

# THEATRICAL SMOKE, FOG, AND HAZE TESTING TIME AND DISTANCE GUIDELINES

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 Environ (formerly ENVIRON) developed Time-and-Distance (T&D) Guidelines as an alternative to conducting theater- and 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:**

Alan Kao, Principal  
Ramboll Environ US Corporation  
3 Carlisle Road, Suite 210  
Westford, MA 01886  
978.449.0324  
akao@environcorp.com  
[www.ramboll-environ.com](http://www.ramboll-environ.com)

Disclaimer: These guidelines do not represent an endorsement of any equipment-fluid combination by Ramboll Environ. 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.

<b>INDEX</b>			
<b>TIME-AND-DISTANCE GUIDELINES</b>			
<b>Manufacturer</b>	<b>Machine</b>	<b>Fluid</b>	<b>Page</b>
American DJ (ADJ)	Fog Fury 3000	Froggy's Fog Backwood Bay Fluid	7
		Froggy's Fog Bog Fog Fluid	7
		Froggy's Fog Velocity Fluid	7
		Froggy's Fog Cryo Freeze Fluid	7
		Froggy's Fog Quick Blast Fluid	7
	Fog Storm 1700 HD	Froggy's Fog Velocity Fluid	7
		Froggy's Fog Cryo Freeze Fluid	7
		Froggy's Fog Quick Blast Fluid	7
Antari	1520 RGB Upshot	Froggy's Fog Quick Blast Fluid	8
	DNG-200	Froggy's Fog Cryo Freeze	9
	F-5/F-5D Fazer	Froggy's Fog Faze Haze Fluid	10
	ICE	Froggy's Fog Cryo Freeze	11
	M-5	Froggy's Fog Backwood Bay Fluid	12
		Froggy's Fog Amusement Park Fluid	12
		Froggy's Fog Bog Fog Fluid	12
		Froggy's Fog Velocity Fluid	12
		Froggy's Fog Cryo Freeze Fluid	12
		Froggy's Fog Quick Blast Fluid	12
	M-8	Froggy's Fog Backwood Bay Fluid	14
		Froggy's Fog Amusement Park Fluid	14
		Froggy's Fog Bog Fog Fluid	14
		Froggy's Fog Velocity Fluid	14
		Froggy's Fog Cryo Freeze Fluid	14
		Froggy's Fog Quick Blast Fluid	14
	M-10	Froggy's Fog Bog Fog Fluid	16
		Froggy's Fog Velocity Fluid	16
		Froggy's Fog Cryo Freeze Fluid	16
		Froggy's Fog Quick Blast Fluid	16
	X-515	Froggy's Fog Backwood Bay Fluid	17
		Froggy's Fog Amusement Park Fluid	17
		Froggy's Fog Bog Fog Fluid	17
Froggy's Fog Velocity Fluid		17	
Froggy's Fog Cryo Freeze Fluid		17	
Froggy's Fog Quick Blast Fluid		17	
Z-350	Froggy's Fog Beam Splitter Fluid	19	

<b>INDEX TIME-AND-DISTANCE GUIDELINES</b>			
<b>Manufacturer</b>	<b>Machine</b>	<b>Fluid</b>	<b>Page</b>
Barco/High End Systems	F-100	Atmosphere Cold Flow Formula	20
		Atmosphere HQ Formula	20
		Atmosphere Stage Formula	20
	FQ-100	Atmosphere HQ Formula	20
		Atmosphere Stage Formula	20
Blue Haze Entertainment (BHE)	1550	Froggy's Fog Backwood Bay	21
		Froggy's Fog Amusement Park Fluid	21
		Froggy's Fog Bog Fog Fluid	21
		Froggy's Fog Velocity Fluid	21
		Froggy's Fog Cryo Freeze Fluid	21
		Froggy's Fog Quick Blast Fluid	21
Chauvet	1800 Flex	Froggy's Fog Backwood Bay	23
		Froggy's Fog Amusement Park Fluid	23
		Froggy's Fog Bog Fog Fluid	23
		Froggy's Fog Velocity Fluid	23
		Froggy's Fog Cryo Freeze Fluid	23
		Froggy's Fog Quick Blast Fluid	23
		Froggy's Fog Techno Fluid	23
	AmHaze II	Froggy's Fog Faze Haze Fluid	25
Geyser	Froggy's Fog Quick Blast Fluid	26	
CITC	AquaMax	Organic Haze Fluid	27
	Fantasy FX spray can	Fantasy FX Professional Haze	28
	HazeMax	Vapor Haze Fluid	28
ePuffer	D-1500 Electronic Cigar	e-Liquid	29
FireBase	SG-1300	Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	30
		Froggy's Fog Training Smoke XD Fluid – Extreme Density	30
		Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	30
	SG-2600	Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	31
		Froggy's Fog Training Smoke XD Fluid – Extreme Density	31
	SG-M1500	Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	32
		Froggy's Fog Training Smoke XD Fluid – Extreme Density	32

