In the absence of other information, theater-specific monitoring would be required to evaluate whether smoke/fog/haze machines are being used in accordance with the peak exposure guidelines. Ramboll (formerly ENVIRON) developed Time-and-Distance (T&D) Guidelines as an alternative to conducting theaterand production-specific monitoring. These T&D Guidelines were developed under conservative use assumptions (e.g., no on-stage activities or props that would enhance dispersion, cue release at breathing height level). By following these T&D Guidelines, a production can use fog effects without having to conduct its own stage-specific testing, provided the machines are used in accordance with manufacturer specifications, are well maintained, and are functioning properly. These T&D Guidelines have been approved by Actors' Equity Association and the Broadway League for use in productions that use theatrical smoke, fog and haze.

The following tables describe the distance (with respect to the discharge point on the equipment) and length of time that concentrations exceeding the peak guidance levels would be expected to occur. Thus, by arranging the blocking and choreography such that an actor is not situated within the restricted areas during the times specified in these tables, actors should not receive exposures above the peak exposure guidelines.

The Time and Distance Guidelines are applicable for one single cue from one machine/fluid combination at a time. If a production wants to use more than one cue and/or more than one machine/fluid simultaneously, production-specific testing will be necessary using the Calibration Factors list and the Air-Sampling Protocol.

It should be noted that these T&D Guidelines may not be appropriate for all productions. Productions may want to use different configurations for positioning the machines (e.g., different heights), provide enhanced on-stage ventilation, or generate fog for a longer or shorter period of time. In addition, many productions may have other stage-specific conditions (e.g., on-stage activities and props that enhance dispersion) that would allow actors to be present in areas that are restricted under these T&D Guidelines but which, in fact, do not exceed the guidance levels. In those cases, production-specific monitoring would be recommended to determine whether peak exposure may occur.

#### For more information, please contact:

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Disclaimer: These guidelines do not represent an endorsement of any equipment-fluid combination by Ramboll. Please note that the use of fluids in machines other than those recommended by the manufacturer is subject to the equipment manufacturer's terms and conditions.



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		Froggy's Fog Quick Blast Fluid	8		
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#### AMERICAN DJ SUPPLY, INC.

TIME-AND-DISTANCE GUIDELINES Fog Fury 3000							
Fluid	Softing Softing						<sup>3</sup> )
	Jetting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog	Full	5	50	40	40	40	30
Backwood Bay Fluid	Full	15	50	40	40	40	30
Froggy's Fog Bog Fog	Full	5	80	60	40	0	0
Fluid	Full	15	130	130	130	40	30
Froggy's Fog Velocity	Full	5	20	20	0	0	0
Fluid	Full	15	30	30	30	0	0
Froggy's Fog Cryo	Full	5	20	20	0	0	0
Freeze Fluid	Full	15	30	30	30	0	0
Froggy's Fog Quick	Full	5	20	20	0	0	0
Blast Fluid         Full         15         30         30         30         0         0							0
Bidst Hild         Full         15         30         30         30         0         0           Reference:         Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K- razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, November 2014.							

TIME-AND-DISTANCE GUIDELINES Fog Storm 1700 HD with Froggy's Fog Velocity Fluid							
Fluid	ReleaseTime (in sec) After Which Air Concentrations Are BelowDurationGuidance Level (40 mg/m³)					Below	
	(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft
	5	Full	20	10	10	0	0
Froggy's Fog Velocity Fluid	15	Full	20	20	20	20	0
Fluid	30*	Full	20	20	20	20	0
	5	Full	20	10	10	0	0
Froggy's Fog Cryo Freeze Fluid	15	Full	20	20	20	20	0
Freeze Fluid	30*	Full	20	20	20	20	0
	5	Full	20	10	10	0	0
Froggy's Fog Quick Blast Fluid	15	Full	20	20	20	20	0
	30*	Full	20	20	20	20	0

\*Machine does not run continuously for longer than 30 seconds.

Note: Pump in machine was not factory-issued. Performance may vary from factory-issued machine.

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy</u> <u>Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training</u> <u>Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog</u>, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



#### ANTARI

TIME-AND-DISTANCE GUIDELINES 1520 RGB Upshot with Froggy's Fog Quick Blast Fluid											
ReleaseTime (in sec) After Which Air Concentrations Are BelowDurationGuidance Level (40 mg/m³)											
(secs)	Machine Setting	Machine Setting 5 ft 10 ft 15 ft 20 ft 25 ft									
5	Full	30	30	30	30	0					
15	Full	30	30	30	30	20					
30*	Full	30	30	30	30	20					
60* Full 30 30 30 20											
*Machine pulses aft	er 20 seconds	1	L.	1	1	1					

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog</u> <u>Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



S	ummary of Time-ar	nd-Distance	e* Guidelines	s for Fog Ge	neration							
Antari DNG-200 Low Fog with Antari FLC Fog Fluid												
Release Duration	Time (in	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )										
(secs)	Machine Setting	achine Setting 3 in 6 in 18 in 36 in 48 in										
30	High	40	20	0	0	0						
60	High 60 0 0 0 0											
100**	High	High 70 0 0 0 0										
30	Medium	Medium 10 0 0 0 0										
60	Medium	20	0	0	0	0						
100	Medium	0	0	0	0	0						
30	Low	0	0	0	0	0						
60	Low	0	0	0	0	0						
100	Low	0	0	0	0	0						
*All concentrations are measured at same horizontal distance from machine (approximately 6 feet). **Machine shut off after ~70 seconds												
	nental Testing of Theat ), W-715x Fog Jet, and											



		E-AND-DISTANCE GL with Froggy's Fog C			1					
Measurement	Release Duration	Time (in sec) Af Below Gu								
Direction	(secs)	Machine Setting	5 ft	8 ft	12 ft	16 ft	20 ft			
	30	Manual	0	0	0	0	0			
	60	Manual	0	0	0	0	0			
	30	High	0	0	0	0	0			
	60	High	0	0	0	0	0			
	120 <sup>+</sup>	High	0	0	0	0	0			
	30	Med	0	0	0	0	0			
Horizontal	60	Med	0	0	0	0	0			
	120	Med	0	0	0	0	0			
	30 Low 0 0 0 0									
	60 Low 0 0 0 0 0									
	120	Low	0	0	0					
	*Machine takes 10 seconds to release fog after turned on <sup>†</sup> Machine shuts off after 100 seconds									
	30	Manual	20	20	0	0	0			
	60	Manual	20	20	0	0	0			
	30	High	30	0	0	0	0			
	60	High	30	0	0	0	0			
	120 <sup>+</sup>	High	30	0	0	0	0			
	30	Med	0	0	0	0	0			
	60	Med	0	0	0	0	0			
Vertical**	120	Med	0	0	0	0	0			
	30	Low	0	0	0	0	0			
	60	Low	0	0	0	0	0			
	120	Low	0	0	0	0	0			
<ul> <li>**All concentrations are measured at same horizontal distance from machine (approximately 6 feet).</li> <li>*Machine takes 10 seconds to release fog after turned on</li> <li><sup>†</sup>Machine shuts off after 100 seconds</li> </ul>										
Bog Fog/K-razy Haz Freeze/Quick Blast/	ze/Training Smoke Training Smoke Q	me-And-Distance Guideli e XD, Backwood Bay/Faze ), Techno Fog/Beam Split y ENVIRON International	e Haze/Tra ter, Neutr	nining Sm onic Haze	oke FR, \ e, DaFidd	/elocity/0 y, Swamı	<u>Cryo</u> D Juice			



	Summary of Time-and-Distance Guidelines for Fog Generation Antari F-1 Fazer with Antari FLG Fog Fluid											
Release Duration	Fan Speed	Output Setting										
(secs)	Speed	Setting	5 ft	10 ft	15 ft	20 ft	25 ft					
30	100	100	20	20	0	0	0					
60	100	100	20	0	0	0	0					
120	100	100	20	20	20	0	0					
60	100	65	10	10	0	0	0					
120	100	65	10	10	0	0	0					
30	50	100	0	0	0	0	0					
60	50	100	20	0	0	0	0					
120	50	100	20	20	0	0	0					
60	50	65	40	40	0	0	0					
120	50	65	40	40	0	0	0					
60	20	100	20	0	0	0	0					
120	20	100	20	20	0	0	0					
60	20	65	0	0	0	0	0					
120	20	65	20	20	0	0	0					
				nt: Antari F-1 Fa d by Ramboll Ei			380 Fazer, M-					



	Summ	-		e Guidelines Antari FLG I	-	ration				
Release Duration	Fan Speed	Output Setting								
(secs)	Speed	Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
30	100	100	10	10	0	0	0			
60	100	100	20	20	0	0	0			
120	100	100	30	30	30	30	30			
30	100	65	20	20	0	0	0			
60	100	65	20	20	0	0	0			
120	100	65	30	30	30	0	0			
30	50	100	20	10	0	0	0			
60	50	100	20	20	0	0	0			
120	50	100	20	20	20	20	0			
30	50	65	20	20	0	0	0			
60	50	65	20	20	0	0	0			
120	50	65	20	20	20	0	0			
30	20	100	20	20	0	0	0			
60	20	100	20	20	0	0	0			
120	20	100	20	20	0	0	0			
30	20	65	10	10	0	0	0			
60	20	65	20	20	0	0	0			
120	20	65	20	20	20	0	0			
				nt: Antari F-1 Fa ed by Ramboll Ei			<u>380 Fazer, M-</u>			



#### ANTARI

F		E AND DIS			-					
Release Duration (secs)	Time (in s	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )								
(secs)	Machine	e Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
30	Fan 100	100	0	0	0	0	0			
60	Fan 100	100	10	10	10	0	0			
120	Fan 100	100	10	10	10	0	0			
30	Fan 100	65	0	0	0	0	0			
60	Fan 100	65	0	0	0	0	0			
120	Fan 100	65	0	0	0	0	0			
30	Fan 100	25	0	0	0	0	0			
60	Fan 100	25	0	0	0	0	0			
120	Fan 100	25	0	0	0	0	0			
30	Fan 50	100	10	10	10	0	0			
60	Fan 50	100	20	20	20	0	0			
120	Fan 50	100	20	20	20	0	0			
30	Fan 50	65	10	10	10	0	0			
60	Fan 50	65	10	10	10	0	0			
120	Fan 50	65	10	10	10	0	0			
30	Fan 20	100	30	30	30	0	0			
60	Fan 20	100	30	30	30	0	0			
120	Fan 20	100	30	30	30	0	0			
30	Fan 20	65	30	30	30	0	0			
60	Fan 20	65	30	30	30	0	0			
120	Fan 20	65	30	30	30	0	0			

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> <u>Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo</u> <u>Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice</u> <u>2009 Formula, Light Fog</u>, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.





			AND DISTA 7 Smaze with								
Release Duration	Fan Speed	Output	Output Setting								
(secs)	Speed	Setting	5 ft	10 ft	15 ft	20 ft	25 ft				
30	100	100	10	10	10	10	10				
60	100	100	10	10	10	10	10				
120	100	100	10	10	10	10	10				
30	100	65	10	10	10	10	10				
60	100	65	10	10	10	10	10				
120	100	65	10	10	10	10	10				
30	50	100	30	30	30	30	10				
60	50	100	30	30	30	30	10				
120	50	100	30	30	30	30	10				
30	50	65	20	20	20	20	20				
60	50	65	20	20	20	20	20				
120	50	65	20	20	20	20	20				
30	20	100	40	40	10	0	0				
60	20	100	40	40	10	0	0				
120	20	100	50	50	10	0	0				
30	20	65	0	0	0	0	0				
60	20	65	30	30	30	0	0				
120	20	65	30	30	30	0	0				
	vironmental Tes -715x Fog Jet, a						<u>380 Fazer, M-</u>				



	το	TIME-AND-DISTAN E with Froggy's Fog									
Measurement Direction	Release Duration	Time (in sec)	-	ch Air Cor		ns Are Be	low				
Direction	(secs)	Machine Setting	5 ft	8 ft	12 ft	16 ft	20 ft				
	30	High	0	0	0	0	0				
	60†	High	0	0	0	0	0				
	120‡	High	0	0	0	0	0				
	30	Med	0	0	0	0	0				
Horizontal	60†	Med	0	0	0	0	0				
	120‡ Med 0 0 0 0 0										
	*Machine does not have visible output at low setting †Machine turns off for 10 seconds during run ‡Machine turns off for 30 seconds total during run										
	30	High	30	20	0	0	0				
	60†	High	30	30	0	0	0				
	120‡	High	30	30	0	0	0				
	30	Med	20	10	0	0	0				
Vertical**	60†	Med	20	10	0	0	0				
vertical	120‡	Med	30	10	0	0	0				
<ul> <li>**All concentrations are measured at same horizontal distance from machine (approximately 6 feet).</li> <li>*Machine does not have visible output at low setting</li> <li>†Machine runs off for 10 seconds during run</li> <li>‡Machine turns off for 30 seconds total during run</li> </ul>											
razy Haze/Training Blast/Training Smo	tion Factors and T Smoke XD, Backw ke Q, Techno Fog/	ime-And-Distance Guidel 100d Bay/Faze Haze/Trair Beam Splitter, Neutronic Corporation for Froggy's F	ines for Use hing Smoke Haze, DaFid	of Theatric FR, Velocity ddy, Swamp	/Cryo Freez	e/Quick					



