

Highly Efficient Fire Retardant

Technical Data Sheet
SZ0325-2022-16 V2

GreenThinking® FR98RP

Description: FR98RP is highly efficient compounded flame retardant researched and produced by SaneZen Group.

Fire-retardant mechanism:

- When heated: FR98RP breaks down on the surface of the product to produce a thick coating barrier that isolates oxygen, heat and small molecule diffusion during combustion. In addition, decomposition of free radicals and H· and OH· reactions to promote combustion terminate the chain reaction of combustion, and release water and carbon dioxide at the same time, and effectively absorb a large amount of heat generated, play a role in flame suppression, so as to achieve the purpose of efficient flame retardant.

Applications:

- FR98RP is widely used for mechanical rubber&plastic goods with smooth surface and relatively low specific gravity which are required to meet not only V0 class fire-retardant grade but also RoHS & WEEE regulation.
- FR98RP is widely used in rubber goods with fire retardant requirements made of EPDM ,NBR,HCR,NR,SBR,CR IIR,ACM etc.
- FR98RP is widely used in fire retardant rubber and plastic parts, such as railway transportation parts, electronic parts, automobile, oil and coal mining parts and so on. It is in line with EU RoHS and WEEE regulation, because it does contain polybrominated biphenyl, polybrominated diphenyl ethers, chlorine, fluorine, antimony trioxide and other halogen flame retardants.

Key benefits:

- Efficient synergetic flame retardant, easily to reach V0 grade.
- Good dispersibility in the compound.
- Good fluidity of compound with stable size, easy to extrude.
- Low energy consumption during mixing, shorten the curing time.
- Sheet structure with surface treatment.
- High BET and purity with reasonable and small particle distribution
- Excellent chemical stability, Non-toxic and odorless, halogen-free.

Typical properties:

Project	Unit	Standard	Competitor1 (Deep color)	Competitor2 (Deep color)	Competitor3 (Deep color)	Competitor4 (Light color)	Competitor5 (Light color)	FR96RP	FR65RP	FR96RP	FR98RP
Formula		Formula 1								Formula 2	
Fire retardant	phr		110	110	110	110	110	110	80	100	100
Vulcanization characteristics 180℃×5mi											
ML	dN.m	ASTM D5289	4.32	1.95	1.43	1.48	1.37	1.33	0.89	1.25	1.29
MH	dN.m	ASTM D5289	14.19	13.84	15.16	11.94	10.11	9.9	10.3	8.08	8.65
MH-ML	dN.m	ASTM	9.87	11.89	13.73	10.46	8.74	8.57	9.41	6.83	7.36

		D5289									
TS2	m:s	ASTM D5289	27	27	27	41	41	41	31	45"	48"
TC10	m:s	ASTM D5289	17	20	22	33	31	32	25	30"	29"
TC90	m:s	ASTM D5289	181	143	155	196	199	192	148	165"	174"
Test piece: vulcanization characteristic 180℃ x 6min Test buckle: vulcanization characteristic 180℃ x 12min											
Hardness	Shor e A	ASTM D2240	73	75	75	73	74	72	70	76	74
Tensile strength	Mpa	ASTM D412	12.18	10.9	10.17	9.28	9.86	9.52	12.32	9.45	9.60
Elongation	%	ASTM D412	201	409	399	501	523	456	452	524	560
100% modulus	Mpa	ASTM D412	5.49	3.23	3.55	2.44	2.33	2.78	2.95	1.68	1.66
Specific gravity	g/cm 3	ASTM D792	1.353	1.361	1.365	1.331	1.324	1.314	1.295	1.295	1.276
Compressio n Set 120℃×22h	%	ASTM D395	51.52	55.21	52.23	81.53	65.38	60.24	42.1	55.48	58.69
Flame retardant class		GB/T 2408	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-2	V-0
Oxygen index		GB/T10707	30.3	30.1	30.2	38.1	37.7	38.9	30.1	26.8	32.5
Hot air aging 120℃×70h											
Hardness	Shore A	ASTM D573	78	79	80	82	83	82	72	80	78
Tensile strength	Mpa	ASTM D573	9.78	9.61	9.62	9.01	8.8	9.03	12.04	7.12	7.03
Elongation	%	ASTM D573	237	219	215	299	261	263	352	395	414
Hardness change	shore A	ASTM D573	5	4	5	9	9	10	2	4	4
Change in Tensile strength	%	ASTM D573	-19.7	-11.8	-5.4	-2.9	-10.8	-5.1	-2.3	-24.7	-26.8
Change of elongation	%	ASTM D573	17.9	-46.5	-46.1	-40.3	-50.1	-42.3	-22.1	-24.6	-26.1

Formula 1	EPDM51 2E	CZ500R	PF81	Flame retardan t	Sanepar91 6	ZnO(805)	STA	PEG4000	D212	S-80	AG-60	CaO	
phr	100	50	30	See above	25	6	1	1	1	1.28	5	8	
Formula 2	3032M	JH404 5	PF8 2	Flame retardan t	Sanepar91 6	ZnO	ST A	PEG400 0	D21 2	S-8 0	AG-6 0	LD-50 1	SI/6 9
phr	60	40	50	See above	15	8	8	1	1	1.5	6	1	1

Common-usage Level: Its general usage is from 60 to 130phr according to different hardness, physical properties, grade of flame retardant, processing, etc. Generally adding 6-8 Phr will increase one degree of hardness; adding 3-5phr will increase one unit of oxygen index.

Packaging: 25 KG/ Bag, 1000 KG/Pallet.

Storage: Store in a dry, cool, and sealed environment at approximately 25°C. Shelf life is approximately 2 years.

For More Product Information, Please Visit Our Website: www.sanezen.com

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