

## B series Technical Data Sheet (TDS)

### 1. Composition of B series

Expandable Polystyrene (EPS) is suspension polymerized from styrene monomer, further more dipped with blowing agent, molecular formula:  $(C_8H_8)_n$ ,

Content of Polystyrene: (CAS NO 9003-53-6) 93 - 96%

Content of Pentane: (CAS NO 109-66-0) 4 - 7%

### 2. Characteristics of B series

B Series is a low VOC fast cycle grade and also environmental, high efficiency with no added of additives such as toluene, dimethylbenzene, and ethylbenzene. It does not contain prohibited substances and also meets standards of EU REACH and ROHS.

- size concentration, ratio of moderate -- the highest expansion rate of up to 45 times the grain, uniform, full, rich elasticity.

- low VOC, low odor -- low harmful volatile gas content, no irritating smell (suitable for filling pillows, toys, etc...)

- processing performance -- fast cycle with good surface finish, suitable for thin parts, pieces of the structure of EPC.

#### Specification and Application:

| Properties                | Unit | B- MS      | B- SA      | B- SB      | B- S       | B-4S       |
|---------------------------|------|------------|------------|------------|------------|------------|
| Average Granule           | mm   | 1.2 - 1.8  | 0.9 - 1.4  | 0.7 - 1.1  | 0.5 - 0.9  | 0.3 - 0.6  |
| Pentane Content           | %    | $\geq 4.0$ | $\geq 4.0$ | $\geq 4.0$ | $\geq 4.0$ | $\geq 5.0$ |
| Moisture Content          | %    | $\leq 1.0$ | $\leq 1.0$ | $\leq 1.0$ | $\leq 1.0$ | $\leq 1.0$ |
| Residual Monomer          | %    | $\leq 0.5$ | $\leq 0.5$ | $\leq 0.5$ | $\leq 0.5$ | $\leq 0.5$ |
| Sieve Analysis Efficiency | %    | $\geq 90$  | $\geq 90$  | $\geq 90$  | $\geq 90$  | $\geq 90$  |
| Expandability             | -    | 60 - 75    | 50 - 60    | 40 - 55    | 30 - 45    | 20 - 45    |

\*The density available depends on the type and equipment of pre expansion

### 3. Aging Time:

(Aging time will be different due to different density, different temperature, and different humidity.)

If the aging time is too long, it is hard to get a good confusion during molding and when pentane content is less than 4%. If aging time is too short, it will result a longer cooling time, bad for the improvement of production efficiency. Thus, aging time shall be adjusted according to the expansion density required and aging temperature.

### 4. Molding Property (different machines vary processing conditions)

following is the molding processing conditions for reference

| Grade           | Unit | B- MS         | B- SA | B- SB | B- S | B- 4S             |
|-----------------|------|---------------|-------|-------|------|-------------------|
| Molding Density | g/L  | 13.0          | 15.0  | 18.0  | 18.0 | 25                |
| Final Product   | -    | Block         |       |       |      | Printer Packaging |
| Measurement     | m/m  | 6065*1205*655 |       |       |      | 500*500*150       |

|  |     |           |         |         |         |             |  |
|--|-----|-----------|---------|---------|---------|-------------|--|
| <b>Major Steam Pressure</b>                    | bar | 5.0~7.0   | 5.0~7.0 | 5.0~7.0 | 5.0~7.0 | 5.0~7.0     |  |
| <b>Steam pressure used after decompression</b> | bar | 2.0~3.0   | 2.0~3.0 | 2.0~3.0 | 2.0~3.0 | 3.0~5.0     |  |
| <b>Cross heating of fixed side</b>             | bar | 0.4~0.6   | 0.4~0.6 | 0.4~0.6 | 0.4~0.6 | 1.0~.5      |  |
| <b>Crossing heating of moving side</b>         | bar | 0.5~0.7   | 0.5~0.7 | 0.5~.7  | 0.5~0.7 | 1.0~1.5     |  |
| <b>Bilateral Heating</b>                       | sec | /         | /       | /       | /       | 1.0~1.5     |  |
| <b>Vacuum Cooling</b>                          | sec | 50~100    | 50~100  | 50~100  | 50~100  | 20~40       |  |
| <b>Cycle Time</b>                              | sec | 220~300   | 220~300 | 220~300 | 220~300 | 70~90       |  |
| <b>Block Machine Brand &amp; Type</b>          | -   | DKB-419VS |         |         |         | KURTZ K1214 |  |

## 5. Physical Properties

| Property   | Test Method    | Unit              | B-MS     | B-SA   | B-SB   | B-S    | B-4S    |
|--|----------------|-------------------|----------|--------|--------|--------|---------|
| <b>Apparent Density</b>                              | GB/T6343-2009  | Kg/M <sup>3</sup> | 10~20    | 10~20  | 13~35  | 15~50  | 25~40   |
| <b>Compression strength (deformation 10%)</b>        | GB/T8813-2008  | KPa               | 60~150   | 60~150 | 70~300 | 70~500 | 100~300 |
| <b>Bending strength</b>                              | GB/T8812-2007  | KPa               | 60~200   | 60~180 | 70~350 | 70~600 | 100~350 |
| <b>Tensile strength</b>                              | GB/T9641-88    | KPa               | 60~200   | 60~180 | 70~350 | 70~600 | 100~350 |
| <b>Thermal deformation</b>                           |                | °C                | 85~100   |        |        |        |         |
| <b>Coefficient of thermal expansion</b>              |                | °C                | (5~7)*10 |        |        |        |         |
| <b>Dimensional stability (70±2°C, 48hr)</b>          | GB/T8811-2008  | %                 | ≤0.35    | ≤0.35  | ≤0.38  | ≤0.38  | ≤0.38   |
| <b>Thermal conductivity coefficient ( ≤ ) (20°C)</b> | GB/T10294-2008 | W/M.K             | ≤0.035   | ≤0.035 | ≤0.036 | ≤0.036 | ≤0.036  |
| <b>Water vapor permeability</b>                      | QB/T2411-2008  | ng/Pa.m.s         | ≤5.0     | ≤5.0   | ≤5.5   | ≤5.5   | ≤5.5    |
| <b>Water absorption (≤) 3 day</b>                    | GB/T8810-2005  | %                 | ≤1.0     | ≤1.0   | ≤1.2   | ≤1.2   | ≤1.2    |
| <b>Water absorption (≤) 7 day</b>                    | GB/T8810-2005  | %                 | ≤1.1     | ≤1.1   | ≤1.2   | ≤1.2   | ≤1.2    |
| <b>Water absorption (≤) 28 day</b>                   | GB/T8810-2005  | %                 | ≤2.3     | ≤2.3   | ≤2.5   | ≤2.5   | ≤2.5    |

Above information is based on our current knowledge, for other issues which are not mentioned herein, welcome to discuss with us and improve.