<b>INDEX</b>			
<b>TIME-AND-DISTANCE GUIDELINES</b>			
<b>Manufacturer</b>	<b>Machine</b>	<b>Fluid</b>	<b>Page</b>
	SG-M1800	Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	32
		Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	33
		Froggy's Fog Training Smoke XD Fluid – Extreme Density	33
		Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	33
	SG-M3000	Froggy's Fog Training Smoke XD Fluid – Extreme Density	34
		Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	34
hazebase	Base Classic	Froggy's Fog Backwood Bay Fluid	35
		Froggy's Fog Amusement Park Fluid	35
		Froggy's Fog Bog Fog Fluid	35
		Froggy's Fog Velocity Fluid	35
		Froggy's Fog Cryo Freeze Fluid	35
		Froggy's Fog Quick Blast Fluid	35
	Base High Power 220V	Froggy's Fog Backwood Bay Fluid	37
		Froggy's Fog Bog Fog Fluid	37
	Base Hazer Pro	Froggy's Fog Faze Haze Fluid	38
base hazer liquid Fluid		38	
Le Maitre	Opti Mist Ranger	Mini Mist Canister	39
	MVS	Froggy's Fog Neutronic Haze Fluid	39
	Neutron XS	Froggy's Fog Neutronic Haze Fluid	40
Look Solutions	Cryo-Fog	Cryo-Fog Fluid	41
	Power Tiny	Tiny-Fluid	41
	Tiny-Fogger/Tiny F07, Tiny-Compact/Tiny C07	Tiny-Fluid	42
	Tiny FX	Tiny-Fluid	42
	Tiny S	Tiny-Fluid	43
	Unique 2.1	Unique-Fluid	43
	Viper NT	Quick-Fog Fluid	44
	Viper NT	Regular-Fog Fluid	45
	Viper NT	Slow-Fog Fluid	46
Martin	K-1	Froggy's Fog K-razy Haze Fluid	47
	Magnum 2000	Froggy's Fog Backwood Bay Fluid	48
		Froggy's Fog Bog Fog Fluid	48

<b>INDEX TIME-AND-DISTANCE GUIDELINES</b>			
<b>Manufacturer</b>	<b>Machine</b>	<b>Fluid</b>	<b>Page</b>
		Froggy's Fog Velocity Fluid	48
		Froggy's Fog Cryo Freeze Fluid	48
		Froggy's Fog Quick Blast Fluid	48
	ZR-33	Froggy's Fog Velocity Fluid	50
		Froggy's Fog Cryo Freeze Fluid	50
		Froggy's Fog Quick Blast Fluid	50
	ZR-44	Froggy's Fog Backwood Bay Fluid	51
		Froggy's Fog Bog Fog Fluid	51
		Froggy's Fog Velocity Fluid	51
		Froggy's Fog Cryo Freeze Fluid	51
		Froggy's Fog Quick Blast Fluid	51
MDG Fog Generators	Atmosphere APS	MDG Neutral Fluid	53
	MAX 3000 APS	MDG Neutral Fluid	53
	Mini Max	MDG Dense Fluid	53
New Rule FX	Electronic Actor Cigarette Prop	Cartridge Fluid	54
Pure Smoke	Electronic Cigarette	Electronic Cigarette Flavors	55
Reel EFX	DF-50	Diffusion Fluid	56
		Froggy's Fog DaFiddy Fluid – Oil Based Haze	56
Robe	Fog 1550 FT	Froggy's Fog Backwood Bay Fluid	57
		Froggy's Fog Amusement Park Fluid	57
		Froggy's Fog Bog Fog Fluid	57
		Froggy's Fog Velocity Fluid	57
		Froggy's Fog Cryo Freeze Fluid	57
		Froggy's Fog Quick Blast Fluid	57
Rosco Laboratories	1500 / 1600	Clear Fog Fluid	59
		Rosco Fog Fluid	59
		Light Fog Fluid	59
		Stage & Studio Fluid	59
	1750	Rosco Fog Fluid	60
		Stage & Studio Fluid	60
	Alpha 900	Rosco Fog Fluid	61
		Stage & Studio Fluid	61
	Delta 3000	Clear Fog Fluid	62
		Rosco Fog Fluid	62
Light Fog Fluid		62	

<b>INDEX TIME-AND-DISTANCE GUIDELINES</b>			
<b>Manufacturer</b>	<b>Machine</b>	<b>Fluid</b>	<b>Page</b>
		Stage & Studio Fluid	62
	Delta Hazer	Delta Hazer Fluid	63
	Mini-V	Rosco Fog Fluid	63
		Stage & Studio Fluid	64
	PF-1000	Rosco Fog Fluid	64
		Stage & Studio Fluid	64
	V-Hazer	V-Hazer Fluid	65
	Vapour	Rosco Fog Fluid	66
		Stage & Studio Fluid	67
	Vapour Plus	Rosco Fog Fluid	68
		Stage & Studio Fluid	69
Smoke In Style	Electronic Pipe Prop	FeelLife E-Liquid	70
Ultratec Special Effects	G100	Extra Quick Dissipating Fluid	71
		Quick Dissipating Fluid	71
		Director's Choice Fluid	71
	G150	Extra Quick Dissipating Fluid	71
		Molecular Fog Fluid	71
		Quick Dissipating Fluid	71
		Director's Choice Fluid	71
	G3000	Froggy's Fog Backwood Bay	72
		Froggy's Fog Amusement Park Fluid	72
		Froggy's Fog Bog Fog	72
		Froggy's Fog Velocity	72
		Froggy's Fog Cryo Freeze	72
		Froggy's Fog Quick Blast	72
	LSG MKII-PFI 9D	Molecular Fog Fluid	74
	Radiance Hazer	Neutron/Luminous 7 Haze Fluid	75
Froggy's Fog Neutronic Haze Fluid		75	