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	т	IME-AND-D	ISTANCE G M-5		s					
Fluid	Machine Setting	Release Duration	B	sec) After elow Guida	ance Level	(40 mg/m	<sup>3</sup> )			
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	100	5	90	90	90	90	90			
	100	15	90	90	90	90	90			
	100	30*	90	90	90	90	90			
Froggy's Fog	65	30 <sup>+</sup>	60	60	60	50	0			
Backwood Bay Fluid	65	60 <sup>+</sup>	70	70	60	50	10			
	25	60	50	0	0	0	0			
		nuts off after			5 seconds					
	100	5	90	90	90	90	90			
	100	15	90	90	90	90	90			
_ / _	100	30*	90	90	90	90	90			
Froggy's Fog Amusement Park	65	30 <sup>+</sup>	60	60	60	50	0			
Fluid	65	60 <sup>+</sup>	70	70	60	50	10			
	25	60	50	0	0	0	0			
	*Machine shuts off after 20 seconds <sup>†</sup> Machine runs at reduced output volume after 15 seconds									
	100	5	90	90	50	30	0			
	100	15	90	90	60	60	60			
Froggy's Fog Bog	100	30	100	100	60	60	60			
Fog	65	30	100	30	0	0	0			
	65	60	110	40	0	0	0			
	25	60	110	0	0	0	0			
	100	5	20	20	0	0	0			
	100	15	20	20	20	10	0			
	100	30*	20	20	20	10	0			
Froggy's Fog	65	15	10	10	0	0	0			
Velocity	65	30	0	10	0	0	0			
	65	60	20	20	0	0	0			
	25	60	20	0	0	0	0			
	*Machine s	nuts off after	20 seconds							
	100	5	20	20	0	0	0			
	100	15	20	20	20	10	0			
	100	30*	20	20	20	10	0			
	65	15	10	10	0	0	0			
Froggy's Fog Cryo	65	30	0	10	0	0	0			
Freeze Fluid	65	60	20	20	0	0	0			
	25	60	20	0	0	0	0			
	*Machine sl	nuts off after	20 seconds							



	TIME-AND-DISTANCE GUIDELINES M-5										
Fluid	Machine Setting	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )								
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft				
	100	5	20	20	0	0	0				
	100	15	20	20	20	10	0				
	100	30*	20	20	20	10	0				
Froggy's Fog Quick	65	15	10	10	0	0	0				
Blast Fluid	65	30	0	10	0	0	0				
	65	60	20	20	0	0	0				
	25	60	20	0	0	0	0				
	*Machine sh	nuts off after	20 seconds								
*Machine shuts off after 20 seconds Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, November 2014.</u>											



	т	IME-AND-D	ISTANCE G M-8	UIDELINE	S					
Fluid	Machine Setting	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)							
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	High	5	50	50	50	50	0			
	High	15	50	50	50	50	0			
	High	30	60	60	50	50	20			
Antoni	Medium	30	50	50	50	30	0			
Antari FLG Fog Fluid	Medium	60*	60	60	50	30	0			
T LG T Og T lulu	Low	60	50	50	50	30	0			
	Low	120**	50	50	50	40	0			
		arted warmii shut off after								
	High	5	80	80	80	80	70			
	High	15	80	80	80	80	70			
	High	30	80	80	80	80	70			
	Medium	30	50	50	50	50	40			
Froggy's Fog	Medium	60	60	60	60	60	50			
Backwood Bay Fluid	Medium	120*	70	70	60	60	50			
	Low	60 <sup>+</sup>	60	60	60	60	50			
	Low	120 <sup>+</sup>	70	70	60	60	50			
	*Machine shuts off after 52 seconds <sup>+</sup> Machine pulses every 5 seconds at low setting									
	High	5	80	80	80	80	70			
	High	15	80	80	80	80	70			
	High	30	80	80	80	80	70			
	Medium	30	50	50	50	50	40			
Froggy's Fog	Medium	60	60	60	60	60	50			
Amusement Park Fluid	Medium	120*	70	70	60	60	50			
i i di di	Low	60 <sup>+</sup>	60	60	60	60	50			
	Low	120 <sup>+</sup>	70	70	60	60	50			
	*Machine shuts off after 52 seconds <sup>†</sup> Machine pulses every 5 seconds at low setting									
	High	5	40	40	30	20	0			
	High	15	70	70	60	60	60			
	High	30	70	70	60	60	60			
Froggy's Fog Bog	Medium	15	60	60	60	60	60			
	Medium	30	60	60	60	60	60			
Fog Fluid	Medium	60*	110	110	60	60	60			
	Low	60	110	110	10	0	0			
	Low	120 <sup>+</sup>	110	110	10	0	0			
		nuts off after nuts off after								



	т	IME-AND-D	ISTANCE G M-8		S				
Fluid	Machine Setting	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )						
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft		
	High	5	30	30	30	30	0		
	High	15	40	40	30	30	30		
	High	30*	40	40	30	30	30		
	Med	15	30	30	30	30	0		
Froggy's Fog	Med	30†	30	30	30	30	10		
Velocity Fluid	Med	60‡	30	30	30	30	10		
	Low	60	30	30	0	0	0		
	Low	120	30	30	0	0	0		
	<sup>†</sup> Machine ru	uns at reduce Ins at reduce Nuts off after	d output vol						
	High	5	30	30	30	30	0		
	High	15	40	40	30	30	30		
	High	30*	40	40	30	30	30		
	Med	15	30	30	30	30	0		
Froggy's Fog Cryo	Med	30†	30	30	30	30	10		
Freeze Fluid	Med	60‡	30	30	30	30	10		
	Low	60	30	30	0	0	0		
	Low	120	30	30	0	0	0		
	*Machine runs at reduced output volume after 10 seconds <sup>†</sup> Machine runs at reduced output volume after 20 seconds <sup>‡</sup> Machine shuts off after 49 seconds								
	High	5	30	30	30	30	0		
	High	15	40	40	30	30	30		
	High	30*	40	40	30	30	30		
	Med	15	30	30	30	30	0		
- /	Med	30†	30	30	30	30	10		
Froggy's Fog Quick Blast Fluid	Med	60‡	30	30	30	30	10		
Diascifiaia	Low	60	30	30	0	0	0		
	Low	120	30	30	0	0	0		
	<sup>†</sup> Machine ru	uns at reduce Ins at reduce Inuts off after	d output vol						
References: <u>Calibration</u> razy Haze/Training Smoe Blast/Training Smoke Q Fog, prepared by ENVIR Environmental Testing c 515D, W-715x Fog Jet,	<u>ke XD, Backwc</u> , <u>Techno Fog/B</u> ON Internation of Theatrical Fo	od Bay/Faze H eam Splitter, M al Corporation g Equipment: /	<u>aze/Training</u> <u>Jeutronic Haz</u> for Froggy's Antari F-1 Faz	<u>Smoke FR, V</u> <u>e, DaFiddy,</u> Fog, Novemb zer, F-4 Fazer	<u>elocity/Cryo F</u> Swamp Juice er 2014. -, F-7 Smaze,	reeze/Quick 2009 Formula X-380 Fazer,	a, Light		



	Т	IME-AND-D	M-10	-	-		
Fluid	Machine Setting	Release Duration		elow Guida	Which Air		
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft
	100%	5	90	90	90	70	70
	100%	15	100	100	90	70	70
	100%	30	120	120	100	100	70
- /	65%	15	90	60	50	40	30
Froggy's Fog Bog Fog Fluid	65%	30	120	120	70	70	60
rog ridid	65%	60*	120	120	70	70	60
	25%	60	60	0	0	0	0
	25%	120	60	30	0	0	0
	*Machine s	huts off after	48 seconds				
	100%	5	30	30	30	30	20
	100%	15	30	30	30	30	20
Froggy's Fog Velocity Fluid	100%	30	30	30	30	30	20
	65%	15	30	20	20	0	0
	65%	30	30	30	30	0	0
	65%	60	30	30	30	0	0
	25%	60	0	0	0	0	0
	25%	120	0	0	0	0	0
	100%	5	30	30	30	30	20
	100%	15	30	30	30	30	20
	100%	30	30	30	30	30	20
Froggy's Fog Cryo	65%	15	30	20	20	0	0
Freeze Fluid	65%	30	30	30	30	0	0
	65%	60	30	30	30	0	0
	25%	60	0	0	0	0	0
	25%	120	0	0	0	0	0
	100%	5	30	30	30	30	20
	100%	15	30	30	30	30	20
	100%	30	30	30	30	30	20
Froggy's Fog Quick	65%	15	30	20	20	0	0
Blast Fluid	65%	30	30	30	30	0	0
	65%	60	30	30	30	0	0
	25%	60	0	0	0	0	0
	25%	120	0	0	0	0	0
Reference: <u>Calibration F</u> razy Haze/Training Smo Blast/Training Smoke Q, prepared by ENVIRON I	ke XD, Backwo Techno Fog/B	od Bay/Faze H eam Splitter, N	aze/Training Neutronic Haz	Smoke FR, V e, DaFiddy, S	elocity/Cryo I Swamp Juice 2	-reeze/Quick	



Antari W-515D with Antari FLG Fog Fluid         Release       Time (in sec) After Which Air Concentrations Are Below         Duration       Cuidance Level (40 mg (m3))											
Duration	Guidance Level (40 mg/m <sup>3</sup> )										
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft					
5	100%	40	40	40	40	0					
15	100%	50	50	50	50	30					
30	100%	50	50	50	50	30					
30	65%	50	50	20	0	0					
60	65%	50	50	20	0	0					
60	25%	0	0	0	0	0					
120	25%	0	0	0	0	0					
	mental Testing of Theat D, W-715x Fog Jet, and										



Antari W-715x Fog Jet with Antari FLC Fog Fluid										
Release Duration	lime	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )								
(sec)	Machine Setting	chine Setting 5 ft 10 ft 15 ft 20 ft 25 ft								
15	99%	80	80	80	40	10				
15	75%	80	80	80	40	0				
15	50%	70	0	0	0	0				



	Т	IME-AND-D	ISTANCE G X-515	UIDELINES	5					
Fluid	Machine	Release Duration		sec) After elow Guida						
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	100%	5	40	40	40	40	0			
	100%	15	70	70	70	50	40			
	100%	30	70	70	70	50	40			
	65%	30	50	40	40	40	0			
Froggy's Fog	65%	60	70	70	40	40	0			
Backwood Bay Fluid	65%	120*	70	70	40	40	0			
	25%	60	60	50	30	0	0			
	25% 120 60 50 30 0 0									
	*Machine ran at reduced output volume after 45 seconds, machine turned off for 37 seconds during run									
	100%	5	40	40	40	40	0			
	100%	15	70	70	70	50	40			
	100%	30	70	70	70	50	40			
Fragay's Fog	65%	30	50	40	40	40	0			
Froggy's Fog Amusement Park	65%	60	70	70	40	40	0			
Fluid	65%	120*	70	70	40	40	0			
	25%	60	60	50	30	0	0			
	25%	120	60	50	30	0	0			
	*Machine ra 37 seconds	an at reduced during run	output volu	ume after 45	5 seconds, I	machine tur	ned off for			
	100%	5	40	30	0	0	0			
	100%	15	50	30	0	0	0			
	100%	30	80	80	70	30	0			
	65%	30	80	60	50	0	0			
Froggy's Fog Bog	65%	60*	80	60	50	30	10			
Fog Fluid	65%	120*	80	60	50	30	10			
. eg i laid	25%	60	80	40	0	0	0			
	25%	120 <sup>+</sup>	80	40	0	0	0			
	25%     120 <sup>*</sup> 80     40     0     0     0       *Machine runs at reduced output volume after 25 seconds       †Machine runs at reduced output volume after 4 seconds									
	100%	5	0	0	0	0	0			
	100%	15	20	0	0	0	0			
	100%	30*	20	20	0	0	0			
	65%	30	20	10	0	0	0			
Froggy's Fog	65%	60	20	10	0	0	0			
Velocity Fluid	65%	120	20	10	0	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
		an at reduced	-		-					
	100%	5	0	0	0	0	0			
Froggy's Fog Cryo	100%	15	20	0	0	0	0			
Freeze Fluid	100%	30*	20	20	0	0	0			



	т	IME-AND-D	ISTANCE G X-515	UIDELINES	6					
Fluid	Machine	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )							
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	65%	30	20	10	0	0	0			
	65%	60	20	10	0	0	0			
	65%	120	20	10	0	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
	*Machine ra	Machine ran at reduced output volume after 20 seconds								
	100%	5	0	0	0	0	0			
	100%	15	20	0	0	0	0			
	100%	30*	20	20	0	0	0			
	65%	30	20	10	0	0	0			
Froggy's Fog Quick	65%	60	20	10	0	0	0			
Blast Fluid	65%	120	20	10	0	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
	*Machine ra	an at reduced	output volu	ıme after 20	seconds					
Reference: <u>Calibration I</u> razy Haze/Training Smo Blast/Training Smoke Q Fog, prepared by ENVIR	<u>ke XD, Backwo , Techno Fog/E</u>	ood Bay/Faze H Beam Splitter, I	laze/Training Neutronic Haz	Smoke FR, V e, DaFiddy, S	elocity/Cryo Swamp Juice	Freeze/Quick				



### ANTARI

		ith Froggy's			-		
Release Duration	Time (in se	ec) After WI		oncentrat 0 mg/m <sup>3</sup>		Below Gui	dance
(secs)	Machine	Setting	2 ft	5 ft	10 ft	15 ft	20 ft
30	Fan Max	Max	10	0	0	0	0
60	Fan Max	Max	10	0	0	0	0
120	Fan Max	Max	20	0	0	0	0
30	Fan Max	Middle	0	0	0	0	0
60	Fan Max	Middle	10	0	0	0	0
120	Fan Max	Middle	10	0	0	0	0
30	Fan Middle	Max	20	0	0	0	0
60	Fan Middle	Max	20	0	0	0	0
120	Fan Middle	Max	20	0	0	0	0
30	Fan Middle	Middle	0	0	0	0	0
60	Fan Middle	Middle	10	0	0	0	0
120	Fan Middle	Middle	10	0	0	0	0
30	Fan Min	Max	20	0	0	0	0
60	Fan Min	Max	20	0	0	0	0
120	Fan Min	Max	20	0	0	0	0
30	Fan Min	Middle	20	0	0	0	0
60	Fan Min	Middle	20	0	0	0	0
120	Fan Min	Middle	20	0	0	0	0

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> <u>Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo</u> <u>Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice</u> <u>2009 Formula, Light Fog</u>, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



