

King Pearl[®] Expandable Polystyrene

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	%	≥ 4.0	≥ 4.0	≥ 4.0	≥ 4.0	≥ 5.0
Moisture Content	%	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Residual Monomer	%	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Sieve Analysis Efficiency	%	≥ 90	≥ 90	≥ 90	≥ 90	≥ 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

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

5. Physical Properties

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

(For any test reports, please email us at eps@loyalgroup.com.tw)

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