**AMERICAN DJ SUPPLY, INC.**

TIME-AND-DISTANCE GUIDELINES Fog Fury 3000							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	Full	5	50	40	40	40	30
	Full	15	50	40	40	40	30
Froggy's Fog Bog Fog Fluid	Full	5	80	60	40	0	0
	Full	15	130	130	130	40	30
Froggy's Fog Velocity Fluid	Full	5	20	20	0	0	0
	Full	15	30	30	30	0	0
Froggy's Fog Cryo Freeze Fluid	Full	5	20	20	0	0	0
	Full	15	30	30	30	0	0
Froggy's Fog Quick Blast Fluid	Full	5	20	20	0	0	0
	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	Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
		Machine Setting	5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Velocity Fluid	5	Full	20	10	10	0	0
	15	Full	20	20	20	20	0
	30*	Full	20	20	20	20	0
Froggy's Fog Cryo Freeze Fluid	5	Full	20	10	10	0	0
	15	Full	20	20	20	20	0
	30*	Full	20	20	20	20	0
Froggy's Fog Quick Blast Fluid	5	Full	20	10	10	0	0
	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: [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.

ANTARI

TIME-AND-DISTANCE GUIDELINES 1520 RGB Upshot with Froggy's Fog Quick Blast Fluid						
Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
	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	30	20

\*Machine pulses after 20 seconds

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 O, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



**ANTARI**

TIME-AND-DISTANCE GUIDELINES DNG-200 with Froggy's Fog Cryo Freeze Fluid							
Measurement Direction	Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
		Machine Setting	5 ft	8 ft	12 ft	16 ft	20 ft
Horizontal	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
	60	Med	0	0	0	0	0
	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
	*Machine takes 10 seconds to release fog after turned on †Machine shuts off after 100 seconds						
Vertical**	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
	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
	**All concentrations are measured at same horizontal distance from machine (approximately 6 feet). *Machine takes 10 seconds to release fog after turned on †Machine shuts off after 100 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</u> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**ANTARI**

<b>TIME AND DISTANCE GUIDELINES</b>							
<b>F-5/F-5D Fazer with Froggy's Fog Faze Haze Fluid</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>		<b>5 ft</b>	<b>10 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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: 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.

ANTARI

TIME-AND-DISTANCE GUIDELINES ICE with Froggy's Fog Cryo Freeze Fluid							
Measurement Direction	Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
		Machine Setting	5 ft	8 ft	12 ft	16 ft	20 ft
Horizontal	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
	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							
Vertical**	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
	60†	Med	20	10	0	0	0
	120‡	Med	30	10	0	0	0
**All concentrations are measured at same horizontal distance from machine (approximately 6 feet). *Machine does not have visible output at low setting †Machine runs off for 10 seconds during run ‡Machine turns off for 30 seconds total during run							
Reference: <a href="#">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</a> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**ANTARI**

TIME-AND-DISTANCE GUIDELINES							
M-5							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	100	5	90	90	90	90	90
	100	15	90	90	90	90	90
	100	30*	90	90	90	90	90
	65	30 <sup>†</sup>	60	60	60	50	0
	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						
Froggy's Fog Amusement Park Fluid	100	5	90	90	90	90	90
	100	15	90	90	90	90	90
	100	30*	90	90	90	90	90
	65	30 <sup>†</sup>	60	60	60	50	0
	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						
Froggy's Fog Bog Fog	100	5	90	90	50	30	0
	100	15	90	90	60	60	60
	100	30	100	100	60	60	60
	65	30	100	30	0	0	0
	65	60	110	40	0	0	0
	25	60	110	0	0	0	0
	*Machine shuts off after 20 seconds <sup>†</sup> Machine runs at reduced output volume after 15 seconds						
Froggy's Fog Velocity	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
	65	30	0	10	0	0	0
	65	60	20	20	0	0	0
	25	60	20	0	0	0	0
*Machine shuts off after 20 seconds							
Froggy's Fog Cryo Freeze Fluid	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
	65	30	0	10	0	0	0
	65	60	20	20	0	0	0
	25	60	20	0	0	0	0
*Machine shuts off after 20 seconds							
	100	5	20	20	0	0	0
	100	15	20	20	20	10	0

**ANTARI**

TIME-AND-DISTANCE GUIDELINES							
M-5							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Quick Blast Fluid	100	30*	20	20	20	10	0
	65	15	10	10	0	0	0
	65	30	0	10	0	0	0
	65	60	20	20	0	0	0
	25	60	20	0	0	0	0
*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</u> , prepared by ENVIRON International Corporation for Froggy's Fog, November 2014.							