TIME AND DISTANCE GUIDELINES Antari Z-380 Fazer with Antari FLG Fog Fluid												
Release Duration	Fan Speed	Output Setting										
(secs)	Speed	Setting	2 ft 5 ft 10 ft 15									
30	Max	Max	20	20	20	0	0					
60	Max	Max	20	20	20	0	0					
120	Max	Max	20	20	20	0	0					
30	Max	Middle	0	0	0	0	0					
60	Max	Middle	0	0	0	0	0					
120	Max	Middle	0	0	0	0	0					
30	Middle	Max	0	0	0	0	0					
60	Middle	Max	0	0	0	0	0					
120	Middle	Max	0	0	0	0	0					
30	Middle	Middle	0	0	0	0	0					
60	Middle	Middle	0	0	0	0	0					
120	Middle	Middle	0	0	0	0	0					
Reference: Env	vironmental Tes	ting of Theatric	al Fog Equipme	<u>0</u> nt: Antari F-1 Fa ed by Ramboll Er	azer, F-4 Fazer,	F-7 Smaze, X-3	•					



### ASPIRE

Duration of Drag	Aspire K4 Vape Pen with Damokee E-Liquid Daily Dose FluidExhaleAverage time (sec) after which air concentratio below Guidance Level (40 mg/m³) at a distance									
(seconds)	Intensity	1 ft	2 ft	3 ft						
1	Weak	0	0	0						
1	Strong	0	0	0						
2	Weak	0	0	0						
2	Strong	0	0	0						
3	Weak	0	0	0						
3	Strong	0	0	0						
4	Weak	0	0	0						
4	Strong	0	0	0						
5	Weak	30	0	0						
5	Strong	0	0	0						



### **BARCO/HIGH END SYSTEMS**

TIME-AND-DISTANCE GUIDELINES High End Systems F-100											
Fluid	Machine	Release Duration	Time (i			ch Air Concentrations Are Level (40 mg/m <sup>3</sup> )					
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft			
Atmosphere Cold	Full	15	70	30	30	30	30	30			
Flow Formula	Medium	15	40	40	30	30	0	0			
Atmosphere HQ	Full	15	190	190	180	20	0	0			
Formula	Medium	15	170	80	70	0	0	0			
Atmosphere Stage Formula	Full/Med	15	0	0	0	0	0	0			
Reference: Equipment-I	Based Guidelin	es for the Use	of Theatric	al Smoke a	nd Haze, p	repared by	ENVIRON				

International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

	=	IME-AND-D Barco/High			-				
Fluid	Machine Setting	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )						
	Setting	(sec)	6 ft	9 ft	12 ft	15 ft	18 ft		
	75	5	60	60	60	60	60		
Atmosphere HQ Formula	75	15	100	100	100	100	90		
	50	5	60	60	60	60	60		
	50	15	100	100	100	100	90		
	25	5	60	60	60	60	60		
	25	15	60	60	60	60	60		
	25	30	80	80	80	80	80		
	99	5	100	100	100	100	80		
	99	15	100	100	100	100	80		
	75	5	80	80	80	80	80		
Atmosphere Stage	75	15	90	90	90	90	80		
Formula	50	5	80	80	80	80	80		
	50	15	90	90	90	90	80		
	25	5	0	0	0	0	0		
	25	15	90	90	90	90	80		
Reference: <u>Calibration F</u> <u>100 with Atmospheres S</u> International Corporation	tage Fluid and	Barco FQ-100	with Atmosp	heres HQ Flui			t, Barco FQ-		



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### **BLUE HAZE ENTERTAINMENT (BHE)**

	T	[ME-AND-D] E	ISTANCE G 3HE 1550	UIDELINE	S					
Fluid	Machine	Release Duration				ir Concen el (40 mg				
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	100%	5	40	40	40	40	0			
	100%	15	70	70	70	50	40			
	100%	30	70	70	70	50	40			
	65%	30	50	40	40	40	0			
Froggy's Fog	65%	60	70	70	40	40	0			
Backwood Bay Fluid	65%	120*	70	70	40	40	0			
Fluiu	25%	60	60	50	30	0	0			
	25%	120	60	50	30	0	0			
	*Machine ran 37 seconds du		utput volum	ne after 45	seconds, m	achine turi	ned off for			
	100%	5	40	40	40	40	0			
	100%	15	70	70	70	50	40			
	100%	30	70	70	70	50	40			
Froggy's Fog	65%	30	50	40	40	40	0			
Amusement	<u>65%</u> 65%	60 120*	70 70	70 70	40 40	40 40	0			
Park Fluid	25%	60	60	50	30	40	0			
	25%	120	60	50	30	0	0			
	*Machine ran 37 seconds du	at reduced o				, v	-			
	100%	5	40	30	0	0	0			
	100%	15	50	30	0	0	0			
	100%	30	80	80	70	30	0			
	65%	30	80	60	50	0	0			
- , -	65%	60*	80	60	50	30	10			
Froggy's Fog Bog Fog Fluid	65%	120*	80	60	50	30	10			
boy roy riulu	25%	60	80	40	0	0	0			
	25%	120 <sup>+</sup>	80	40	0	0	0			
	25%     120*     80     40     0     0     0       *Machine runs at reduced output volume after 25 seconds       †Machine runs at reduced output volume after 4 seconds									
	100%	5	0	0	0	0	0			
	100%	15	20	0	0	0	0			
	100%	30*	20	20	0	0	0			
	65%	30	20	10	0	0	0			
Froggy's Fog	65%	60	20	10	0	0	0			
Velocity Fluid	65%	120	20	10	0	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
	*Machine ran	•		1	-					
	100%	5	0	0	0	0	0			
	100%	15	20	0	0	0	0			



### **BLUE HAZE ENTERTAINMENT (BHE)**

	T	IME-AND-DI E	STANCE G 3HE 1550	UIDELINE	S					
Fluid	Machine Setting	Release Duration			er Which A dance Lev					
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	100%	30*	20	20	0	0	0			
	65%	30	20	10	0	0	0			
Froggy's Fog	65%	60	20	10	0	0	0			
Cryo Freeze	65%	120	20	10	0	0	0			
Fluid	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
	*Machine ran at reduced output volume after 20 seconds									
	100%	5	0	0	0	0	0			
	100%	15	20	0	0	0	0			
	100%	30*	20	20	0	0	0			
Froggy's Fog	65%	30	20	10	0	0	0			
Quick Blast	65%	60	20	10	0	0	0			
Fluid	65%	120	20	10	0	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
	*Machine ran	at reduced o	utput volum	e after 20	seconds					
Reference: <u>Calibra</u> Fog/K-razy Haze/Tu Blast/Training Smo Light Fog, prepared	raining Smoke XD ke Q, Techno Foc	), Backwood Ba J/Beam Splitter	ay/Faze Haze , Neutronic F	/Training Sm laze, DaFido	loke FR, Velo ly, Swamp J	ocity/Cryo Fi uice 2009 Fo	reeze/Quick			



TIME-AND-DISTANCE GUIDELINES 1800 Flex									
	Machine Release Time (in sec) After Which Air Concentr								
Fluid	Setting	Duration	Below Guidance Level (40 mg/m³)           5 ft         10 ft         15 ft         20 ft         25 ft						
	- -	(sec)							
	Full	5	40	40	30	30	30		
Frogay's Fog	Full	15	40	40	40	40	40		
Froggy's Fog Backwood Bay	Full	30*	60	60	50	50	40		
Fluid	Full	60*	60	60	50	50	40		
	Full	120*	60	60	50	50	50		
	*Machine ran at reduced output volume after 18 seconds								
	Full	5	40	40	30	30	30		
Froggy's Fog	Full	15	40	40	40	40	40		
Amusement Park	Full	30*	60	60	50	50	40		
Fluid	Full	60*	60	60	50	50	40		
	Full	120*	60	60	50	50	50		
	*Machine rai								
	Full	5	70	50	40	30	0		
	Full	15	70	70	70	70	70		
Froggy's Fog Bog	Full	30*	90	90	70	70	70		
Fog Fluid	Full	60*	90	90	70	70	70		
	Full	120*	90	90	70	70	70		
	*Machine ran at reduced output volume after 20 seconds								
	Full	5	30	30	30	0	0		
	Full	15*	30	30	30	20	0		
Froggy's Fog	Full	30*	30	30	30	20	0		
Velocity Fluid	Full	60*	30	30	30	20	0		
,	Full	120*	30	30	30	20	0		
	*Machine ran at reduced output volume after 10 seconds								
	Full	5	30	30	30	0	0		
	Full	15*	30	30	30	20	0		
- , -	Full	30*	30	30	30	20	0		
Froggy's Fog Cryo Freeze Fluid	Full	60*	30	30	30	20	0		
Ciyo meeze mulu	Full	120*	30	30	30	20	0		
	Full $120^{+}$ $30$ $30$ $30$ $20$ $0$ *Machine ran at reduced output volume after 10 seconds								
	Full	5	30	30		0	0		
					30		0		
	Full	15*	30	30	30	20	0		
Froggy's Fog	Full	30*	30	30	30	20	0		
Quick Blast Fluid	Full	60*	30	30	30	20	0		
	Full	120*	30	30	30	20	0		
	*Machine rai	h at reduced		<b>F</b>	-	25.4	20.4		
	Entl	F	<b>7 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>	<b>30 ft</b>		
Froggy's Fog	Full	5	30	30	20	20	0		
Techno Fluid	Full	15*	30	30	30	20	20		
	Full	30*	50	50	40	40	40		
	Full	60*	50	50	40	40	40		



TIME-AND-DISTANCE GUIDELINES 1800 Flex									
Fluid	Machine	Release Duration			ec) After Which Air Concentrations Are ow Guidance Level (40 mg/m <sup>3</sup> )				
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft		
	Full 120* 60 60 60 40								
	*Machine ran at reduced output volume after 12 seconds								
Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog</u> Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.									



TIME-AND-DISTANCE GUIDELINES Amhaze ECO with Premium Haze Fluid (PHF)										
Release Duration	Output Setting	Fan Setting	Setting Below Guidance Level (40mg/m <sup>3</sup> )							
(secs)	(%)	(%)	(%) 5 ft 10 ft 15 ft 2							
60	100	100	50	50	50	50	0			
300	100	100	50	50	50	50	0			
60	100	50	40	30	30	0	0			
300	100	50	50	50	30	0	0			
	Reference: <u>Environmental Testing of Theatrical Fog Equipment: Chauvet AmHaze ECO</u> , prepared by Ramboll for Chauvet Professional, October 2019.									

TIME AND DISTANCE GUIDELINES AmHaze II with Froggy's Fog Faze Haze Fluid									
Release Duration	Time (in s	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )							
(secs)	Machine S	Setting	4 ft	8 ft	12 ft	16 ft			
30	Fan 100	100%	20	0	0	0			
60	Fan 100	100%	20	0	0	0			
120	Fan 100	100%	20	30	0	0			
30	Fan 100	65%	20	0	0	0			
60	Fan 100	65%	20	0	0	0			
120	Fan 100	65%	20	0	0	0			
30	Fan 100	25%	0	0	0	0			
60	Fan 100	25%	10	0	0	0			
120	Fan 100	25%	10	0	0	0			
30	Fan 50	100%	30	30	0	0			
60	Fan 50	100%	40	40	0	0			
120	Fan 50	100%	40	40	30	0			
30	Fan 50	65%	30	30	0	0			
60	Fan 50	65%	30	30	0	0			
120	Fan 50	65%	30	30	0	0			
30	Fan 1	100%	50	50	40	0			
60	Fan 1	100%	50	50	40	0			
120	Fan 1	100%	50	50	40	0			
30	Fan 1	65%	50	50	40	0			
60	Fan 1	65%	50	50	40	0			
120	Fan 1	65%	50	50	40	0			
Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Foq</u> <u>Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke</u> <u>FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic</u> <u>Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog</u> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.									



TIME-AND-DISTANCE GUIDELINES Geyser with Froggy's Fog Quick Blast Fluid										
Release Duration	Time (in sec) After Which Air Concentrations Are Belo Guidance Level (40 mg/m <sup>3</sup> )									
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft 25 ft					
5	Full	20	20	20	20	0				
15*	Full	20	20	20	20	20				
30 <sup>+</sup>	Full	20	20	20	20	20				
60 <sup>‡</sup>	Full	20	20	20	20	20				
*Machine turned off after 10 seconds										
Machine pulsed on a	and off, ran for 15 second	is total								
<sup>*</sup> Machine pulsed on a	and off, ran for 25 second	ls total								
Equipment: Bog Fog Velocity/Cryo Freeze	on Factors and Time-And- /K-razy Haze/Training Sn e/Quick Blast/Training Sm ce 2009 Formula, Light Fo er 2014.	noke XD, Ba oke Q, Tech	nckwood Bay	/Faze Haze, m Splitter, I	/Training Sr Neutronic Ha	aze,				



### CITC

TIME AND DISTANCE GUIDELINES AquaMax with Organic Haze Fluid									
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m <sup>3</sup> )								
(secs)	Machine	e Setting	5 ft	10 ft	15 ft	20 ft	25 ft		
5	Fan 3	75%	10	0	0	0	0		
10	Fan 3	75%	10	0	0	0	0		
30	Fan 3	75%	10	0	0	0	0		
60	Fan 3	75%	10	0	0	0	0		
120	Fan 3	75%	30	0	0	0	0		
5	Fan 3	50%	0	0	0	0	0		
10	Fan 3	50%	0	0	0	0	0		
30	Fan 3	50%	0	0	0	0	0		
60	Fan 3	50%	0	0	0	0	0		
120	Fan 3	50%	0	0	0	0	0		
5	Fan 3	25%	0	0	0	0	0		
10	Fan 3	25%	0	0	0	0	0		
30	Fan 3	25%	0	0	0	0	0		
60	Fan 3	25%	0	0	0	0	0		
120	Fan 3	25%	0	0	0	0	0		
5	Fan 1	75%	0	0	0	0	0		
10	Fan 1	75%	0	0	0	0	0		
30	Fan 1	75%	0	0	0	0	0		
60	Fan 1	75%	10	0	0	0	0		
120	Fan 1	75%	25	0	0	0	0		
5	Fan 1	50%	0	0	0	0	0		
10	Fan 1	50%	10	0	0	0	0		
30	Fan 1	50%	10	0	0	0	0		
60	Fan 1	50%	10	0	0	0	0		
120	Fan 1	50%	10	0	0	0	0		
5	Fan 1	25%	0	0	0	0	0		
10	Fan 1	25%	0	0	0	0	0		
30	Fan 1	25%	5	0	0	0	0		
60	Fan 1	25%	5	0	0	0	0		
120	Fan 1	25%	5	0	0	0	0		
Reference: <u>Calibration</u> <u>Aquamax with Organic</u> International Corporation	Haze Fluid an	d HazeMax wit							



### CITC

Fantasy FX Professional HazeReleaseTime (in sec) After Which Air Concentrations Are BelowDurationGuidance Level (25 mg/m³)									
(secs)	Release Height	2 ft	6 ft						
2	Breathing height	0	Х						
5		0	Х						
10		0	Х						
15		2	2						
30		2	2						

Releasing the haze slightly above breathing height (e.g., simulating the spraying of hair spray above the head) did not result in any exceedances of the peak guidance level at the breathing height.

Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke</u> <u>Equipment: Fantasy FX Professional Haze</u>, prepared by ENVIRON International Corporation for Richard Frankel Productions, Inc., December 14, 2006.

	TIME-AND-DISTANCE GUIDELINES HazeMax with Water Vapor Haze Fluid										
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m <sup>3</sup> )										
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft					
5	75%	30	0	0	0	0					
10	75%	30	10	0	0	0					
30	75%	60	50	30	0	0					
60	75%	60	50	30	0	0					
120	75%	70	50	30	0	0					
5	50%	20	0	0	0	0					
10	50%	20	0	0	0	0					
30	50%	60	50	0	0	0					
60	50%	60	50	0	0	0					
120	50%	70	50	0	0	0					
Equipment: Aquama	on Factors and Time-And- ix with Organic Haze Fluid itional Corporation for CIT	l and HazeM	lax with Wa			prepared					



#### **EPUFFER**

	TIME-AND-DISTANCE GUIDELINES ePuffer Electronic Cigar/ E-Liquid								
Strength of Drag	Speed of Exhale	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> ) at a distance of 1 ft.							
Weak	Medium	0							
Medium	Medium	0							
Strong	Medium	0							
Medium	Slow	0							
Medium	Fast	30							

Notes: It should be noted that ENVIRON's testing was limited to glycols and glycerol. According to the manufacturer, these props also contain between 0 and 1.2 milligrams of nicotine. Potential health effects associated with potential exposures to nicotine are not within the scope of ENVIRON's review.

Testing of e-cigarette and related products is limited to second hand exposure after being exhaled by the user; the initial amount inhaled directly from the product was not measured.

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: ePuffer</u> <u>Electronic Cigar with eliquid</u>, prepared by ENVIRON International Corporation for Lucky Guy Broadway LLC, June 2013.



### FIREBASE

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TIME-AND-DISTANCE GUIDELINES SG-1300										
Fluid	Release Duration	Machine Setting	Time (in se		nich Air Con e Level (40		Are Below			
	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
	5	99%	30	30	30	30	30			
	15	99%	30	30	30	30	30			
	30*	99%	50	40	30	30	30			
Froggy's Fog	30	65%	50	10	0	0	0			
Training Smoke	60	65%	50	10	0	0	0			
FR Fluid – Fire Rescue Formula	120	65%	50	10	0	0	0			
Rescue i ormana	60	25%	40	0	0	0	0			
	120	25%	40	0	0	0	0			
	*Machine ha	*Machine had reduced output volume after 20 seconds								
	5	99	40	40	40	30	30			
	15	99	50	50	50	50	50			
	30	99	70	50	50	50	50			
Froggy's Fog	30	65	70	0	0	0	0			
Training Smoke	60	65	70	0	0	0	0			
XD Fluid –	120	65	70	0	0	0	0			
Extreme Density	60	25	0	0	0	0	0			
	120	25%	0	0	0	0	0			
					ton is presse Ime after 80					
	5	99%	0	0	0	0	0			
	15	99%	20	20	20	20	20			
Froggy's Fog	30	99%	30	20	20	20	20			
Training Smoke	30	65%	30	0	0	0	0			
Q Fluid – Quick	60	65%	30	10	0	0	0			
Dissipating	120	65%	30	10	0	0	0			
	60	25%	0	0	0	0	0			
	120	25%	0	0	0	0	0			
References: <u>Calibra</u> razy Haze/Training S Blast/Training SN///R	<u>Smoke XD, Ba</u> e Q, Techno F	<u>ickwood Bay/F</u> Fog/Beam Spli	aze Haze/Trai tter, Neutronic	ning Smoke FR : Haze, DaFidd	R, Velocity/Cryo y, Swamp Juice	Freeze/Quicl	<			

prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



### FIREBASE

		TIME-AI	ND-DISTAN SG-26		NES							
Fluid	Release Duration	Machine	Time (in se		nich Air Con e Level (40		Are Below					
	(secs)	(secs)	(secs)	(secs)	(secs)	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft
	5	99%	40	40	40	40	40					
	15	99%	40	40	40	40	40					
	30*	99%	50	50	40	40	40					
Froggy's Fog	30	65%	20	0	0	0	0					
Training Smoke FR Fluid – Fire Rescue Formula	60	65%	20	0	0	0	0					
	120	65%	>180	0	0	0	0					
	60	25%	0	0	0	0	0					
	120	25%	0	0	0	0	0					
	*Machine had reduced output volume after 20 seconds											
	5	99%	90	50	40	40	40					
	15	99%	90	50	40	40	40					
	30	99%	90	70	40	40	40					
Froggy's Fog Training Smoke	30	65%	60	0	0	0	0					
XD Fluid – Extreme Density	60	65%	60	0	0	0	0					
Extreme Density	120	65%	60	0	0	0	0					
	60	25%	0	0	0	0	0					
-	120	25%	0	0	0	0	0					
References: <u>Calibra</u> razy Haze/Training S Smoke Q, Techno F	<u>Smoke XD, Ba</u> og/Beam Spli	<u>ckwood Bay/F</u> itter, Neutroni	<u>aze Haze/Trair</u> c Haze, DaFide	iing Smoke FR dy, Swamp Ju	, Velocity/Cryo	Freeze/Quick	Blast/Training					

ENVIRON International Corporation for Froggy's Fog, October 2014.



### FIREBASE

TIME-AND-DISTANCE GUIDELINES FireBase SG M1500															
Fluid	Release Duration	Machine Setting	Are I	n sec) Afte Below Gui		el (40 mg	/m³)								
	(sec)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft								
	5	100	90	90	90	90	90								
	15	100	90	90	90	90	90								
Froggy's Fog	30*	100	90	90	90	90	90								
Training Smoke FR Fire Rescue Formula	30 <sup>+</sup>	65	60	60	60	50	0								
	60 <sup>+</sup>	65	70	70	60	50	10								
	60	25	50	0	0	0	0								
		*Machine shuts off after 20 seconds <sup>†</sup> Machine runs at reduced output volume after 15 seconds													
Froggy's Fog	5	100	90	90	50	30	0								
	15	100	90	90	60	60	60								
Training Smoke	30	100	100	100	60	60	60								
XD Extreme	30	65	100	30	0	0	0								
Density	60	65	110	40	0	0	0								
	60	25	110	0	0	0	0								
	5	100	20	20	0	0	0								
	15	100	20	20	20	10	0								
	30*	100	20	20	20	10	0								
Froggy's Fog	15	65	10	10	0	0	0								
Training Smoke Q Quick Dissipating	30	65	0	10	0	0	0								
Quick Dissipating	60	65	20	20	0	0	0								
	60	25	20	0	0	0	0								
	*Machine shuts off after 20 seconds														
Fog/K-razy Haze/Train Freeze/Quick Blast/Tr	ning Smoke XI aining Smoke	D, Backwood E Q, Techno Foo	<u>Bay/Faze Haz</u> g/Beam Split	<u>e/Training S</u> ter, Neutron	imoke FR, Ve ic Haze, Daf	elocity/Cryo Fiddy, Swam	*Machine shuts off after 20 seconds Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog</u> <u>Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo</u> <u>Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice</u> <u>2009 Formula, Light Fog</u> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.								



### FIREBASE

TIME-AND-DISTANCE GUIDELINES FireBase SG-M1800										
Fluid	Machine	Release Duration	Time (in	sec) After elow Guida						
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	High	5	80	80	80	80	70			
	High	15	80	80	80	80	70			
	High	30	80	80	80	80	70			
Froggy's Fog	Medium	30	50	50	50	50	40			
Training Smoke FR	Medium	60	60	60	60	60	50			
- Fire Rescue	Medium	120*	70	70	60	60	50			
Formula	Low	60 <sup>+</sup>	60	60	60	60	50			
	Low	120 <sup>+</sup>	70	70	60	60	50			
		huts off after Jises every 5								
	High	5	40	40	30	20	0			
	High	15	70	70	60	60	60			
	High	30	70	70	60	60	60			
	Medium	15	60	60	60	60	60			
Froggy's Fog Training Smoke XD	Medium	30	60	60	60	60	60			
– Extreme Density	Medium	60*	110	110	60	60	60			
	Low	60	110	110	10	0	0			
	Low	120 <sup>+</sup>	110	110	10	0	0			
	*Machine shuts off after 40 seconds <sup>†</sup> Machine shuts off after 90 seconds									
	High	5	30	30	30	30	0			
	High	15	40	40	30	30	30			
	High	30*	40	40	30	30	30			
	Med	15	30	30	30	30	0			
Froggy's Fog	Med	30†	30	30	30	30	10			
Training Smoke Q –	Med	60‡	30	30	30	30	10			
Quick Dissipating	Low	60	30	30	0	0	0			
	Low	120	30	30	0	0	0			
	<sup>+</sup> Machine ru	uns at reduce ins at reduce outs off after	d output vo							
References: <u>Calibration</u> razy Haze/Training Smo Blast/Training Smoke Q Fog, prepared by ENVIR	<u>ke XD, Backwo , Techno Fog/B</u>	od Bay/Faze H eam Splitter, M	laze/Training Neutronic Haz	<u>Smoke FR, V</u> ze, DaFiddy,	elocity/Cryo I Swamp Juice	-reeze/Quick				



### FIREBASE

	т	IME-AND-D FireB	ISTANCE G ase SG-M3		S						
Fluid	Machine Setting	Release Duration	B		Which Air ance Level						
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft				
	100%	5	90	90	90	70	70				
	100%	15	100	100	90	70	70				
Froggy's Fog	100%	30	120	120	100	100	70				
	65%	15	90	60	50	40	30				
Training Smoke XD	65%	30	120	120	70	70	60				
<ul> <li>Extreme Density</li> </ul>	65%	60*	120	120	70	70	60				
	25%	60	60	0	0	0	0				
	25%	120	60	30	0	0	0				
	*Machine shuts off after 48 seconds										
	100%	5	30	30	30	30	20				
	100%	15	30	30	30	30	20				
_ , _	100%	30	30	30	30	30	20				
Froggy's Fog Training Smoke Q –	65%	15	30	20	20	0	0				
Quick Dissipating	65%	30	30	30	30	0	0				
<b>Q</b> = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1	65%	60	30	30	30	0	0				
	25%	60	0	0	0	0	0				
	25%	120	0	0	0	0	0				
References: <u>Calibration</u> razy Haze/Training Smol <u>Blast/Training Smoke Q,</u> Fog, prepared by ENVIRG	ke XD, Backwo Techno Fog/B	od Bay/Faze H eam Splitter, N	<u>aze/Training</u> Jeutronic Haz	<u>Smoke FR, V</u> e, DaFiddy, :	elocity/Cryo F Swamp Juice	reeze/Quick					



### FROGGY'S FOG

TIME-AND-DISTANCE GUIDELINES Froggy's Fog Poseidon with Aqua Fog Fluid/Long Distance Formula											
Release Duration	Humidity Setting	Fan Setting	Fog Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40mg/m <sup>3</sup> )							
(secs)	(%)	(%)	(%)	5 ft	10 ft	15 ft	25 ft				
300	100	15	50	0	0	0	0				
300	100	50	50	0	0	0	0				
300	75	35	50	0	0	0	0				
300	75	65	50	0	0	0	0				
300	50	65	50	0	0	0	0				
References: <u>E</u> Fog, Novembe		esting of Th	eatrical Fog	Equipment: Po	<u>oseidon</u> , prepar	ed by Ramboll	for Froggy's				



### HAZEBASE

TIME-AND-DISTANCE GUIDELINES Base Classic										
Fluid	Release Duration	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )							
	(secs)		5 ft	10 ft	15 ft	20 ft	25 ft			
	5	99%	30	30	30	30	30			
	15	99%	30	30	30	30	30			
	30*	99%	50	40	30	30	30			
	30	65%	50	10	0	0	0			
Froggy's Fog Backwood Bay	60	65%	50	10	0	0	0			
Fluid	120	65%	50	10	0	0	0			
	60	25%	40	0	0	0	0			
	120	25%	40	0	0	0	0			
	*Machine ha	ad reduced o	utput volume	e after 20 seo	conds					
	5	99%	30	30	30	30	30			
	15	99%	30	30	30	30	30			
	30*	99%	50	40	30	30	30			
	30	65%	50	10	0	0	0			
Froggy's Fog Amusement Park	60	65%	50	10	0	0	0			
Fluid	120	65%	50	10	0	0	0			
	60	25%	40	0	0	0	0			
	120	25%	40	0	0	0	0			
	*Machine had reduced output volume after 20 seconds									
	5	99%	40	40	40	30	30			
	15	99%	50	50	50	50	50			
	30	99%	70	50	50	50	50			
Froggy's Fog Bog	30	65%	70	0	0	0	0			
Fog Fluid	60	65%	70	0	0	0	0			
	120	65%	70	0	0	0	0			
	60	25%	0	0	0	0	0			
	120	25%	0	0	0	0	0			
	5	99%	0	0	0	0	0			
	15	99%	20	20	20	20	20			
	30	99%	30	20	20	20	20			
Froggy's Fog Velocity Fluid	30	65%	30	0	0	0	0			
velocity riulu	60	65%	30	10	0	0	0			
	120	65%	30	10	0	0	0			
	60	25%	0	0	0	0	0			



