

APPENDIX M: AIRCRAFT PASSENGER AND CARGO VOLUMES

Determine the Spray Time for 10% d-phenothrin with a labeled application rate of 8 grams per 1000 cu. ft. and nozzle dispersion rate of 5 grams per second

TABLE 5-5-1: Airbus Industries

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/1,000 ft ³	Spray Time in Seconds
A300	Cabin	27,100	27.1	8	43.5
	Pit-#1	3,722	3.7	8	6.0
	Pit-#2	1,265	1.3	8	2.0
	Pit-#3	565	.6	8	1.0
A300-600R (passenger) (long-range)	Cabin	?			?
	Forward	1,134	1.1	8	2.0
	Aft	1,134	1.1	8	2.0
	Bulk	400	.4	8	0.5
A300-600 (freighter)	Main	9,950	10.0	8	16.0
	Pit-Fwd	1,900	1.9	8	3.0
	Pit-Aft	2,250	2.2	8	3.5
A300-600 (FEDEX)	Main	19,069	19.1	8	30.5
	Pit-Fwd	2,684	2.7	8	4.5
	Pit-Aft	2,154	2.2	8	3.5
	Pit-Back	742	.7	8	1.0
A300 (convertible)	Main	11,943	11.9	8	19.0
A300B4 (freighter)	Main	9,950	10.0	8	16.0
	Pit-Fwd	1,900	1.9	8	3.0
	Pit-Aft	1,850	1.9	8	3.0
A310 (freighter)	Main	7,950	8.0	8	13.0
	Pit-Fwd	1,260	1.3	8	2.0
	Pit-Aft	1,550	1.6	8	2.5
A310 (FEDEX)	Main	14,650	14.7	8	23.5
	Pit-Fwd	1,942	1.9	8	3.0
	Pit-Aft	1,271	1.3	8	2.0
	Pit-Back	742	.7	8	1.0
A320-200 (passenger)	N/A	982	.9	8	1.5

TABLE 5-5-2: Antonov

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/1,000 ft ³	Spray Time in Seconds
AN 124 and 126	N/A	26,485	26.5	8	42.5

TABLE 5-5-3: ATR

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
ATR 42 (CTO) (Container Transport Option)	Bulk	890	.9	8	1.5
ATR 72 (CTO)	Bulk	1,285	1.3	8	2.0

TABLE 5-5-4: BAC (British Aircraft Corp)

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
111-200, 300, and 400	Cabin	4,056	4.1	8	6.5
	Pit-Fwd	380	.4	8	0.5
	Pit-Aft	154	.2	8	0.5
111-500	Cabin	5,094	5.1	8	8.0
	Pit-Fwd	451	.5	8	1.0
	Pit-Aft	260	.3	8	0.5
VC 10	Cabin	6,750	6.8	8	11.0
	Pit-Fwd	744	.7	8	1.0
	Pit-Aft	820	.8	8	1.5
Super VC 10	Cabin	7,850	7.9	8	12.5
	Pit-Fwd	744	.7	8	1.0
	Pit-Aft	820	.8	8	1.5

TABLE 5-5-5: BAC (Aerospatiale)

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
Concorde	Cabin	5,100	5.1	8	8.0
	Pit-Fwd	241	.2	8	0.5
	Pit-Aft	468	.5	8	1.0

TABLE 5-5-6: Boeing

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
707-120, 120B, and 220	Cabin	7,484	7.5	8	12.0
	Pit-Fwd	755	.8	8	1.5
	Pit-Aft	910	.9	8	1.5
	Fl.Deck	451	.5		1.0
707-320C	Bulk	7,548	7.5	8	12.0

TABLE 5-5-6: Boeing (continued)

