King Pearl® Expandable Polystyrene

E series Technical Data Sheet (TDS)

1. Composition of E series

Expandable Polystyrene (EPS) is suspension polymerized from styrene monomer, further more dipped with blowing agent, molecular formula: (C8H8) n,

Content of Polystyrene:	(CAS NO 9003-53-6)	93 - 96%
Content of Pentane:	(CAS NO 109-66-0)	4 - 7%

2. Characteristics of E series

E series is a standard grade with wide application, high strength, pretty surface, and environmental friendly; no added of additives included such as toluene, dimethlybenzene, ethylbenzene, and does not contain prohibited substances; it also meet standards of EU REACH and ROHS.

Specification and Application:

Properties	**Unit**	**E- MS**	**E- SA**	**E- SB**	**E- S**
Average Granule	**mm**	1.2 - 1.8	0.9 - 1.4	0.7 - 1.1	0.5 - 0.9
Pentane Content	**%**	≧ 4.0	≧ 4.0	≧ 4.0	≧ 4.0
Moisture Content	**%**	≦ 1.0	≦ 1.0	≦ 1.0	≦ 1.0
Residual Monomer	**%**	≦ 0.5	≦ 0.5	≦ 0.5	≦ 0.5
Sieve Analysis Efficiency	**%**	≧ 90	≧ 90	≧ 90	≧ 90
Expandability	-	70 - 85	60 - 70	50 - 65	33 - 50

***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**	**E- MS**	**E- SA**	**E- SB**	**E- S**
Molding Density	g/L	14.3	15.0	16.6	20
Final Product	-	Box			
Measurement	m/m	490*320*170			
Major Steam Pressure	bar	4.0~7.0	4.0~7.0	4.0~7.0	4.0~7.0
Steam pressure used after decompression	bar	2.5~4.0	2.5~4.0	2.5~4.0	2.5~4.0
Cross heating of fixed side	bar	0.5~1.0	0.5~1.0	0.5~1.0	0.5~1.0
Crossing heating of moving side	bar	0.5~1.0	0.5~1.0	0.5~1.0	0.5~1.0

Bilateral Heating	bar	0.5~1.0	0.5~1.0	0.5~1.0	0.5~1.0
Water Cooling	sec	≤5	≤5	≤5	≤5
Vacuum Cooling	sec	30~50	30~50	20~40	20~30
Cycle Time	sec	≤120	≤120	≤100	≤90
Block Machine Brand & Type	-	KURTZ K1214			

5. Physical Properties

Property	**Test Method**	**Unit**	**E-MS**	**E-SA**	**E-SB**	**E-S**
Apparent Density	GB/T6343-2009	Kg/M³	13~18	13~20	13~30	15~50
Compression strength (deformation 10%)	GB/T8813-2008	KPa	80~210	80~260	70~300	80~500
Bending strength	GB/T8812-2007	KPa	80~250	80~300	80~350	80~700
Tensile strength	GB/T9641-88	KPa	80~250	80~300	80~400	80~750
Thermal deformation		℃	85~100			
Coefficient of thermal expansion		℃	(5~7)*10			
Dimensional stability (70±2℃, 48hr)	GB/T8811-2008	%	≦0.35	≦0.35	≦0.35	≦0.5
Thermal conductivity coefficient (≦) (20℃)	GB/T10294-2008	W/M.K	≦0.036	≦0.036	≦0.035	≦0.035
Water vapor permeability	QB/T2411-2008	ng/Pa.m.s	≦5.0	≦5.0	≦5.0	≦5.0
Water absorption (≦) 3 day	GB/T8810-2005	%	≦1.0	≦1.0	≦1.0	≦1.5
Water absorption (≦) 7 day	GB/T8810-2005	%	≦1.1	≦1.1	≦1.1	≦1.8
Water absorption (≦) 28 day	GB/T8810-2005	%	≦2.3	≦2.3	≦2.3	≦2.0

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)
(For more information, please check our website: www.loyalgroup.com or speak to our sales representatives)