#### HAZEBASE

TIME-AND-DISTANCE GUIDELINES Base Classic											
Fluid	Release Duration	Machine Setting		sec) After Below Guida							
	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft				
	120	25%	0	0	0	0	0				
	5	99%	0	0	0	0	0				
	15	99%	20	20	20	20	20				
	30	99%	30	20	20	20	20				
Froggy's Fog	30	65%	30	0	0	0	0				
CyroFreeze Fluid	60	65%	30	10	0	0	0				
	120	65%	30	10	0	0	0				
	60	25%	0	0	0	0	0				
	120	25%	0	0	0	0	0				
	5	99%	0	0	0	0	0				
	15	99%	20	20	20	20	20				
	30	99%	30	20	20	20	20				
Froggy's Fog	30	65%	30	0	0	0	0				
Quick Blast Fluid	60	65%	30	10	0	0	0				
	120	65%	30	10	0	0	0				
	60	25%	0	0	0	0	0				
	120	25%	0	0	0	0	0				
	5	99%	40	40	30	0	0				
	15	99%	40	40	40	0	0				
	30	99%	50	50	40	0	0				
Ultratec	15	75%	30	0	0	0	0				
Molecular Fog Fluid	30	75%	50	30	0	0	0				
i lulu	60	75%	50	30	0	0	0				
	60	50%	0	0	0	0	0				
	120	50%	0	0	0	0	0				
References: <u>Calibra</u> razy Haze/Training S Blast/Training Smok Fog, prepared by EN	<u>Smoke XD, Ba</u> <u>e Q, Techno I</u> IVIRON Interr	ackwood Bay/F Fog/Beam Spli national Corpor	aze Haze/Trai tter, Neutronic ration for Frog	ning Smoke FF : Haze, DaFidd gy's Fog, Octo	<u>, Velocity/Cry</u> <u>y, Swamp Juic</u> ber 2014.	o Freeze/Quic e 2009 Formi	<u>:k</u> ula, Light				

Environmental Testing of Theatrical Fog Equipment: Hazebase Base Classic with Ultratec Molecular Fog Fluid, prepared by Ramboll Environ, October 2017



#### HAZEBASE

TIME-AND-DISTANCE GUIDELINES Base High Power 220V											
Fluid	Release Duration	Machine	Time (in se		nich Air Con e Level (40		Are Below				
	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft				
	5	99%	40	40	40	40	40				
	15	99%	40	40	40	40	40				
	30*	99%	50	50	40	40	40				
Froggy's Fog	30	65%	20	0	0	0	0				
Backwood Bay Fluid	60	65%	20	0	0	0	0				
Tulu	120	65%	>180	0	0	0	0				
	60	25%	0	0	0	0	0				
	120	25%	0	0	0	0	0				
	*Machine ha	ad reduced o	utput volume	e after 20 seo	conds						
	5	99%	90	50	40	40	40				
	15	99%	90	50	40	40	40				
	30	99%	90	70	40	40	40				
Froggy's Fog	30	65%	60	0	0	0	0				
Bog Fog Fluid	60	65%	60	0	0	0	0				
	120	65%	60	0	0	0	0				
	60	25%	0	0	0	0	0				
	120	25%	0	0	0	0	0				
References: <u>Calibr</u> razy Haze/Training Blast/Training Smc prepared by ENVIR	Smoke XD, B ke Q, Techno	ackwood Bay, Fog/Beam Sp	/Faze Haze/Tra litter, Neutroni	ining Smoke F c Haze, DaFid	R, Velocity/Cr dy, Swamp Jui	yo Freeze/Quid	<u>ck</u>				



#### HAZEBASE

Fluid	Release Duration	Time (in s	sec) After			Concentrations Are Below Guidance (40 mg/m <sup>3</sup> )			
	(secs)	Machine	Setting	4 ft	8 ft	12 ft	16 ft	20 ft	
	30	Fan 99	99	10	10	10	10	0	
	60	Fan 99	99	10	10	10	10	0	
	120	Fan 99	99	10	10	10	10	0	
	30	Fan 99	65	0	0	0	0	0	
	60	Fan 99	65	0	0	0	0	0	
	120	Fan 99	65	0	0	0	0	0	
Froggy's Fog Faze Haze Fluid	30	Fan 50	99	10	10	10	0	0	
	60	Fan 50	99	10	10	10	0	0	
	120	Fan 50	99	20	20	20	20	20	
	30	Fan 50	65	10	10	10	0	0	
	60	Fan 50	65	10	10	10	0	0	
	120	Fan 50	65	10	10	10	0	00	
	30	Fan 1	99	10	0	0	0	0	
	60	Fan 1	99	20	0	0	0	0	
	120	Fan 1	99	20	10	10	0	0	
	30	Fan 1	65	10	0	0	0	0	
	60	Fan 1	65	10	0	0	0	0	
	120	Fan 1	65	10	10	10	0	0	
	30	Fan 99	99	10	0	0	0	0	
	60	Fan 99	99	10	0	0	0	0	
	120	Fan 99	99	10	0	0	0	0	
	30	Fan 99	65	0	0	0	0	0	
	60	Fan 99	65	0	0	0	0	0	
	120	Fan 99	65	00	00	00	0	00	
	30	Fan 50	99	10	0	0	0	0	
	60	Fan 50	99	10	0	0	0	0	
base hazer	120	Fan 50	99	10	0	0	0	0	
liquid Fluid	30	Fan 50	65	0	0	0	0	0	
	60	Fan 50	65	10	0	0	0	0	
	120	Fan 50	65	10	0	00	0	0	
	30	Fan 1	99	20	0	0	0	0	
	60	Fan 1	99	20	0	0	0	0	
	120	Fan 1	99	20	0	0	0	0	
	30	Fan 1	65	10	0	0	0	0	
	60	Fan 1	65	10	0	0	0	0	
	120	Fan 1	65	20	0	0	0	0	



### LE MAITRE LTD.

TIME-AND-DISTANCE GUIDELINES Le Maitre Opti Mist Ranger with Mini Mist Canister										
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )									
(secs)	Machine Setting	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft			
15	Full	110	80	60	60	0	0			
15	Medium	110	80	60	60	0	0			
	Reference: Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.									

Le l	TIME AND DISTANCE GUIDELINES Le Maitre MVS with Froggy's Fog Neutronic Haze Fluid									
Release Duration (secs)	Time (in se	c) After W		Concentr (50 mg/r		e Below G	uidance			
(secs)	Machine S	Setting	3 ft	5 ft	7 ft	10 ft	15 ft			
5	Fan 15	15	20	10	0	0	0			
10	Fan 15	15	20	10	10	10	0			
30	Fan 15	15	20	10	10	10	10			
60	Fan 15	10	20	10	0	0	0			
120	Fan 15	10	20	10	10	10	0			
5	Fan 15	10	20	10	10	10	10			
10	Fan 15	5	0	0	0	0	0			
30	Fan 15	5	10	10	10	0	0			
60	Fan 15	5	10	10	10	0	0			
120	Fan 7	15	20	20	20	0	0			
5	Fan 7	15	20	20	20	20	20			
10	Fan 7	15	20	20	20	20	20			
30	Fan 7	10	20	10	0	0	0			
60	Fan 7	10	20	10	10	10	10			
120	Fan 7	10	20	10	10	10	10			
5	Fan 1	15	0	0	0	0	0			
10	Fan 1	15	20	20	20	20	0			
30	Fan 1	15	20	20	20	20	0			
60	Fan 1	10	0	0	0	0	0			
120	Fan 1	10	20	20	20	20	0			
5	Fan 1	10	20	20	20	20	0			

\*Machine takes 20 seconds to release fog after button is pressed

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



### LE MAITRE LTD.

TIME-AND-DISTANCE GUIDELINES Le Maitre Neutron XS with Froggy's Fog Neutronic Haze Fluid									
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m³)Machine Setting3 ft6 ft9 ft12 ft15 ft								
(secs)									
30	Full 0 0 0 0 0								
60	Full	0	0	0	0	0			
120	Full	0	0	0	0	0			
Instruction       Full       O       O       O       O       O         Reference:       Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:       Bog         Fog/K-razy       Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo         Freeze/Quick       Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice         2009       Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.									



### LOOK SOLUTIONS

TIME-AND-DISTANCE GUIDELINES Look Solutions Cobra 1.8 with Quick Fog Fluid										
Fluid	Release Duration	Output Setting	Time (in s		hich Air Cond ce Level (40ı		Are Below			
	(secs)	(%)	5 ft	10 ft	15 ft	20 ft	25 ft			
Quick Fog	15	70	35	35	35	35	0			
Fluid	30	70	35	35	35	35	0			
	60	70	35	35	35	35	0			
	15	30	25	0	0	0	0			
	30	30	25	10	10	10	10			
	60	30	30	10	10	10	10			
Regular	15	70	65	65	35	35	0			
Fog Fluid	30	70	70	70	35	35	0			
	60	70	70	70	40	35	0			
	15	30	0	0	0	0	0			
	30	30	80	50	0	0	0			
	60	30	80	50	0	0	0			
Slow Fog	15	70	85	85	85	85	0			
Fluid	30	70	85	85	85	85	0			
	60	70	130	130	130	85	10			
	15	30	45	0	0	0	0			
	30	30	50	50	20	0	0			
	60	30	50	50	20	0	0			

Reference: <u>Environmental Testing of Theatrical Fog Equipment: Cobra 1.8</u>, prepared by Ramboll for Look Solutions USA, October 2019.

	TIME-AND-DISTANCE GUIDELINES Look Solutions Cobra 1.8/Cryo-Gate with Cryo Fog Fluid										
Release Duration	Output Setting	CO <sub>2</sub>	Time (in sec) After Which Air Concentrations Are Belov Guidance Level (40mg/m <sup>3</sup> )								
Duration	(%)	Setting	Height Above Ground								
(secs)	( /0)		4 in	36 in	48 in						
15	70	Low	115	0	0	0	0				
30	70	Low	190	170	100	0	0				
60	70	Low	200	200	200	130	50				
15	70	Medium	195	125	125	0	0				
30	70	Medium	195	170	170	0	0				
60	70	Medium	280	190	190	0	0				
15	30	Medium	65	15	15	0	0				
30	30	Medium	65	15	15	0	0				
60	30	Medium	65	15	15	0	0				
Reference: <u>Envi</u> October 2019.	ronmental Test	ng of Theatrica	I Fog Equipment	<u>: Cobra 1.8</u> , prej	pared by Ramb	oll for Look So	lutions USA,				



### LOOK SOLUTIONS

	TIME-AND Look Solutions				d		
Release Duration	Time (in sec) Afte	er Which /	Air Concer (40 mg		Are Belov	v Guidanc	e Level
(secs)	Machine Setting	3 ft	9 ft	15ft	21 ft	27ft	33 ft
30	99	0	0	0	0	0	0
60		0	0	0	0	0	0
180		0	0	0	0	0	0
300		0	0	0	0	0	0
30	75	0	0	0	0	0	0
60		0	0	0	0	0	0
180		0	0	0	0	0	0
300		0	0	0	0	0	0
30	30	0	0	0	0	0	0
60		0	0	0	0	0	0
180		0	0	0	0	0	0
300		0	0	0	0	0	0
References: <u>Development</u> Low-Fogger, prepared by						nt: Look So	lutions

Letter from Look Solutions to ENVIRON International Corporation regarding Tiny-Compact, Tiny F07, Tiny C07, and Cryo-Fog, January 24, 2007

	TIME-AND-DISTANCE GUIDELINES Look Solutions Power Tiny Fogger with Tiny-Fluid									
Release Duration	Time (in sec	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )								
(sec)	1 ft									
15	0	0 0 0 0 0								
30	55	55 55 55 20 15								
60	60	60	60	50	20					
	Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment:</u> Look Solutions Power Tiny, prepared by ENVIRON International Corporation for Look Solutions,									



### LOOK SOLUTIONS

<u>Fime (in s</u>	sec) After V		TIME-AND-DISTANCE GUIDELINES Look Solutions Tiny-Fogger/Tiny F07 and Tiny-Compact/Tiny C07 with Tiny-Fluid Release Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )									
		which Air C	oncentratio	ons Are Belo	ow Guidanc	e Level (40	mg/m <sup>3</sup> )					
1 ft	2 ft	3 ft	4 ft	5 ft	6 ft	7 ft	8 ft					
33	33	10	0	0	0	0	0					
33	33	23	7	0	0	0	0					
57	57	57	57	20	20	20	0					
67	67	57	57	20	20	20	0					
	33 33 57 67	33         33           33         33           57         57           67         67	33         33         10           33         33         23           57         57         57           67         67         57	33         33         10         0           33         33         23         7           57         57         57         57           67         67         57         57	33         33         10         0         0           33         33         23         7         0           57         57         57         57         20           67         67         57         57         20	33         33         10         0         0         0           33         33         23         7         0         0           57         57         57         57         20         20           67         67         57         57         20         20	33         33         10         0					

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

Letter from Look Solutions to ENVIRON International Corporation regarding Tiny-Compact, Tiny F07, Tiny C07, and Cryo-Fog, January 24, 2007

TIME-AND-DISTANCE GUIDELINES Tiny FX with Tiny Fluid										
Release Duration		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )								
(secs)	Machine Setting	Machine Setting 1 ft 2 ft 3 ft 5 ft 7 ft								
5	NA	30	30	0	0	0				
10	NA	50	40	0	0	0				
20	NA	50	40	0	0	0				
30	NA	50	40	30	20	0				
Reference: Calibrati	on Factors and Time-And-	Distance Gu	idelines for	Use of Thea	trical Fog F	nuinment:				

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> <u>Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-</u> <u>Fog Fluid, and Unique 2.1 with Unique Fluid</u>, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.



### LOOK SOLUTIONS

	TIME-AND-DISTANCE GUIDELINES									
Release Duration		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )								
(secs)	Machine Setting	5 ft	7 ft							
5	High	0	0	0	0	0				
10	High	30	30	30	0	0				
20	High	30	30	30	0	0				
30	High	30	30	30	0	0				
45	High	30	30	30	0	0				
5	Low	0	0	0	0	0				
10	Low	0	0	0	0	0				
20	Low	30	20	0	0	0				
30	Low	30	20	0	0	0				
45	Low	30	20	0	0	0				
	n Factors and Time-And- id, Tiny S with Tiny Fluid,									

Fog Fluid, and Unique 2.1 with Unique Fluid, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.