**ANTARI**

TIME-AND-DISTANCE GUIDELINES							
M-8							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	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
	Medium	60	60	60	60	60	50
	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							
Froggy's Fog Amusement Park Fluid	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
	Medium	60	60	60	60	60	50
	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							
Froggy's Fog Bog Fog Fluid	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
	Medium	30	60	60	60	60	60
	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							
Froggy's Fog Velocity Fluid	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 <sup>†</sup>	30	30	30	30	10
	Med	60 <sup>‡</sup>	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							

**ANTARI**

TIME-AND-DISTANCE GUIDELINES							
M-8							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Cryo Freeze Fluid	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
	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 †Machine runs at reduced output volume after 20 seconds ‡Machine shuts off after 49 seconds							
Froggy's Fog Quick Blast Fluid	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
	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 †Machine runs at reduced output volume after 20 seconds ‡Machine shuts off after 49 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</u> , prepared by ENVIRON International Corporation for Froggy's Fog, November 2014.							

**ANTARI**

TIME-AND-DISTANCE GUIDELINES							
M-10							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Bog Fog Fluid	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
	65%	30	120	120	70	70	60
	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							
Froggy's Fog Velocity Fluid	100%	5	30	30	30	30	20
	100%	15	30	30	30	30	20
	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
Froggy's Fog Cryo Freeze Fluid	100%	5	30	30	30	30	20
	100%	15	30	30	30	30	20
	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
Froggy's Fog Quick Blast Fluid	100%	5	30	30	30	30	20
	100%	15	30	30	30	30	20
	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

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.



**ANTARI**

TIME-AND-DISTANCE GUIDELINES X-515								
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
			5 ft	10 ft	15 ft	20 ft	25 ft	
Froggy's Fog Backwood Bay Fluid	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	
	65%	60	70	70	40	40	0	
	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							
	Froggy's Fog Amusement Park Fluid	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	
65%		60	70	70	40	40	0	
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								
Froggy's Fog Bog Fog Fluid		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	
	65%	120*	80	60	50	30	10	
	25%	60	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							
	Froggy's Fog Velocity Fluid	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	
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 ran at reduced output volume after 20 seconds								
Froggy's Fog Cryo Freeze Fluid		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	

**ANTARI**

TIME-AND-DISTANCE GUIDELINES X-515							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
	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 ran at reduced output volume after 20 seconds						
Froggy's Fog Quick Blast Fluid	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
	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 ran at reduced output volume after 20 seconds						
Reference: <a href="#">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</a> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**ANTARI**

TIME AND DISTANCE GUIDELINES Z-350 with Froggy's Fog Beam Splitter Fluid							
Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )						
	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

\*No output at minimum setting

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.

**BARCO/HIGH END SYSTEMS**

TIME-AND-DISTANCE GUIDELINES High End Systems F-100								
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
			3 ft	6 ft	9 ft	12 ft	15 ft	18 ft
Atmosphere Cold Flow Formula	Full	15	70	30	30	30	30	30
	Medium	15	40	40	30	30	0	0
Atmosphere HQ Formula	Full	15	190	190	180	20	0	0
	Medium	15	170	80	70	0	0	0
Atmosphere Stage Formula	Full/Med	15	0	0	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.

TIME-AND-DISTANCE GUIDELINES Barco/High End Systems FQ-100							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			6 ft	9 ft	12 ft	15 ft	18 ft
Atmosphere HQ Formula	75	5	60	60	60	60	60
	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
Atmosphere Stage Formula	99	5	100	100	100	100	80
	99	15	100	100	100	100	80
	75	5	80	80	80	80	80
	75	15	90	90	90	90	80
	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: Calibration Factors and Time-and-Distance Guidelines for the Use of Theatrical Fog Equipment, Barco FQ-100 with Atmospheres Stage Fluid and Barco FQ-100 with Atmospheres HQ Fluid, prepared by ENVIRON International Corporation for Barco Lighting Systems, December 2010.

**BLUE HAZE ENTERTAINMENT (BHE)**

TIME-AND-DISTANCE GUIDELINES BHE 1550							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	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
	65%	60	70	70	40	40	0
	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							
Froggy's Fog Amusement Park Fluid	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
	65%	60	70	70	40	40	0
	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							
Froggy's Fog Bog Fog Fluid	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
	65%	120*	80	60	50	30	10
	25%	60	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							
Froggy's Fog Velocity Fluid	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
	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 ran at reduced output volume after 20 seconds							
	100%	5	0	0	0	0	0
	100%	15	20	0	0	0	0

**BLUE HAZE ENTERTAINMENT (BHE)**

TIME-AND-DISTANCE GUIDELINES BHE 1550							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Cryo Freeze Fluid	100%	30*	20	20	0	0	0
	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 ran at reduced output volume after 20 seconds						
Froggy's Fog Quick Blast Fluid	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
	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 ran at reduced output volume 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</u> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**CHAUVET**