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
707-320, 420	Cabin	8,074	8.0	8	13.0
	Pit-Fwd	870	.9	8	1.5
	Pit-Aft	905	.9	8	1.5
	Fl. Deck	451	.5	8	1.0
720	Cabin	6,860	6.9	8	11.0
	Pit-Fwd	688	.7	8	1.0
	Pit-Aft	690	.7	8	1.0
	Fl. Deck	451	.5	8	1.0
727-100C	Bulk	4,168	4.2	8	7.0
727-100 (passenger)	Cabin	4,560	4.6	8	7.5
	Pit-Fwd	900	.9	8	1.5
	Pit-Aft	425	.4	8	0.5
	Fl. Deck	451	.5	8	1.0
727-200C	Bulk	8,032	8.0	8	13.0
727-200 (passenger)	Cabin	6,561	6.6	8	10.5
	Pit-Fwd	690	.7	8	1.0
	Pit-Aft	760	.8	8	1.5
	Fl. Deck	451	.5	8	1.0
737-100	Cabin	4,636	4.6	8	7.5
	Pit-Fwd	280	.3	8	0.5
	Pit-Aft	406	.4	8	0.5
737-200 (passenger)	Cabin	4,636	4.6	8	7.5
	Pit-Fwd	370	.4	8	0.5
	Pit-Aft	505	.5	8	1.0
737-200C	Bulk	3,602	3.6	8	6.0
737-300	Cabin	5,600	5.6	8	8.0
	Pit-Fwd	600	.6	8	1.0
	Pit-Aft	770	.8	8	1.0
	Fl. Deck	225	.2	8	0.5
737-400	Cabin	4,900	4.9	8	9.0
	Pit-Fwd	425	0.4	8	1.0
	Pit-Aft	650	0.7	8	1.5
	Fl. Deck	225	0.3	8	0.5
737-500	Cabin	4,340	4.3	8	7.0
	Pit-Fwd	290	.3	8	0.5
	Pit-Aft	535	.5	8	1.0
	Fl. Deck	255	.3	8	0.5
747 Combi	—	6,886	6.9	8	11.0
747F	—	22,952	23.0	8	37.0
747-100, 200	Cabin	27,650	27.7	8	44.5
	Pit-Fwd	3,485	3.5	8	6.0
	Pit-Aft	3,015	3.0	8	5.0
	Fl. Deck	920	.9	8	1.5
	U. Deck	1,370	1.4	8	2.0
	Belly	1,000	1.0	8	1.5

TABLE 5-5-6: Boeing (continued)

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
747-300,400	Cabin	27,650	27.7	8	44.5
	Pit-Fwd	3,485	3.5	8	5.5
	Pit-Aft	3,015	3.0	8	5.0
	Fl. Deck	920	.9	8	1.5
	U. Deck	2,800	2.8	8	4.5
	Belly	1,000	1.0	8	1.5
757-200 (passenger)	Pit-Fwd	652	.6	8	1.0
	Pit-Aft	1,086	1.1	8	2.0
757-200PF	Bulk	8,405	8.4	8	13.5
767-200	Main	14,255	14.3	8	23.0
	Pit-Fwd	1,470	1.5	8	2.5
	Pit-Aft	1,470	1.5	8	2.5
767-300 (passenger)	Cabin	10,497	10.5	8	17.0
	Pit-Fwd	1,920	1.9	8	3.0
	Pit-Aft	1,680	1.7	8	2.5
	Aft+Bulk	430	.4	8	0.5
777-200	Cabin	20,700	20.7	8	33.0
	Pit-Fwd	280	.3	8	0.5
	Pit-Aft	4,630	4.6	8	7.5
	Aft+Bulk	4,220	4.2	8	6.5

TABLE 5-5-7: Canadair

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
CL-44	Bulk	6,235	6.2	8	10.0
CL-440	Bulk	13,798	13.8	8	22.0

TABLE 5-5-8: Casa

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
C-212	N/A	777	.8	8	1.5
ATR 72 (GTO)	N/A	1,528	1.5	8	2.5