	TIME-AND-DISTANCE GUIDELINES Unique 2.1 with Unique Fluid									
Release Duration		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )								
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft				
5	90%	30	0	0	0	0				
15	90%	30	0	0	0	0				
30	90%	30	0	0	0	0				
60	90%	30	0	0	0	0				
120	90%	30	0	0	0	0				
5	75%	0	0	0	0	0				
15	75%	30	0	0	0	0				
30	75%	30	0	0	0	0				
60	75%	30	0	0	0	0				
120	75%	30	0	0	0	0				
5	50%	0	0	0	0	0				
15	50%	0	0	0	0	0				
30	50%	0	0	0	0	0				
60	50%	0	0	0	0	0				
120	50%	0	0	0	0	0				
	on Factors and Time-And- iid, Tiny S with Tiny Fluid,									

<u>Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-</u> <u>Fog Fluid, and Unique 2.1 with Unique Fluid</u>, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.



### LOOK SOLUTIONS

<b>Release Duration</b>	Time (in sec) After Which Air Concentrations Are Below Guidance Leve (40 mg/m <sup>3</sup> )								
(secs)	Machine Setting	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft		
5	99	15	15	15	15	15	15		
15		30	30	30	30	30	28		
30		30	30	30	30	30	28		
45		30	30	30	30	30	28		
5	75	5	5	5	0	0	0		
15		10	10	10	10	5	0		
30		25	25	25	25	25	25		
60		40	40	40	40	40	15		
120		40	40	40	40	40	15		
180		40	40	40	40	40	15		
5	50	0	0	0	0	0	0		
15		0	0	0	0	0	0		
30		20	20	20	15	0	0		
60		20	20	20	20	0	0		
180	]	20	20	20	20	0	0		
30	25	0	0	0	0	0	0		
60	]	20	20	0	0	0	0		
180	]	20	20	0	0	0	0		



### LOOK SOLUTIONS

	TIME-AND-D Viper NT wi					
Release Duration	Time (in sec)	After Whio Guidance			ns Are Be	elow
(secs)	Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft
5	90%	30	0	0	0	0
15	90%	50	50	50	50	0
30	90%	50	50	50	50	30
45*	90%*	>300	>300	>300	>300	290
5	75%	0	0	0	0	0
15	75%	0	0	0	0	0
30	75%	0	0	0	0	0
60*	75%*	>300	>300	>300	>300	290
120*	75%*	>300	>300	>300	>300	>300
5	50%	0	0	0	0	0
15	50%	0	0	0	0	0
30	50%	0	0	0	0	0
60*	50%*	>120	>120	>120	>120	>120
120*	50%*	>200	>200	>200	>200	>200

Note: \*At this high machine setting and/or release duration, production-specific testing is recommended

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> <u>Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-</u> <u>Fog Fluid, and Unique 2.1 with Unique Fluid</u>, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.



### LOOK SOLUTIONS

	TIME-AND-D Viper NT v									
Release Duration	Time (in sec) /	After Whio Guidance			ns Are Be	elow				
(secs)	Machine Setting									
5	99%	80	80	80	80	80				
15	99%	110	110	110	110	110				
30	99%	110	110	110	110	110				
5	75%	50	50	50	0	0				
15	75%	50	50	0	0	0				
30	75%	50	50	0	0	0				
60	75%	50	50	0	0	0				
120	75%	50	50	0	0	0				
15	50%	0	0	0	0	0				
30	50%	0	0	0	0	0				
60	50%	0	0	0	0	0				
Tiny FX with Tiny Flu	n Factors and Time-And- id, Tiny S with Tiny Fluid, e 2.1 with Unique Fluid, p February 2014.	Viper NT w	ith Slow-Fo	<u>g Fluid, Vipe</u>	er NT with R	egular-				



### MARTIN by HARMAN

		ME AND DIS vith Froggy'								
Release Duration	Time (in sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Le (40 mg/m <sup>3</sup> )								
(secs)	Machine S	Setting	3 ft	5 ft	7 ft	10 ft	15 ft			
30	Fan 100	100%	0	0	0	0	0			
60	Fan 100	100%	0	0	0	0	0			
120	Fan 100	100%	0	0	0	0	0			
30	Fan 100	65%	0	0	0	0	0			
60	Fan 100	65%	0	0	0	0	0			
120	Fan 100	65%	0	0	0	0	0			
30	Fan 100	25%	0	0	0	0	0			
60	Fan 100	25%	0	0	0	0	0			
120	Fan 100	25%	0	0	0	0	0			
30	Fan 50	65%	0	0	0	0	0			
60	Fan 50	65%	0	0	0	0	0			
120	Fan 50	65%	0	0	0	0	0			
30	Fan 50	25%	0	0	0	0	0			
60	Fan 50	25%	0	0	0	0	0			
120	Fan 50	25%	0	0	0	0	0			
30	Fan 10	65%	0	0	0	0	0			
60	Fan 10	65%	0	0	0	0	0			
120	Fan 10	65%	0	0	0	0	0			
30	Fan 10	25%	0	0	0	0	0			
60	Fan 10	25%	0	0	0	0	0			
120	Fan 10	25%	0	0	0	0	0			

\*All fan speeds and output settings approximate. DMX controller was used during testing.

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.</u>



### MARTIN by HARMAN

		TIME-AND-	DISTANCE Magnum 20		ES					
Fluid	Release Duration	Machine Setting		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)						
	(secs)	Setting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft			
	5	Max	60	60	60	50	50			
	15	Max	70	70	60	50	50			
	30 <sup>+</sup>	Max	70	70	60	50	50			
Froggy's Fog Backwood Bay	30 <sup>±</sup>	Mid	60	60	10	0	0			
Fluid	60 <sup>‡</sup>	Mid	70	70	70	0	0			
	<sup>+</sup> Machine tu	at minimum rned off 17 s rned on and	econds into							
	5	Max	80	60	60	60	60			
	15	Max	80	70	70	70	60			
	30 <sup>+</sup>	Max	140	140	70	70	60			
Froggy's Fog Bog	5	Mid	60	60	60	40	0			
Fog Fluid	15	Mid	60	60	60	40	0			
	30 <sup>+</sup>	Mid	60	60	60	40	0			
	* No output at minimum setting. <sup>†</sup> Machine turned off 18 seconds into run.									
	30	Max	20	20	20	0	0			
	60 <sup>+</sup>	Max	20	20	20	10	10			
	120 <sup>+</sup>	Max	30	30	30	10	10			
Froggy's Fog	30 <sup>+</sup>	Mid	20	20	20	0	0			
Velocity Fluid	60 <sup>+</sup>	Mid	20	20	20	0	0			
	120 <sup>+</sup>	Mid	20	20	20	0	0			
		* No output at minimum setting. <sup>†</sup> Machine turned off after 20 seconds.								
	30	Max	20	20	20	0	0			
	60 <sup>+</sup>	Max	20	20	20	10	10			
	120 <sup>+</sup>	Max	30	30	30	10	10			
Froggy's Fog Cryo	30 <sup>+</sup>	Mid	20	20	20	0	0			
Freeze Fluid	60 <sup>+</sup>	Mid	20	20	20	0	0			
	120 <sup>+</sup>	Mid	20	20	20	0	0			
	-	: at minimum rned off after	-	5.						



### MARTIN by HARMAN

TIME-AND-DISTANCE GUIDELINES Magnum 2000										
Fluid	Release Duration	Machine	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )							
	(secs)	Setting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft			
	30	Max	20	20	20	0	0			
	60 <sup>+</sup>	Max	20	20	20	10	10			
	120 <sup>+</sup>	Max	30	30	30	10	10			
Froggy's Fog Quick	30 <sup>+</sup>	Mid	20	20	20	0	0			
Blast Fluid	60 <sup>+</sup>	Mid	20	20	20	0	0			
	120 <sup>+</sup>	Mid	20	20	20	0	0			
		at minimum rned off after	-	5.						
Reference: <u>Calibratio</u> Fog/K-razy Haze/Train Blast/Training Smoke Fog, prepared by ENV	ning Smoke X Q, Techno Fo	D, Backwood E g/Beam Splitte	Bay/Faze Haze er, Neutronic	e/Training Sm Haze, DaFiddy	oke FR, Veloc /, Swamp Juic	ity/Cryo Free	<u>ze/Quick</u>			



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### MARTIN by HARMAN

Fluid	Release Duration	Machine	•	sec) After V low Guidar			
	(secs)	Setting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft
	5	10	20	20	0	0	0
	15	10	20	20	10	0	0
	30	10	20	20	10	0	0
	30	6.5	20	10	0	0	0
Froggy's Fog Velocity Fluid	60*	6.5	20	10	0	0	0
velocity i luiu	120*	6.5	20	20	0	0	0
	60*	2.5	10	0	0	0	0
	120*	2.5	20	20	0	0	0
	*Machine had	reduced outp	out volume a	after 30 secc	onds.		·
	5	10	20	20	0	0	0
	15	10	20	20	10	0	0
	30	10	20	20	10	0	0
	30	6.5	20	10	0	0	0
Froggy's Fog Cryo Freeze Fluid	60*	6.5	20	10	0	0	0
	120*	6.5	20	20	0	0	0
	60*	2.5	10	0	0	0	0
	120*	2.5	20	20	0	0	0
	*Machine had	reduced outp	out volume a	fter 30 seco	onds.		
	5	10	20	20	0	0	0
	15	10	20	20	10	0	0
	30	10	20	20	10	0	0
	30	6.5	20	10	0	0	0
Froggy's Fog Quick Blast Fluid	60*	6.5	20	10	0	0	0
	120*	6.5	20	20	0	0	0
	60*	2.5	10	0	0	0	0
	120*	2.5	20	20	0	0	0
eference: <u>Calibratic</u> og/K-razy Haze/Trai		Time-And-Dista	nce Guideline	s for Use of T	heatrical Fog		

Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



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### MARTIN by HARMAN

		TIME-	AND-DISTA ZR-	NCE GUIDEL ·44	INES						
Fluid	Release Duration	Machine Setting	Time (in s	Time (in sec) After Which Air Concentrations Are Belov Guidance Level (40 mg/m <sup>3</sup> )							
	(secs)	Setting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft				
	5	10	50	30	30	0	0				
	15	10	50	40	30	20	30				
	30	10	60	60	60	40	40				
Froggy's Fog	30	7	60	60	60	40	40				
Backwood Bay	60	7	60	60	60	40	40				
Fluid	120*	7	110	60	60	40	40				
	60	3	30	10	0	0	0				
	120	3	110	20	0	0	0				
				e after 75 sec	conds.						
	5	10	30	30	20	0	0				
	15	10	50	50	20	20	0				
	30	10	60	60	40	30	20				
	30	7	50	50	40	30	20				
Froggy's Fog	60*	7	50	50	40	30	20				
Bog Fog Fluid - 	120*	7	60	50	40	30	20				
	60	3	50	50	30	0	0				
	120	3	60	50	30	0	0				
	Machine had reduced output volume after 45 seconds										
	30	10	20	10	10	0	0				
	60*	10	20	10	10	0	0				
	120*	10	20	10	10	0	0				
	30	7	20	10	10	0	0				
Froggy's Fog	60	7	20	10	10	0	0				
Velocity Fluid	120 <sup>+</sup>	7	20	10	10	0	0				
	60	3	10	0	0	0	0				
	120	3	10	0	0	0	0				
				e after 45 sec							
				adually throug			0				
	30	10	20	10	10	0	0				
	60*	10	20	10	10	0	0				
	120*	10	20	10	10	0	0				
Froggy's Fog	30	7	20	10	10	0	0				
Cryo Freeze	60	7	20	10	10	0	0				
Fluid	120 <sup>+</sup>	7	20	10	10	0	0				
	60	3	10	0	0	0	0				
	120	3	60	50	30	0	0				
			-	e after 45 sec adually throug							
Froggy's Fog	30	10	20	10	10	0	0				
Quick Blast	60*	10	20	10	10	0	0				
Fluid	120*	10	20	10	10	0	0				



### MARTIN by HARMAN

		TIME-/	AND-DISTAN ZR-		INES					
Fluid	Release Duration Setting		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )							
	(secs)	Setting	5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft			
	30	7	20	10	10	0	0			
	60	7	20	10	10	0	0			
	120 <sup>+</sup>	120 <sup>+</sup> 7 20 10 10 0 0								
	60	3	3 10 0 0 0 0							
	120	3	60	50	30	0	0			
			utput volume reduced gra							
Reference: <u>Calib</u> razy Haze/Trainin Blast/Training Sr Fog, prepared by	ng Smoke XD, noke Q, Techr	<u>Backwood Ba</u> To Fog/Beam S	<u>y/Faze Haze/T</u> Splitter, Neutro	raining Smoke nic Haze, DaFi	FR, Velocity/C ddy, Swamp Ju	ryo Freeze/Qu	iick			



### **MDG FOG GENERATORS**

TIME-AND-DISTANCE GUIDELINES MDG Atmosphere APS with Neutral Fluid										
Release (25 mg/m <sup>3</sup> )										
Duration (sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft				
40	190	190	120	0	0	0				
seconds off at distar	40       190       120       0       0       0         Note: The MDG Atmosphere can be used in a "cycle cuing" mode, alternating between 40 seconds on and 100 seconds off at distances of 12 feet or further from the release point. Multiple machines can be run simultaneously provided they are at least 12 feet apart.									

Reference: <u>Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze</u>, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.

