5	1
MS2002	25 $\pm$ 10	115 $\pm$ 5	160 $\pm$ 5	2
MS4004A	20 $\pm$ 3	122.5 $\pm$ 7.5	167.5 $\pm$ 7.5	1, 5
MS4600FSS	7.5 $\pm$ 2.5	138 $\pm$ 5	160 $\pm$ 5	4, 7
MS4600FS	15 $\pm$ 3	130 $\pm$ 5	170 $\pm$ 5	2, 4
MS4600X	22 $\pm$ 4	125 $\pm$ 5	170 $\pm$ 5	5
MS4002	13.5 $\pm$ 3.5	122.5 $\pm$ 7.5	173 $\pm$ 5	2, 4
MS4002A	20 $\pm$ 3	122.5 $\pm$ 7.5	180 $\pm$ 5	2, 4
MS4600	25 $\pm$ 5	122.5 $\pm$ 7.5	181 $\pm$ 5	5
MS4600F	40 $\pm$ 5	115 $\pm$ 5	180 $\pm$ 5	3, 5
MS4702F	32 $\pm$ 5	115 $\pm$ 5	180 $\pm$ 5	3
MS4703F	32 $\pm$ 5	120 $\pm$ 5	183 $\pm$ 5	3, 5
MS180DY	30 $\pm$ 5	139 $\pm$ 5	183 $\pm$ 5	3
MS190D	30 $\pm$ 5	160 $\pm$ 5	194 $\pm$ 4	3
MS197D	24 $\pm$ 4	169 $\pm$ 3	193 $\pm$ 3	3
MS200	30 $\pm$ 4	140 $\pm$ 5	200 $\pm$ 5	3
MS3001	34 $\pm$ 6	161 $\pm$ 5	214 $\pm$ 6	7

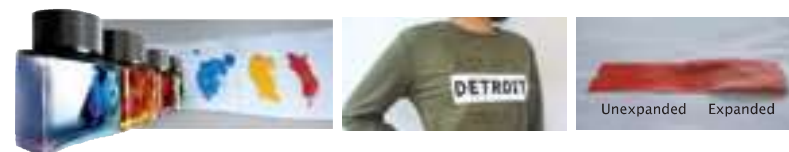
* APS (Average Particle Size) can be selectable

Wet type

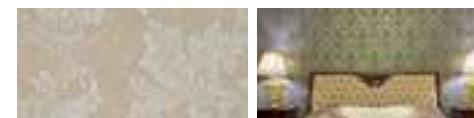
Item	Specification				Application
	APS(μ m)	Ts(°C)	Tmax(°C)	Moisture(%)	
MS140WS / W	15 $\pm$ 5 / 25 $\pm$ 5	90 $\pm$ 5	120 $\pm$ 5	20 $\pm$ 1	1
MS145WS / W	12.5 $\pm$ 3.5 / 20 $\pm$ 4	106 $\pm$ 6	140 $\pm$ 5	20 $\pm$ 1	1
MS3000A	53 $\pm$ 4	190 $\pm$ 7	210 $\pm$ 5	20 $\pm$ 1	6

Applications

1. Acryl Binder for textile

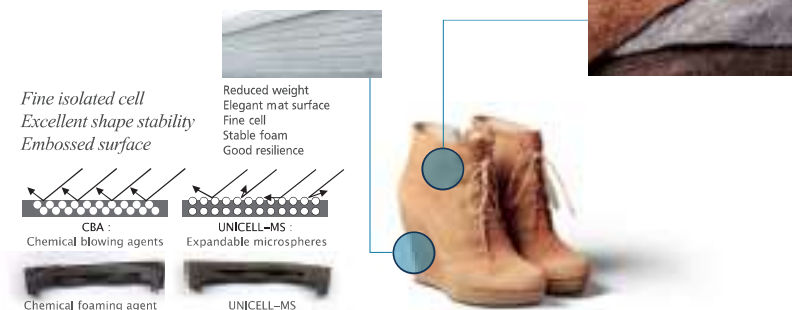


2. PVC Wallpapers, Floorings



3. Shoe-sole of PVC, TPR, EVA

4. PU Coatings



5. Underbody Coatings

6. PP/GF reinforcement materials



7. Others : Mat, Floorings, Cushion tape ETC.