Ningbo Eastever New Material Co., Ltd

Expandable Polystyrene

F series Technical Data Sheet (TDS)

1.Composition of F 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) 6- 7%

2. Characteristics of Fire retardant grade F

Specification and Application:

Properties	**Unit**	**F-201**	**F-301**	**F-401**	**F-501**
Average Granule	**mm**	1.0-1.4	0.75-1.0	0.5-0.8	0.3-0.55
Pentane Content	**%**	≧ 6.0	≧ 6.0	≧ 6.0	≧ 6.0
Moisture Content	**%**	≦ 1.8	≦ 1.8	≦ 1.8	≦ 1.8
Residual Monomer	**%**	≦ 0.2	≦ 0.2	≦ 0.2	≦ 0.2
Sieve Analysis Efficiency	**%**	≧ 90	≧ 90	≧ 90	≧ 90
Expandability	**-**	60-85	55-75	45 - 65	35--55

3. Pre-expansion Condition (EXAMPLES)

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

Items	**Unit**	**F-201**	**F-301**	**F-401**	**F-501**
Given Density/Expansion Rate	g/L	15/67	20/50	25/40	25/40
Steam Pressure	bar	0.25~0.40	0.10~0.30	0.10~0.25	0.10~0.20
Heating Time	sec	35~70	35~70	50~120	50~120
Aging Time	hr	6~48	12~48	12~48	12~48

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 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	F-201	F-301	F-401	F-501
Molding Density	g/L	15/67	20/50	25/40	25/40
Final Product	-	Block			
Measurement	m/m	6065*1205*655			
Major Steam Pressure	bar	5.0~8.0	5.0~8.0	5.0~8.0	5.0~8.0
Steam pressure used after decompression	bar	1.5~2.5	1.5~2.5	1.0~2.0	1.0~2.0
Crossing heating pressure 1/time	Front/back	0.35~0.5/9~15S	0.3~0.5/9~15S	0.35~0.5/9~15S	0.35~0.5/9~15S
Crossing heating pressure 2/time	four side	0.45~0.70/2~5S	0.4~0.60/2~5S	0.45~0.70/2~5S	0.45~0.70/2~5S
Foam Pressure	bar	0.65~0.75	0.65~0.75	0.65~0.75	0.65~0.75
Vacuum Cooling	sec	40-80	60~150	80~200	80~200
Cycle Time	sec	180~250	200~300	250~350	250~350
Block Machine Brand & Type	-	DKB -419VS			

5. Physical Properties

1) after test, the following is the physical properties of F grade

Property	Test Method	Unit	F-201	F-301	F-401	F-501
Apparent Density	GB/T6343-2009	Kg/M^3	15~35	15~35	13~35	15~35
Compression strength (deformation 10%)	GB/T8813-2008	KPa	83~235	78~216	78~216	78~216
Bending strength	GB/T8812-2007	KPa	225~510	210~486	210~486	210~486
Tensile strength	GB/T9641-88	KPa	60~200	60~180	70~350	70~600
Thermal deformation		℃	85-100			
Coefficient of thermal expansion		℃	(5~7)*10			
Dimensional stability (70±2℃, 48hr)	GB/T8811-2008	%	≦0.5	≦0.5	≦0.5	≦0.5
Thermal conductivity coefficient (≦) (20℃)	GB/T10294-2008	W/M.K	≦0.036	≦0.038	≦0.039	≦0.039
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	%	≦1.5	≦1.5	≦1.5	≦1.5
Water absorption (≦) 7 day	GB/T8810-2005	%	≦1.8	≦1.8	≦1.8	≦1.8
Water absorption (≦) 28 day	GB/T8810-2005	%	≦2.0	≦2.0	≦2.0	≦2.0
Oxygen Index (≥)	GB2406-2008	%	≥30	≥30	≥30	≥30

6. Flame retardant property

EPS F Series grade shape molding has passed the F grade test by National Fireproof Construction Material Quality Supervision Inspection Center (Si Chuan) and already obtained relative test report. Above information is based on our current knowledge, for other issues which are not mentioned herein.welcome to discuss with us and improve.