TIME-AND-DISTANCE GUIDELINES MDG MAX 3000 APS with Neutral Fluid										
Release DurationTime (in sec) After Which Air Concentrations Are Below Guidance Level (25 mg/m³)										
(sec)	3 ft									
40	100	100	100	100	100	0				
Reference: <u>Equipr</u> International Corpo	<u>ment-Based Guid</u> oration for the E	delines for the U quity-League Pe	se of Theatrical ension and Healt	Smoke and Haze h Trust Funds, J	e, prepared by E une 8, 2001.	NVIRON				

TIME-AND-DISTANCE GUIDELINES MDG Mini Max with Dense Fluid													
Release         Machine         Time (in sec) After Which Air Concentrations Are Below           Duration         Satting         Guidance Level (40 mg/m³)													
(sec)	Setting	atting         3 ft         6 ft         9 ft         12 ft         15 ft         18 ft											
15	Full	150	80	50	0	0	0						
15	Medium	130	40	40	0	0	0						
						Reference: Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.							



### **NEW RULE FX**

TIME-AND-DISTANCE GUIDELINES Electronic Actor Cigarette Prop with Cartridge Fluid								
Strength of "drag"	Speed of exhale	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> ) at a distance of 1 ft.						
Weak	Medium	0						
Medium	Medium	0						
Strong	Medium	10						
Medium	Slow	0						
Medium	Fast	0						
Strong	Slow	0						
Strong	Fast	30						

Note: Testing of e-cigarette and related products is limited to second hand exposure after being exhaled by the user; the initial amount inhaled directly from the product was not measured.

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: New</u> <u>Rule FX Electronic Actor Cigarette Prop with Cartridge Fluid</u>, prepared by ENVIRON International Corporation for New Rule Productions Inc. and Foresight Theatrical, October 2014.



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#### **PURE SMOKE**

TIME-AND-DISTANCE GUIDELINES Pure Smoke Electronic Cigarette/ Electronic Cigarette Flavors								
# of "drags" on electronic cigarette before exhalation	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³) at a distance of 1 ft.							
1 0								
2 0								
3 3								
Notes: It should be noted that ENVIRON's testing was limited to glycols and glycerol. According to the manufacturer, these props also contain between 11 and 18 milligrams of nicotine. Potential health effects associated with potential exposures to nicotine are not within the scope of ENVIRON's review.								
Testing of e-cigarette and related products is limited to second hand exposure after being exhaled by the user; the initial amount inhaled directly from the product was not measured.								
Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Pure</u> <u>Smoke Electronic Cigarette with Electronic Cigarette Flavors</u> , prepared by ENVIRON International Corporation for Clear Day Broadway LLC, January 2012.								

Clear Day Broadway LLC, January 2012.



### **REEL EFX, INC.**

TIME-AND-DISTANCE GUIDELINES DF-50										
Fluid	ReleaseTime (in sec) After Which Air Concentrations Are BeloDurationGuidance Level (25 mg/m³)							elow		
	(sec)	3 ft	5-6 ft	7 ft	9-10 ft	12 ft	15 ft	18 ft		
Diffusion Fluid	40	0	0	-	0	0	0	0		
	5	10	0	0	0	-	0	-		
Froggy's Fog	15	10	0	0	0	-	0	-		
DaFiddy Fluid – Oil Based Haze	30	10	10	0	0	-	0	-		
	60	10	10	0	0	-	0	-		
	120	10	10	0	0	_	0	_		

Note: The DF-50 can be used in a "cycle cuing" mode, alternating between 40 seconds on and 100 seconds off at all distances from the release point.

References: Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001. <u>Calibration Factors</u> and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



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### **ROBE LIGHTING S.R.O**

TIME-AND-DISTANCE GUIDELINES Robe Fog 1550 FT										
Fluid	Machine	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )							
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft			
	100%	5	40	40	40	40	0			
	100%	15	70	70	70	50	40			
	100%	30	70	70	70	50	40			
	65%	30	50	40	40	40	0			
Froggy's Fog Backwood Bay	65%	60	70	70	40	40	0			
Fluid	65%	120*	70	70	40	40	0			
	25%	60	60	50	30	0	0			
	25%	120	60	50	30	0	0			
	*Machine ran for 37 second		output volun	ne after 45	seconds, n	nachine tur	ned off			
	100%	5	40	40	40	40	0			
	100%	15	70	70	70	50	40			
	100%	30	70	70	70	50	40			
Froggy's Fog	65%	30	50	40	40	40	0			
Amusement Park	65%	60	70	70	40	40	0			
Fluid	65%	120*	70	70	40	40	0			
	25%	60	60	50	30	0	0			
	25%	120	60	50	30	0	0			
	*Machine ran at reduced output volume after 45 seconds, machine turned off for 37 seconds during run									
	100%	5	40	30	0	0	0			
	100%	15	50	30	0	0	0			
	100%	30	80	80	70	30	0			
	65%	30	80	60	50	0	0			
Froggy's Fog Bog	65%	60*	80	60	50	30	10			
Fog Fluid	65%	120*	80	60	50	30	10			
	25%	60	80	40	0	0	0			
	25%	120 <sup>+</sup>	80	40	0	0	0			
	*Machine runs at reduced output volume after 25 seconds †Machine runs at reduced output volume after 4 seconds									
	100%	5	0	0	0	0	0			
	100%	15	20	0	0	0	0			
	100%	30*	20	20	0	0	0			
Froggy's Fog	65%	30	20	10	0	0	0			
Velocity Fluid	65%	60	20	10	0	0	0			
,	65%	120	20	10	0	0	0			
	25%	60	0	0	0	0	0			
	25%	120	0	0	0	0	0			
	23%	120	U	U	U	U	U			



### **ROBE LIGHTING S.R.O**

TIME-AND-DISTANCE GUIDELINES Robe Fog 1550 FT											
Fluid	Machine Setting	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )								
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft				
	*Machine ran at reduced output volume after 20 seconds										
	100%	5	0	0	0	0	0				
	100%	15	20	0	0	0	0				
	100%	30*	20	20	0	0	0				
	65%	30	20	10	0	0	0				
Froggy's Fog Cryo Freeze Fluid	65%	60	20	10	0	0	0				
Ci yo Freeze Fluiu	65%	120	20	10	0	0	0				
	25%	60	0	0	0	0	0				
	25%	120	0	0	0	0	0				
	*Machine ran at reduced output volume after 20 seconds										
	100%	5	0	0	0	0	0				
	100%	15	20	0	0	0	0				
	100%	30*	20	20	0	0	0				
_ / _	65%	30	20	10	0	0	0				
Froggy's Fog Quick Blast Fluid	65%	60	20	10	0	0	0				
QUICK DIASET IUIU	65%	120	20	10	0	0	0				
	25%	60	0	0	0	0	0				
	25%	120	0	0	0	0	0				
	*Machine ran	at reduced of	output volun	ne after 20	seconds						
Reference: <u>Calibratic</u> Fog/K-razy Haze/Tra Blast/Training Smoke Light Fog, prepared b	ining Smoke XD, e Q, Techno Fog/	, Backwood Ba 'Beam Splitter,	<u>y/Faze Haze/</u> Neutronic Ha	Training Smo aze, DaFiddy	oke FR, Velo /, Swamp Ju	city/Cryo Fre	eze/Quick				



### **ROSCO LABORATORIES**

TIME-AND-DISTANCE GUIDELINES Rosco Model 1500/1600										
Fluid	Machine	Release Duration	Time (i	in sec) After Which Air Concentrations Ar Below Guidance Level (40 mg/m <sup>3</sup> )						
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft		
Rosco Clear Fog	Full	15	230	150	60	0	0	0		
Fluid	Medium	15	230	70	60	0	0	0		
Deese Fee Fluid	Full	15	170	100	80	40	40	40		
Rosco Fog Fluid	Medium	15	170	100	80	40	40	40		
Rosco Light Fog	Full	15	150	70	70	70	60	50		
Fluid	Medium	15	150	50	50	50	50	50		
Rosco Stage &	Full	15	80	80	50	40	40	40		
Studio Fluid	Medium	15	80	80	40	30	30	30		
Reference: Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.										



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### **ROSCO LABORATORIES**

TIME-AND-DISTANCE GUIDELINES Rosco Model 1750											
Fluid	Machine Setting	Release Duration	Duration Guidance Level ( 40 mg/n								
	Setting	(secs)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft			
	100%	5	45	45	30	10	0	0			
		15	45	45	45	45	35	20			
		30	50	45	45	45	40	30			
	60%	5	60	60	60	0	0	0			
Rosco Fog		15	60	60	60	50	10	0			
Fluid		30	70	70	70	70	10	0			
	30%	15	25	0	0	0	0	0			
		30	30	30	0	0	0	0			
		60	40	30	5	0	0	0			
		180	40	30	5	0	0	0			
	100%	15	25	25	20	15	0	0			
		30	25	25	25	20	20	0			
		45	30	30	30	30	20	0			
Rosco Stage	60%	15	15	15	10	10	0	0			
& Studio		30	20	20	20	12	0	0			
Fluid		45	35	35	35	20	0	0			
Ē	30%	15	10	5	0	0	0	0			
		30	10	5	0	0	0	0			
		45	20	5	0	0	0	0			
Reference: <u>Deve</u> prepared by ENVI						e Equipment	: Rosco Mod	el 1750,			



### **ROSCO LABORATORIES**

TIME-AND-DISTANCE GUIDELINES Rosco Alpha 900										
Fluid         Machine Sotting         Release Duration         Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )										
	Setting	ing (sec) 3 ft 6 ft 9 ft 12 ft 15 ft 18								
Rosco Fog Fluid	On	15	220	220	180	180	160	110		
Rosco Stage & Studio Fluid	On	15	140	140	140	130	50	30		
Reference: Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.										



#### **ROSCO LABORATORIES**

	TIME-AND-DISTANCE GUIDELINES Rosco Delta 3000 (100% and 50% Settings)								
Fluid	Machine Setting	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )						
	Setting	(sec)	5 ft	10 ft	15 ft	20 ft	25 ft	30 ft	
Rosco Clear Fog Fluid	100%	30	215	215	215	215	215	115	
Rosco Clear Fog Fluid	50%	30	88	88	88	88	88	70	
Deese Fee Fluid	100%	30	157	157	157	87	87	87	
Rosco Fog Fluid	50%	30	94	94	94	57	56	44	
Rosco Light Fog Fluid	100%	30	63	63	63	53	53	53	
Rosco Light Fog Fluid	50%	30	60	10	0	0	0	0	
Rosco Stage & Studio	100%	30	53	53	53	53	53	53	
Fluid	50%	30	50	33	33	28	28	23	
Reference: <u>Development</u> <u>3000</u> , prepared by ENVIR							nt: Rosco [	<u>)elta</u>	

TIME-AND-DISTANCE GUIDELINES Rosco Delta 3000 (10% Setting)								
Fluid	Machine Setting	Release Duration	Time (in sec) After Which A Concentrations Are Below Guid Level (40 mg/m <sup>3</sup> )					
	J	(sec)	3 ft	6 ft	9 ft	12 ft	18 ft	
Rosco Clear Fog Fluid	10%	60	130	130	130	130	73	
Rosco Fog Fluid	10%	60	58	0	58	58	0	
Rosco Light Fog Fluid	10%	60	30	0	0	0	0	
Rosco Stage & Studio Fluid         10%         60         63         13         13         0				0				
Reference: <u>Development of Time-an</u> <u>3000</u> , prepared by ENVIRON Interna						nt: Rosco D	<u>)elta</u>	



#### **ROSCO LABORATORIES**

	TIME-AND-DISTANCE GUIDELINES Rosco Delta Hazer with Delta Hazer Fluid							
Release Duration	Time (in sec) Afte	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )						
(secs)	Machine Setting	3 ft	6 ft	12 ft	15 ft	21 ft	27 ft	
30	100	0	0	0	0	0	0	
60		0	0	0	0	0	0	
300		0	0	0	0	0	0	
600		0	0	0	0	0	0	
30	50	0	0	0	0	0	0	
60		0	0	0	0	0	0	
300		0	0	0	0	0	0	
600		Х	Х	Х	Х	Х	Х	
60	30	0	0	0	0	0	0	
300		Х	Х	Х	Х	Х	Х	
600		Х	Х	Х	Х	Х	Х	
Note: X = not tested, but Reference: Development						-	)elta Hazer.	

Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Rosco Delta Hazer</u>, prepared by ENVIRON International Corporation for Rosco Laboratories, August 2006

TIME-AND-DISTANCE GUIDELINES Mini-V with Rosco Fog Fluid								
Release Duration		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )						
(secs)	Machine Setting	lachine Setting 5 ft 10 ft 15 ft 20 ft 25 ft						
S5	On	40	0	0	0	0		
15	On	80	30	0	0	0		
30	On	80	30	0	0	0		
60	On	80	40	0	0	0		
120	On	80	40	0	0	0		
Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> <u>Vapour with Rosco Stage &amp; Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage &amp;</u> <u>Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage &amp; Studio Fluid, Mini-V with</u> <u>Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid</u> , prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.								



#### **ROSCO LABORATORIES**

TIME-AND-DISTANCE GUIDELINES Mini-V with Rosco Stage and Studio Fluid							
Release Duration		Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)					
(secs)	Machine Setting	8 ft	11 ft	15 ft	20 ft	25 ft	
5	On	15	0	0	0	0	
10	On	15	15	0	0	0	
30	On	15	15	0	0	0	
60	On	15	15	0	0	0	
120	On	20	15	0	0	0	

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.

TIME-AND-DISTANCE GUIDELINES Rosco PF-1000								
Fluid	Machine	Release Duration						
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft
Docco Fog Fluid	Full	15	60	40	0	0	0	0
Rosco Fog Fluid	Medium	15	60	0	0	0	0	0
Rosco Stage &	Full	15	100	70	60	60	0	0
Studio Fluid	Medium	15	100	70	0	0	0	0
Reference: Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.								



#### **ROSCO LABORATORIES**

	TIME-AND-D V-Hazer	ISTANCE with V-Ha		IES		
Release	Time (in sec)				ns Are Be	low
Duration (secs)	Machine Setting	Suidance 5 ft	Level (40 10 ft	mg/m³) 15 ft	20 ft	25 ft
5	100%	0	0	0	0	0
10	100%	0	0	0	0	0
30	100%	0	0	0	0	0
60	100%	0	0	0	0	0
120	100%	0	0	0	0	0
5	75%	0	0	0	0	0
10	75%	0	0	0	0	0
30	75%	0	0	0	0	0
60	75%	0	0	0	0	0
120	75%	0	0	0	0	0
5	50%	0	0	0	0	0
10	50%	0	0	0	0	0
30	50%	0	0	0	0	0
60	50%	0	0	0	0	0
120	50%	0	0	0	0	0
5	25%	0	0	0	0	0
10	25%	0	0	0	0	0
30	25%	0	0	0	0	0
60	25%	0	0	0	0	0
120	25%	0	0	0	0	0
Vapour with Rosco Si Studio Fluid, Vapour Rosco Fog Fluid, and	Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.					