TABLE 5-5-9: Cessna

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
Caravan	N/A	452	.5	8	1.0

TABLE 5-5-10: Convair

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
240	Cabin	1,650	1.7	8	2.5
	Pit-Fwd	193	.2	8	0.5
	Belly	88	.1	8	— ¹
340 & 44-	Cabin	1,816	1.8	8	3.0
	Pit-Fwd	158	.2	8	0.5
	Pit-Aft	193	.2	8	0.5
	Belly	78	.1	8	— ¹
880 & 800M	Cabin	5,802	5.8	8	9.5
	Pit-Fwd	415	.4	8	0.5
	Pit-Aft	488	.5	8	1.0
990	Cabin	6,336	6.3	8	10.0
	Pit-Fwd	488	.5	8	1.0
	Pit-Aft	497	.5	8	1.0

- 1 In these small volume spaces, use the extender and calculate the application time using a rate of 2.5 grams per second. At a rate of 2.5 grams per second, the following table will give the spray time:

<u>1,000 ft³ Units</u>	<u>Spray Time in Seconds</u>
0.1	0.5
0.2	0.5
0.3	1.0
0.4	1.5

TABLE 5-5-11: de Havilland

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/1,000 ft ³	Spray Time in Seconds
Dash 7, Series 100 (all cargo)	N/A	240	.2	8	0.5
DHC-6 Twin	Fwd	38	.1	8	— ¹
Otter, Series 300 (cargo version)	Aft	88	.1	8	— ¹
	Bulk	384	.4	8	0.5
Dash 7, Series 100, Combi (50 passengers)	N/A	240	.2	8	0.5
Dash 7, Series 100, Combi (18 passengers)	N/A	240	.2	8	0.5
Dash 8, Series 300, Combi (49 passengers)	N/A	400	.4	8	0.5
Dash 8, Series 100, Combi (37 passengers)	N/A	300	.3	8	0.5
Dash 8, Series 100, Combi (20 passengers)	N/A	775	.8	8	1.5

1 In these small volume spaces, use the extender and calculate the application time using a rate of 2.5 grams per second. At a rate of 2.5 grams per second, the following table will give the spray time:

1,000 ft ³ Units	Spray Time in Seconds
0.1	0.5
0.2	0.5
0.3	1.0
0.4	1.5

TABLE 5-5-12: Dornier

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/1,000 ft ³	Spray Time in Seconds
228-212	N/A	642	.6	8	1.0

TABLE 5-5-13: Embraer

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
EMB-120 Brasilia	N/A	1,193	1.2	8	2.0
EMB-110 Brasilia	N/A	523	.5	8	1.0

TABLE 5-5-14: Fairchild

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
Expediter	NA	580	.6	8	1.0
Metro II & IIA	NA	580	.6	8	1.0
F27	Cabin	2,900	2.9	8	4.5
	Pit	192	.2	8	0.5
FH11227	Cabin	3,200	3.2	8	5.0
	Pit	192	.2	8	0.5

TABLE 5-5-15: Fokker

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
F27	N/A	198	.2	8	0.5
F28	N/A	290	.3	8	0.5
F100C	Bulk	2,070	2.0	8	3.0

TABLE 5-5-16: Lockheed

Aircraft, model, and series	Area	Volume ft ³	Aerosol Calculations		
			1,000 ft ³ Units	Grams/ 1,000 ft ³	Spray Time in Seconds
Electra	Cabin	5,160	5.2	8	8.5
	Pit-Fwd	254	.3	8	0.5
	Pit-Aft	274	.3	8	0.5
L1011 (100) (200) (250)	Cabin	23,100	23.1	8	37.0
	Pit-Fwd	1,600	1.6	8	2.5
	Pit-Ctr	1,600	1.6	8	2.5
	Pit-Aft	700	.7	8	1.0
	Galley	1,380	1.4	8	2.0
L-1011-1	Cargo Holds	3,900	3.9	8	6.0
L-100-30	N/A	6,057	6.1	8	10.0