TIME-AND-DISTANCE GUIDELINES							
1800 Flex							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	Full	5	40	40	30	30	30
	Full	15	40	40	40	40	40
	Full	30*	60	60	50	50	40
	Full	60*	60	60	50	50	40
	Full	120*	60	60	50	50	50
	*Machine ran at reduced output volume after 18 seconds						
Froggy's Fog Amusement Park Fluid	Full	5	40	40	30	30	30
	Full	15	40	40	40	40	40
	Full	30*	60	60	50	50	40
	Full	60*	60	60	50	50	40
	Full	120*	60	60	50	50	50
	*Machine ran at reduced output volume after 18 seconds						
Froggy's Fog Bog Fog Fluid	Full	5	70	50	40	30	0
	Full	15	70	70	70	70	70
	Full	30*	90	90	70	70	70
	Full	60*	90	90	70	70	70
	Full	120*	90	90	70	70	70
	*Machine ran at reduced output volume after 20 seconds						
Froggy's Fog Velocity Fluid	Full	5	30	30	30	0	0
	Full	15*	30	30	30	20	0
	Full	30*	30	30	30	20	0
	Full	60*	30	30	30	20	0
	Full	120*	30	30	30	20	0
	*Machine ran at reduced output volume after 10 seconds						
Froggy's Fog Cryo Freeze Fluid	Full	5	30	30	30	0	0
	Full	15*	30	30	30	20	0
	Full	30*	30	30	30	20	0
	Full	60*	30	30	30	20	0
	Full	120*	30	30	30	20	0
	*Machine ran at reduced output volume after 10 seconds						
Froggy's Fog Quick Blast Fluid	Full	5	30	30	30	0	0
	Full	15*	30	30	30	20	0
	Full	30*	30	30	30	20	0
	Full	60*	30	30	30	20	0
	Full	120*	30	30	30	20	0
	*Machine ran at reduced output volume after 10 seconds						
Froggy's Fog Techno Fluid			<b>7 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>	<b>30 ft</b>
	Full	5	30	30	20	20	0
	Full	15*	30	30	30	20	20
	Full	30*	50	50	40	40	40
	Full	60*	50	50	40	40	40

**CHAUVET**

TIME-AND-DISTANCE GUIDELINES							
1800 Flex							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
	Full	120*	60	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 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</u> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							



**CHAUVET**

<b>TIME AND DISTANCE GUIDELINES AmHaze II with Froggy's Fog Faze Haze Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>		<b>4 ft</b>	<b>8 ft</b>	<b>12 ft</b>	<b>16 ft</b>
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: 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.

CHAUVET

TIME-AND-DISTANCE GUIDELINES Geysers with Froggy's Fog Quick Blast Fluid						
Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
	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  
<sup>†</sup>Machine pulsed on and off, ran for 15 seconds total  
<sup>‡</sup>Machine pulsed on and off, ran for 25 seconds total

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 O, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog, prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.

**CITC**

<b>TIME AND DISTANCE GUIDELINES AquaMax with Organic Haze Fluid</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>		<b>5 ft</b>	<b>10 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Aquamax with Organic Haze Fluid and HazeMax with Water Vapour Haze Fluid, prepared by ENVIRON International Corporation for CITC, August 2014.

**CITC**

<b>TIME-AND-DISTANCE GUIDELINES Fantasy FX Professional Haze</b>			
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (25 mg/m<sup>3</sup>)</b>		
	<b>Release Height</b>	<b>2 ft</b>	<b>6 ft</b>
2	Breathing height	0	X
5		0	X
10		0	X
15		2	2
30		2	2

Note: X = not tested, but results are expected to be comparable to those at the 2 ft distance

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

<b>TIME-AND-DISTANCE GUIDELINES HazeMax with Water Vapor Haze Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>5 ft</b>	<b>10 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Aquamax with Organic Haze Fluid and HazeMax with Water Vapour Haze Fluid, prepared by ENVIRON International Corporation for CITC, August 2014.

**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: [Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: ePuffer Electronic Cigar with eliquid](#), prepared by ENVIRON International Corporation for Lucky Guy Broadway LLC, June 2013.

**FIREBASE**

TIME-AND-DISTANCE GUIDELINES SG-1300							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	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
	60	65%	50	10	0	0	0
	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							
Froggy's Fog Training Smoke XD Fluid – Extreme Density	5	99	40	40	40	30	30
	15	99	50	50	50	50	50
	30	99	70	50	50	50	50
	30	65	70	0	0	0	0
	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
*Machine takes 6 seconds to release fog after button is pressed †Machine runs at significantly reduced output volume after 80 seconds							
Froggy's Fog Training Smoke Q Fluid – Quick Dissipating	5	99%	0	0	0	0	0
	15	99%	20	20	20	20	20
	30	99%	30	20	20	20	20
	30	65%	30	0	0	0	0
	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
References: 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.							

**FIREBASE**

TIME-AND-DISTANCE GUIDELINES SG-2600							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Training Smoke FR Fluid – Fire Rescue Formula	5	99%	40	40	40	40	40
	15	99%	40	40	40	40	40
	30*	99%	50	50	40	40	40
	30	65%	20	0	0	0	0
	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							
Froggy's Fog Training Smoke XD Fluid – Extreme Density	5	99%	90	50	40	40	40
	15	99%	90	50	40	40	40
	30	99%	90	70	40	40	40
	30	65%	60	0	0	0	0
	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: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-crazy 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.							

