



Technical Data Sheet (TDS)

Product name: Halogen-free flame retardant - for Polyolefin

Product code: PHLAMOON-1090A

Description:

PHLAMOON-1090A is a kind of halogen free environmentally friendly flame retardant with N and P, non-APP based system. PHLAMOON-1090A has higher thermal stability and higher decomposition temperature. Besides, it can easily get processed. PP with PHLAMOON-1090A can pass the tests of UL94 V-0 (0.75mm), 70°C×168hrs water-immersion (UL746C); besides, it can also pass the tests of GWIT 750°C and GWFI 960°C. And it is free from the restrictions of RoHS Directive 2011/65/EU approved by the EU and the Council. Glass fiber reinforced PP with PHLAMOON-1090A can reach UL94 V-0 (1.5mm) as well. The products with PHLAMOON-1090A have the characteristics as low density, lower smoke generation and less mold corrosion. Polyolefin with PHLAMOON-1090A will not have the phenomenon of water-sliding surface during the process of extrusion, and sieves can be added during the process.

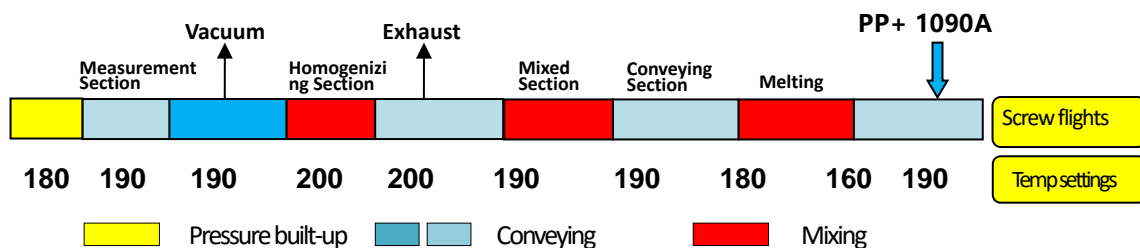
SPECIFICATION:

Appearance	White Powder	Nitrogen Content %	23-25
Density g/cm ³	Ca. 1.8	Phosphorous Content %	20-22
Decomposition Temp. °C	≥270	Average Particle Size μm	Ca. 10
Water Content %	≤0.5		

RECOMMENDED DOSAGE:

Polymer	PP	PP	PP+10%GF	PP+20%GF	PP+30%GF
PHLAMOON-1090A Dosage %	≥20%	≥30%	≥25%	≥22%	≥30%
Flame Retardancy UL94	V-0 (1.5mm)	V-0 (0.75mm)	V-0 (0.75mm)	V-0 (1.5mm)	V-0 (0.75mm)

EXTRUSION PROCESS: (Twin Screw Extruder)



NOTES:

- 1, Because of the decomposition temperature of PHLAMOON-1090A in nitrogen is 270°C, the processing temperature of twin screw can be adjusted higher accordingly, and a sieve can be put on the head of machine. Maintaining vacuum of the twin screw during the processing is also needed.

2, The substances which affect flame retardant performance: phthalocyanine green that contains Cl⁻¹ toner will make the flame retardant loss effect. If the dosage of carbon black is higher than 0.5%, the flame retardant performance will be weakened.

RECOMMENDED SCREW COMBINATION:

