

Pyramidal broadband absorber for millimeter wave range

The EC-SORB ECP-3 is pyramidal absorber which is intended to have high performance at especially millimeter wave range. Basically, pyramidal absorber has high performance at very wide frequency range. Such as the absorption characteristics is increasing with 6 dB/oct. slant at low frequency range. Increasing frequency, and the number (D/λ) which the height of pyramid divided by the wave length λ is almost reaching 3 to 4, the performance reaches to 50dB and maintains such 50dB at higher frequency. By the pyramidal absorber's basic frequency characteristics, the performance is maintained to 50dB at high frequency range but cannot maintain the performance at infinite higher frequency.

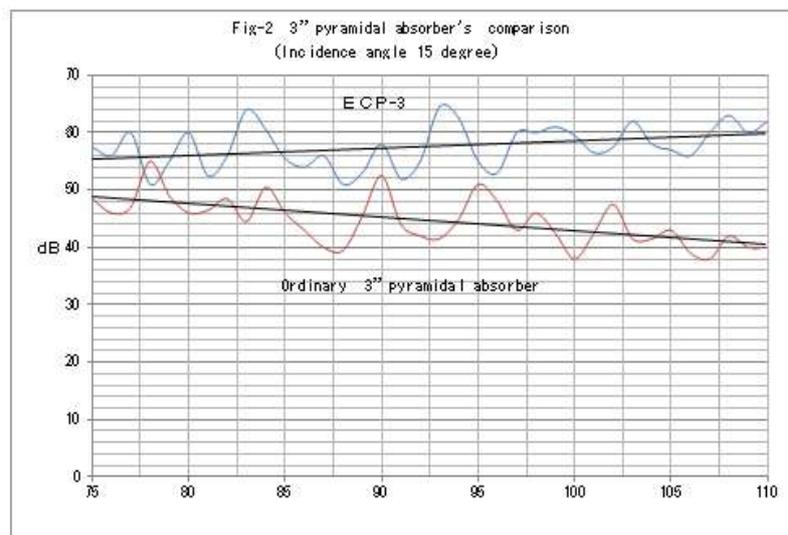
Please watch the figure-2, it shows absorption performance of ordinary 3in pyramid and ECP-3.



EC-SORB ECP-3

The EC-SORB ECP-3 which is developed for millimeter wave shows very good high performance even 110 GHz high frequency but the ordinary 3in absorbers performance is on down ward trend at the frequency.

ECP-3 has basic good characteristics of pyramidal absorbers such as low forward and back scatter. So, EPC-3 should work well in anechoic chambers such as radar test range.



In terms of physical properties, EC-SORB ECP-3 is made of urethane as a base material and pyramids containing electrical conductive carbon is lining up. For that reason, EC-SORB ECP-3 is lightweight, flexible and it has high durability. By using a Velcro zipper, detachment can be done easily.

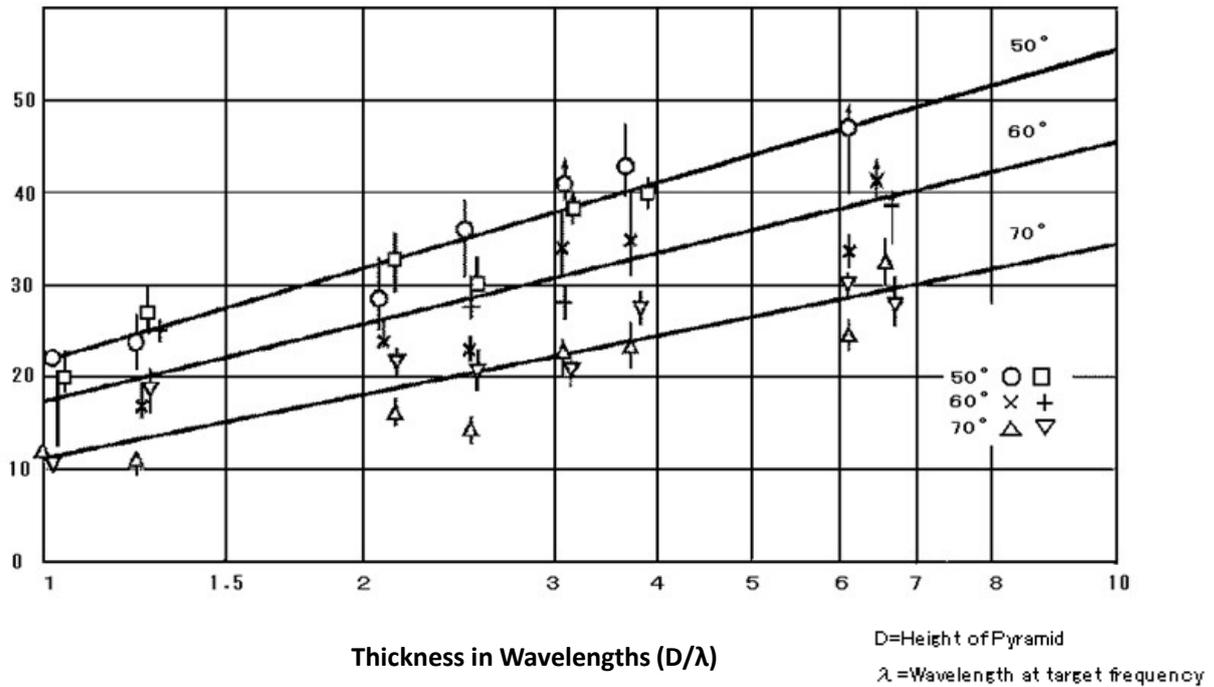
EC-SORB ECP-3 meets the flame retardancy requirement of UL standard 94 HBF.

Absorption performance of EC-SORB ECP in angle near normal incidence

ECP TYPE	HEIGHT		WEIGHT	UHF 500MHz	L 1GHz	S	C	X	Ku	K	Ka	V	W
	cm	inch	kg			3GHz	5GHz	10GHz	15GHz	24GHz	40GHz	75GHz	100GHz
ECP-3	8.3	3	0.55	-	-	30	35	45	50	50	50	50	50

Reflection Coefficient vs angle of incidence of EC-SORB ECP

D/λ	1.0		1.3		2.2		2.6		3.0		3.8		5.1		5.8		10	
Incidence angle	⊥	//	⊥	//	⊥	//	⊥	//	⊥	//	⊥	//	⊥	//	⊥	//	⊥	//
50°	22	20	24	27	29	33	36	30	41	38	43	40	46	-	-	-	55	-
60°	15	17	17	25	23	31	22	27	34	28	36	38	34	33	42	37	48	42
70°	12	11	11	19	16	21	15	20	23	21	24	27	24	30	33	28	38	38



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