**FIREBASE**

TIME-AND-DISTANCE GUIDELINES FireBase SG M1500							
Fluid	Release Duration (sec)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Training Smoke FR Fire Rescue Formula	5	100	90	90	90	90	90
	15	100	90	90	90	90	90
	30*	100	90	90	90	90	90
	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 Training Smoke XD Extreme Density	5	100	90	90	50	30	0
	15	100	90	90	60	60	60
	30	100	100	100	60	60	60
	30	65	100	30	0	0	0
	60	65	110	40	0	0	0
	60	25	110	0	0	0	0
Froggy's Fog Training Smoke Q Quick Dissipating	5	100	20	20	0	0	0
	15	100	20	20	20	10	0
	30*	100	20	20	20	10	0
	15	65	10	10	0	0	0
	30	65	0	10	0	0	0
	60	65	20	20	0	0	0
	60	25	20	0	0	0	0
*Machine shuts off after 20 seconds							
Reference: <a href="#">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</a> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							



**FIREBASE**

TIME-AND-DISTANCE GUIDELINES FireBase SG-M1800							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Training Smoke FR – Fire Rescue Formula	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
	Medium	60	60	60	60	60	50
	Medium	120*	70	70	60	60	50
	Low	60†	60	60	60	60	50
	Low	120†	70	70	60	60	50
*Machine shuts off after 52 seconds †Machine pulses every 5 seconds at low setting							
Froggy's Fog Training Smoke XD – Extreme Density	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
	Medium	30	60	60	60	60	60
	Medium	60*	110	110	60	60	60
	Low	60	110	110	10	0	0
	Low	120†	110	110	10	0	0
*Machine shuts off after 40 seconds †Machine shuts off after 90 seconds							
Froggy's Fog Training Smoke Q – Quick Dissipating	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
	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 †Machine runs at reduced output volume after 20 seconds ‡Machine shuts off after 49 seconds							
References: 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.							

**FIREBASE**

TIME-AND-DISTANCE GUIDELINES FireBase SG-M3000							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Training Smoke XD – Extreme Density	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
	65%	30	120	120	70	70	60
	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							
Froggy's Fog Training Smoke Q – Quick Dissipating	100%	5	30	30	30	30	20
	100%	15	30	30	30	30	20
	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
References: <a href="#">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</a> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**HAZEBASE**

TIME-AND-DISTANCE GUIDELINES							
Base Classic							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	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
	60	65%	50	10	0	0	0
	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							
Froggy's Fog Amusement Park Fluid	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
	60	65%	50	10	0	0	0
	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							
Froggy's Fog Bog Fog Fluid	5	99%	40	40	40	30	30
	15	99%	50	50	50	50	50
	30	99%	70	50	50	50	50
	30	65%	70	0	0	0	0
	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
Froggy's Fog Velocity Fluid	5	99%	0	0	0	0	0
	15	99%	20	20	20	20	20
	30	99%	30	20	20	20	20
	30	65%	30	0	0	0	0
	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
Froggy's Fog CyroFreeze Fluid	5	99%	0	0	0	0	0
	15	99%	20	20	20	20	20
	30	99%	30	20	20	20	20
	30	65%	30	0	0	0	0
	60	65%	30	10	0	0	0

**HAZEBASE**

TIME-AND-DISTANCE GUIDELINES							
Base Classic							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
	120	65%	30	10	0	0	0
	60	25%	0	0	0	0	0
	120	25%	0	0	0	0	0
Froggy's Fog Quick Blast Fluid	5	99%	0	0	0	0	0
	15	99%	20	20	20	20	20
	30	99%	30	20	20	20	20
	30	65%	30	0	0	0	0
	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	

References: [Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-crazy 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.

**HAZEBASE**

TIME-AND-DISTANCE GUIDELINES Base High Power 220V							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	5	99%	40	40	40	40	40
	15	99%	40	40	40	40	40
	30*	99%	50	50	40	40	40
	30	65%	20	0	0	0	0
	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							
Froggy's Fog Bog Fog Fluid	5	99%	90	50	40	40	40
	15	99%	90	50	40	40	40
	30	99%	90	70	40	40	40
	30	65%	60	0	0	0	0
	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: 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.							

**HAZEBASE**

TIME-AND-DISTANCE GUIDELINES								
Base Hazer Pro								
Fluid	Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )						
		Machine Setting	4 ft	8 ft	12 ft	16 ft	20 ft	
Froggy's Fog Faze Haze Fluid	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
	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	0
	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
base hazer liquid Fluid	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	0	0	0	0	0
	30	Fan 50	99	10	0	0	0	0
	60	Fan 50	99	10	0	0	0	0
	120	Fan 50	99	10	0	0	0	0
	30	Fan 50	65	0	0	0	0	0
	60	Fan 50	65	10	0	0	0	0
	120	Fan 50	65	10	0	0	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

References: 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.