Extruder36 (Total thread block:40, screw length:1274mm)			Extruder75 (Total thread block: 48, screw length:3164mm)		
DIE			DIE		
1	22/22	142mm	1	56/56	392mm
2	22/22		2	56/56	
3	22/22		3	56/56	
4	22/22		4	56/56	
5	22/22		5	72/72	
6	32/32		6	96/96	
7	48/48	Vacuum	7	96/96	Vacuum
8	48/48		8	96/96	
9	12/12L	364mm	9	45°/5/36L	1320mm
10	30°/7/48		10	60°/4/56	
11	32/32		11	45°/5/56	
12	32/32		12	56/56	
13	32/32		13	56/56	
14	32/32		14	90°/5/56	
15	32/32		15	45°/5/56	
16	32/32		16	56/56	
17	45°/5/32		17	72/72	
18	45°/5/32		18	45°/5/36L	
19	48/48		19	90°/5/56	
20	48/48	Inlet of glass fiber (closed)	20	60°/4/56	Inlet of glass fiber (closed)
21	48/48		21	45°/5/56	
22	22/22	480mm	22	56/56	1132mm
23	45°/5/32L		23	72/72	
24	22/22		24	96/96	
25	22/22		25	90°/5/56	
26	45°/5/32		26	45°/5/56	
27	45°/5/32		27	45°/5/56	
28	22/22		28	56/56	
29	22/22		29	72/72	
30	32/32		30	72/72	
31	45°/5/32		31	56/28L	
32	30°/7/48		32	45°/5/56	
33	22/22	33	45°/5/96		
34	22/22	34	56/56		
35	22/22	35	56/56		
36	32/32	36	72/72		
37	32/32	37	45°/5/56		
38	32/32	38	45°/5/96		
39	48/48	Material inlet	39	56/56	Material inlet
40	48/48		40	56/56	
			41	72/72	
			42	72/72	
			43	72/72	
			44	96/96	
			45	96/96	
			46	96/96	
			47	96/96	
			48	56/56	

REMARKS: The sheer force of No. 75 is stronger; the screw combinations above can be adjusted in accordance with processing situation.

APPLICATION EXAMPLES

1, FORMULA:

MATERIAL	FORMULA A	FORMULA B	FORMULA C	FORMULA D
HOMOPOLYMERIZED PP	64.3	54.3	42.8	77.3
GLASS FIBER BF970M0	10	20	30	0
PHLAMOON-1090A	25	25	26	22
POE	0	0	0.5	0
LUBRICANT EBS	0.3	0.3	0.3	0.3
ANTIOXIDANT AGENT B215	0.2	0.2	0.2	0.2
ANTI-DRIPPING AGENT 449	0.2	0.2	0.2	0.2

2, PROCESS TECHNOLOGY:

Model: Twin Screw Extruder 36

The shear numbers before fiber entry: 45°/5/32 5 blocks 30°/7/48 2 blocks 45°/5/32L 1 block

Extruding temperature of main machine (°C): 160 180 190 190 200 200 190 190 180

Rotation speed of main machine: 240-360rpm

3, MAIN PROPERTIES:

PROPERTIES	TEST METHODS	UNIT	FORMULA A	FORMULA B	FORMULA C	FORMULA D
DENSITY	ASTM D792	g/cm ³	1.09	1.18	1.27	1.06
MELT INDEX (230°C)/2.16kg)	ASTM D1238	g/10min	10	15	20	8.1
HDT(0.45MPa)	ASTM D648	°C	128	130	150	128
TENSILE STRENGTH	ASTM D638	MPa	28	30	40	27
ELONGATION AT BREAK	ASTM D638	%	32	29	27	55
FLEXURAL STRENGTH	ASTM D790	MPa	42	54	58	41
FLEXURAL MODULUS	ASTM D790	MPa	3238	3450	3808	2600
IZOD NOTCHED IMPACT STRENGTH	ASTM D256	J/m	26	30	80	21
FLAME RETARDANCY	UL94	1.5mm	V-0	V-0	V-0	V-0
		3.0mm	V-0	V-0	V-0	V-0
	GWIT	3.0mm	750°C	750°C	750°C	750°C
		GWFI	3.0mm	960°C	960°C	960°C

Note: All the application data above are the typical data of PHLAMOON-1090A.

Packing and transport information

Packing: In 25KG WPP bag with inner aluminum foil bag

1FCL 20#=10mt with pallet

Transport: General chemicals

More information and MSDS, please contact us by E-mail: sulichem@suli.com