#### **ROSCO LABORATORIES**

Release Duration	Time (in sec) Afte		osco Fog Air Conceı (40 mg	ntrations	Are Below	v Guidanc	e Leve
(secs)	Machine Setting	5 ft	8 ft	10-12 ft	15-16 ft	20 ft	25 f
5	100%	-	80	40	0	0	0
15	100%	-	80	40	0	0	0
30	100%	-	80	40	0	0	0
60	100%	-	80	40	10	0	0
5	75%	-	50	50	0	0	0
15	75%	-	60	50	0	0	0
30	75%	-	60	50	0	0	0
60	75%	-	90	50	30	10	0
5	50%	60	-	50	0	0	0
15	50%	60	-	50	0	0	0
30	50%	60	-	50	0	0	0
60	50%	60	-	50	20	0	0
120	50%	-	10	0	0	0	0
5	25%	50	-	0	0	0	0
15	25%	50	-	0	0	0	0
30	25%	60	-	0	0	0	0
60	25%	60	-	0	0	0	0
120	25%	60	-	0	0	0	0

Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.



#### **ROSCO LABORATORIES**

	TIME-AND-D Vapour with Ros					
Release	Time (in sec)	After Whie	ch Air Con	centratio	ns Are Be	low
Duration (secs)	Machine Setting	Guidance 8 ft	Level (40 11 ft	mg/m³) 15 ft	20 ft	25 ft
5	100%	10	10	10	0	0
10	100%	15	10	10	0	0
30	100%	15	10	10	0	0
60	100%	25	10	10	0	0
120	100%	30	10	10	0	0
5	75%	10	0	0	0	0
10	75%	15	10	0	0	0
30	75%	15	10	0	0	0
60	75%	15	10	0	0	0
120	75%	30	10	0	0	0
5	50%	10	0	0	0	0
10	50%	15	0	0	0	0
30	50%	15	0	0	0	0
60	50%	15	0	0	0	0
120	50%	20	0	0	0	0
5	25%	0	0	0	0	0
10	25%	10	0	0	0	0
30	25%	10	0	0	0	0
60	25%	15	0	0	0	0
120	25%	15	0	0	0	0
Vapour with Rosco Si Studio Fluid, Vapour Rosco Fog Fluid, and	Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage & Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Fog Fluid, Mini-V with Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.					



#### **ROSCO LABORATORIES**

			NCE GUID Rosco Fo				
Release Duration	Time (in sec) Afte			ntrations	Are Belov	v Guidanc	e Level
(secs)	Machine Setting	5 ft	8 ft	12 ft	16 ft	20 ft	25 ft
5	100%	-	80	80	80	80	70
15	100%	-	100	100	100	100	70
30	100%	-	100	100	100	100	90
60	100%	-	180	100	100	100	90
5	75%	-	70	70	60	40	10
15	75%	-	100	100	100	100	50
30	75%	-	100	100	100	100	90
60	75%	-	100	100	100	100	90
5	50%	70	-	50	0	0	0
15	50%	70	-	50	30	0	0
30	50%	70	-	50	30	0	0
60	50%	90	-	50	30	0	0
5	25%	0	-	0	0	0	0
15	25%	0	-	0	0	0	0
30	25%	0	-	0	0	0	0
60	25%	0	-	0	0	0	0
with Rosco Stage & S	on Factors and Time-And- Studio Fluid, Vapour with sco Fog Fluid, Mini-V with	Rosco Fog F	luid, Vapou	r Plus with F	Rosco Stage	& Studio Fl	uid,

Hazer with V-Hazer Fluid, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.



#### **ROSCO LABORATORIES**

	TIME-AND-D Vapour Plus with R					
Release Duration	Time (in sec)		ch Air Con	centratio	ns Are Be	low
(secs)	Machine Setting	8 ft	11 ft	15 ft	20 ft	25 ft
5	100%	35	15	15	15	0
10	100%	35	20	15	15	0
30	100%	35	25	25	15	15
60	100%	35	30	30	30	30
120*	100%	240	240	160	160	105
5	75%	35	15	15	0	0
10	75%	35	20	15	10	0
30	75%	35	25	25	10	0
60	75%	35	30	30	25	25
120*	75%	240	240	160	160	105
5	50%	20	15	15	0	0
10	50%	20	15	15	10	0
30	50%	30	20	20	10	0
60	50%	35	30	30	15	15
120	50%	240	240	160	95	90
5	25%	20	0	0	0	0
10	25%	20	0	0	0	0
30	25%	20	0	0	0	0
60	25%	20	5	0	0	0
120	25%	45	5	0	0	0

\* Machine shut off two times for approximately 30 seconds total within the 120-second testing timespan

Reference: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment:</u> <u>Vapour with Rosco Stage & Studio Fluid, Vapour with Rosco Fog Fluid, Vapour Plus with Rosco Stage &</u> <u>Studio Fluid, Vapour Plus with Rosco Fog Fluid, Mini-V with Rosco Stage & Studio Fluid, Mini-V with</u> <u>Rosco Fog Fluid, and V-Hazer with V-Hazer Fluid</u>, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2014.</u>



#### **SMOKE IN STYLE**

Smo		D-DISTANCE GUIDELINES ic Pipe Prop with FeelLife E-Liquid Fluid
Strength of Drag	Speed of Exhale	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> ) at a distance of 1 ft.
Weak	Slow	0
Weak	Medium	0
Weak	Fast	0
Medium	Slow	0
Medium	Medium	0
Medium	Fast	80
Strong	Slow	0
Strong	Medium	0
Strong	Fast	80

Notes: It should be noted that ENVIRON's testing was limited to glycols and glycerol. According to the manufacturer, these props also contain between 0 and 16 milligrams of nicotine. Potential health effects associated with potential exposures to nicotine are not within the scope of ENVIRON's review.

Testing of e-cigarette and related products is limited to second hand exposure after being exhaled by the user; the initial amount inhaled directly from the product was not measured.

Reference: <u>Environmental Testing of Theatrical Equipment: Smoke In Style Electronic Pipe Prop with FeelLife E-</u> <u>Liquid</u>, prepared by Ramboll Environ US Corporation the Oregon Shakespeare Festival, May 2015.



TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects G100										
Fluid	Machine	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )							
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft		
Extra Quick Dissipating Fluid	On	15	100	40	40	40	30	30		
Quick Dissipating Fluid	On	15	150	150	40	40	30	30		
Director's Choice Fluid	On	15	150	30	30	0	0	0		
Reference: Equipment-Based Guidelines for the Use of Theatrical Smoke and Haze, prepared by ENVIRON International Corporation for the Equity-League Pension and Health Trust Funds, June 8, 2001.										

TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects G150										
Fluid	Machine	Release Duration	Time (in sec) After Which Air Concentrations A Below Guidance Level (40 mg/m <sup>3</sup> )							
	Setting	(sec)	3 ft	6 ft	9 ft	12 ft	15 ft	18 ft		
Extra Quick	Full	15	50	40	40	30	30	30		
Dissipating Fluid	Medium	15	50	0	0	0	0	0		
Molecular Fog	Full	15	90	50	40	0	0	0		
Fluid	Medium	15	90	0	0	0	0	0		
Quick Dissipating	Full	15	60	60	40	0	0	0		
Fluid	Medium	15	60	0	0	0	0	0		
Director's Choice	Full	15	110	80	70	70	0	0		
Fluid	Medium	15	60	50	50	0	0	0		
References: <u>Equipme</u> International Corporat								DN		



		TIME-	AND-DISTAN Ultratec		LINES					
Fluid	Release Duration	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )							
	(secs)		5 ft	10 ft	15 ft	20 ft	25 ft			
	15*	100%	90	90	90	30	0			
	30	100%	90	90	90	60	0			
	30	65%	50	50	50	0	0			
Froggy's Fog	60	65%	100	60	60	30	0			
Backwood Bay	120 <sup>+</sup>	65%	100	60	60	30	0			
Fluid	60	25%	100	60	30	30	0			
	120 <sup>+</sup>	25%	100	60	30	30	0			
			ds to release ed output vol	-	tton is presse 0 seconds	d				
	15*	100%	90	90	90	30	0			
	30	100%	90	90	90	60	0			
	30	65%	50	50	50	0	0			
Froggy's Fog	60	65%	100	60	60	30	0			
Amusement	120 <sup>+</sup>	65%	100	60	60	30	0			
Park Fluid	60	25%	100	60	30	30	0			
	120 <sup>+</sup> 25% 100 60 30 30 0									
	*Machine takes 6 seconds to release fog after button is pressed <sup>+</sup> Machine runs at reduced output volume after 60 seconds									
	15*	100%	50	50	50	50	50			
	30	100%	60	60	60	60	60			
	30	65%	60	60	60	60	60			
	60	65%	70	70	60	60	60			
Froggy's Fog	120 <sup>+</sup>	65%	70	70	60	60	60			
Bog Fog Fluid	60	25%	60	0	0	0	0			
	120 <sup>+</sup>	25%	60	0	0	0	0			
	*Machine takes 6 seconds to release fog after button is pressed † Machine runs at significantly reduced output volume after 80 seconds									
							0			
	15* 30	100% 100%	30 40	30 40	0 30	0 20	0 20			
	30	65%	30	20	0	20	0			
	60	65%	30	30	0	0	0			
Froggy's Fog	120 <sup>+</sup>	65%	30	30	0	0	0			
Velocity Fluid	60	25%	30	0	0	0	0			
	120 <sup>+</sup>	25%	30	0	0	0	0			
	*Machine ta	akes 6 secon	ds to release	fog after bu	tton is presse	d	0			
			· · ·		ume after 80		0			
Froggy's Fog	15*	100%	30	30	0	0	0			
Cryo Freeze	30	100%	40	40	30	20	20			
Fluid	30	65%	30	20	0	0	0			
	60	65%	30	30	0	0	0			



### **ULTRATEC SPECIAL EFFECTS**

TIME-AND-DISTANCE GUIDELINES Ultratec G-3000										
Fluid	Release Duration	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m³)							
	(secs)	Setting	5 ft	10 ft	15 ft	20 ft	25 ft			
	120 <sup>+</sup>	65%	30	30	0	0	0			
	60	25%	30	0	0	0	0			
	120 <sup>+</sup>	25%	30	0	0	0	0			
	*Machine takes 6 seconds to release fog after button is pressed <sup>†</sup> Machine runs at significantly reduced output volume after 80 seconds									
	15*	100%	30	30	0	0	0			
	30	100%	40	40	30	20	20			
	30	65%	30	20	0	0	0			
Froggy's Fog	60	65%	30	30	0	0	0			
Quick Blast	120 <sup>+</sup>	65%	30	30	0	0	0			
Fluid	60	25%	30	0	0	0	0			
	120 <sup>+</sup>	25%	30	0	0	0	0			
*Machine takes 6 seconds to release fog after button is pressed <sup>†</sup> Machine runs at significantly reduced output volume after 80 seconds										
Fog/K-razy Haze Blast/Training Sr	References: <u>Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog</u> Fog/K-razy Haze/Training Smoke XD, Backwood Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.									



TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects LSG MKII-PFi9D with Molecular Fog Fluid										
Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )									
(secs)	Machine Setting	3 ft	6 ft	12ft	18 ft	30 ft				
30	100	0	0	0	0	0				
60		0	0	0	0	0				
120		0	0	0	0	0				
300		0	0	0	0	0				
30	50	0	0	0	0	0				
60		0	0	0	0	0				
120		0	0	0	0	0				
300		Х	Х	Х	Х	Х				
30	10	0	0	0	0	0				
60		0	0	0	0	0				
120		0	0	0	0	0				
300		Х	Х	Х	Х	Х				
Note: X = not tested, but results are expected to be comparable to those at the 100% machine setting Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Le</u> <u>Maitre LSG-MKII with Power Fog Industrial 9D (PFi9D) Low Smoke Generator</u> , prepared by ENVIRON International Corporation for Le Maitre Special Effects, August 2006.										



TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects Radiance Hazer													
Fluid	Release Duration	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m³)											
Thata	(secs)	Fan speed/ Haze output	3-4 ft	6 ft	8-9 ft	12 ft	15-16 ft	18 ft	20 ft				
	30	100/100	5	5	5	5	0	0	-				
Neutron/	60		10	10	10	10	10	0	-				
Luminous	180		10	10	10	10	10	0	-				
7 Haze	300		10	10	10	10	10	0	-				
Fluid	180	50/100	0	0	0	0	0	0	-				
	300		Х	Х	Х	Х	Х	Х	-				
	30	9/9	20	-	20	20	20	-	20				
	60		20	-	20	20	20	-	20				
	120		30	-	30	30	30	-	30				
	60	9/1	10	-	0	0	0	-	0				
Froggy's	120		30	-	30	0	0	-	0				
Fog Neutronic	30	5/9	20	-	20	0	0	-	0				
Haze Fluid	60		40	-	40	40	0	-	0				
	120		40	-	40	40	0	-	0				
	30	1/9	0	-	0	0	0	-	0				
	60		30	-	0	0	0	-	0				
	120		30	-	0	0	0	-	0				

Note: X = not tested, but results are expected to be comparable to those at the 180 second duration.

References: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Le Maitre Radiance</u> <u>Hazer</u>, prepared by ENVIRON International Corporation for Le Maitre Special Effects, August 2006. <u>Calibration Factors and</u> <u>Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD, Backwood</u> <u>Bay/Faze Haze/Training Smoke FR, Velocity/Cryo Freeze/Quick Blast/Training Smoke Q, Techno Fog/Beam Splitter,</u> <u>Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog</u>, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.