**LE MAITRE LTD.**

<b>TIME-AND-DISTANCE GUIDELINES</b>							
<b>Le Maitre Opti Mist Ranger with Mini Mist Canister</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>	<b>3 ft</b>	<b>6 ft</b>	<b>9 ft</b>	<b>12 ft</b>	<b>15 ft</b>	<b>18 ft</b>
15	Full	110	80	60	60	0	0
	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.

<b>TIME AND DISTANCE GUIDELINES</b>							
<b>Le Maitre MVS with Froggy's Fog Neutronic Haze Fluid</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>	<b>3 ft</b>	<b>5 ft</b>	<b>7 ft</b>	<b>10 ft</b>	<b>15 ft</b>	
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: 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.

LE MAITRE LTD.

TIME-AND-DISTANCE GUIDELINES						
Le Maitre Neutron XS with Froggy's Fog Neutronic Haze Fluid						
Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m <sup>3</sup> )					
	Machine Setting	3 ft	6 ft	9 ft	12 ft	15 ft
30	Full	0	0	0	0	0
60	Full	0	0	0	0	0
120	Full	0	0	0	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 O, 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**

<b>TIME-AND-DISTANCE GUIDELINES</b>							
<b>Look Solutions Cryo-Fog with Cryo-Fog Fluid</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>	<b>3 ft</b>	<b>9 ft</b>	<b>15ft</b>	<b>21 ft</b>	<b>27ft</b>	<b>33 ft</b>
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: Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Look Solutions Low-Fogger, prepared by ENVIRON International Corporation for Look Solutions, August 2006.  
Letter from Look Solutions to ENVIRON International Corporation regarding Tiny-Compact, Tiny F07, Tiny C07, and Cryo-Fog, January 24, 2007

<b>TIME-AND-DISTANCE GUIDELINES</b>					
<b>Look Solutions Power Tiny Fogger with Tiny-Fluid</b>					
<b>Release Duration (sec)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>				
	<b>1 ft</b>	<b>3 ft</b>	<b>4 ft</b>	<b>6 ft</b>	<b>8 ft</b>
15	0	0	0	0	0
30	55	55	55	20	15
60	60	60	60	50	20

Reference: Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Look Solutions Power Tiny, prepared by ENVIRON International Corporation for Look Solutions, August 2006.

**LOOK SOLUTIONS**

<b>TIME-AND-DISTANCE GUIDELINES Look Solutions Tiny-Fogger/Tiny F07 and Tiny-Compact/Tiny C07 with Tiny-Fluid</b>								
<b>Release Duration (sec)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>							
	<b>1 ft</b>	<b>2 ft</b>	<b>3 ft</b>	<b>4 ft</b>	<b>5 ft</b>	<b>6 ft</b>	<b>7 ft</b>	<b>8 ft</b>
5	33	33	10	0	0	0	0	0
15	33	33	23	7	0	0	0	0
30	57	57	57	57	20	20	20	0
60	67	67	57	57	20	20	20	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.

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

<b>TIME-AND-DISTANCE GUIDELINES Tiny FX with Tiny Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>1 ft</b>	<b>2 ft</b>	<b>3 ft</b>	<b>5 ft</b>	<b>7 ft</b>
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: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-Fog Fluid, and Unique 2.1 with Unique Fluid, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.

**LOOK SOLUTIONS**

<b>TIME-AND-DISTANCE GUIDELINES Tiny S with Tiny Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>1 ft</b>	<b>2 ft</b>	<b>3 ft</b>	<b>5 ft</b>	<b>7 ft</b>
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

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

<b>TIME-AND-DISTANCE GUIDELINES Unique 2.1 with Unique Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>5 ft</b>	<b>10 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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

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

**LOOK SOLUTIONS**

<b>TIME-AND-DISTANCE GUIDELINES Look Solutions Viper NT with Quick-Fog Fluid</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>	<b>3 ft</b>	<b>6 ft</b>	<b>9 ft</b>	<b>12 ft</b>	<b>15 ft</b>	<b>18 ft</b>
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

Reference: Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Look Solutions Viper NT, prepared by ENVIRON International Corporation for Look Solutions, August 2006.

**LOOK SOLUTIONS**

<b>TIME-AND-DISTANCE GUIDELINES Viper NT with Regular-Fog Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>5 ft</b>	<b>10 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Tiny FX with Tiny Fluid, Tiny S with Tiny Fluid, Viper NT with Slow-Fog Fluid, Viper NT with Regular-Fog Fluid, and Unique 2.1 with Unique Fluid, prepared by ENVIRON International Corporation for Look Solutions USA, Ltd., February 2014.

**LOOK SOLUTIONS**

<b>TIME-AND-DISTANCE GUIDELINES Viper NT with Slow-Fog Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>3 ft</b>	<b>9 ft</b>	<b>15 ft</b>	<b>21 ft</b>	<b>27 ft</b>
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

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

**MARTIN by HARMAN**

TIME AND DISTANCE GUIDELINES K-1 with Froggy's Fog K-razy Haze Fluid							
Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )						
	Machine 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: [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.

**MARTIN by HARMAN**

TIME-AND-DISTANCE GUIDELINES Magnum 2000							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	5	Max	60	60	60	50	50
	15	Max	70	70	60	50	50
	30 <sup>†</sup>	Max	70	70	60	50	50
	30 <sup>‡</sup>	Mid	60	60	10	0	0
	60 <sup>‡</sup>	Mid	70	70	70	0	0
*No output at minimum setting. †Machine turned off 17 seconds into run. ‡Machine turned on and off after 28 seconds.							
Froggy's Fog Bog Fog Fluid	5	Max	80	60	60	60	60
	15	Max	80	70	70	70	60
	30 <sup>†</sup>	Max	140	140	70	70	60
	5	Mid	60	60	60	40	0
	15	Mid	60	60	60	40	0
	30 <sup>†</sup>	Mid	60	60	60	40	0
* No output at minimum setting. †Machine turned off 18 seconds into run.							
Froggy's Fog Velocity Fluid	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
	30 <sup>†</sup>	Mid	20	20	20	0	0
	60 <sup>†</sup>	Mid	20	20	20	0	0
	120 <sup>†</sup>	Mid	20	20	20	0	0
* No output at minimum setting. †Machine turned off after 20 seconds.							
Froggy's Fog Cryo Freeze Fluid	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
	30 <sup>†</sup>	Mid	20	20	20	0	0
	60 <sup>†</sup>	Mid	20	20	20	0	0
	120 <sup>†</sup>	Mid	20	20	20	0	0
* No output at minimum setting. †Machine turned off after 20 seconds.							



**MARTIN by HARMAN**

TIME-AND-DISTANCE GUIDELINES Magnum 2000							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft
Froggy's Fog Quick Blast Fluid	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
	30 <sup>†</sup>	Mid	20	20	20	0	0
	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.							
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</u> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**MARTIN by HARMAN**

TIME-AND-DISTANCE GUIDELINES ZR-33							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft
Froggy's Fog Velocity Fluid	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
	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 output volume after 30 seconds.							
Froggy's Fog Cryo Freeze Fluid	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
	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 output volume after 30 seconds.							
Froggy's Fog Quick Blast Fluid	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
	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 output volume after 30 seconds							
Reference: <a href="#">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</a> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**MARTIN by HARMAN**

TIME-AND-DISTANCE GUIDELINES ZR-44							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	5	10	50	30	30	0	0
	15	10	50	40	30	20	30
	30	10	60	60	60	40	40
	30	7	60	60	60	40	40
	60	7	60	60	60	40	40
	120*	7	110	60	60	40	40
	60	3	30	10	0	0	0
	120	3	110	20	0	0	0
*Machine had reduced output volume after 75 seconds.							
Froggy's Fog Bog Fog Fluid	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
	60*	7	50	50	40	30	20
	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							
Froggy's Fog Velocity Fluid	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
	60	7	20	10	10	0	0
	120†	7	20	10	10	0	0
	60	3	10	0	0	0	0
	120	3	10	0	0	0	0
*Machine had reduced output volume after 45 seconds †Machine output volume reduced gradually throughout run							
Froggy's Fog Cryo Freeze Fluid	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
	60	7	20	10	10	0	0
	120†	7	20	10	10	0	0
	60	3	10	0	0	0	0
	120	3	60	50	30	0	0
*Machine had reduced output volume after 45 seconds †Machine output volume reduced gradually throughout run							
Froggy's Fog Quick Blast Fluid	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

**MARTIN by HARMAN**

TIME-AND-DISTANCE GUIDELINES ZR-44							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5-8 ft	10-12 ft	15-16 ft	20 ft	25 ft
	60	7	20	10	10	0	0
	120†	7	20	10	10	0	0
	60	3	10	0	0	0	0
	120	3	60	50	30	0	0
*Machine had reduced output volume after 45 seconds							
†Machine output volume reduced gradually throughout run							
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.							

**MDG FOG GENERATORS**

<b>TIME-AND-DISTANCE GUIDELINES MDG Atmosphere APS with Neutral Fluid</b>						
<b>Release Duration (sec)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (25 mg/m<sup>3</sup>)</b>					
	<b>3 ft</b>	<b>6 ft</b>	<b>9 ft</b>	<b>12 ft</b>	<b>15 ft</b>	<b>18 ft</b>
40	190	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: [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.

<b>TIME-AND-DISTANCE GUIDELINES MDG MAX 3000 APS with Neutral Fluid</b>						
<b>Release Duration (sec)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (25 mg/m<sup>3</sup>)</b>					
	<b>3 ft</b>	<b>6 ft</b>	<b>9 ft</b>	<b>12 ft</b>	<b>15 ft</b>	<b>18 ft</b>
40	100	100	100	100	100	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.

<b>TIME-AND-DISTANCE GUIDELINES MDG Mini Max with Dense Fluid</b>							
<b>Release Duration (sec)</b>	<b>Machine Setting</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
		<b>3 ft</b>	<b>6 ft</b>	<b>9 ft</b>	<b>12 ft</b>	<b>15 ft</b>	<b>18 ft</b>
15	Full	150	80	50	0	0	0
	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**

<b>TIME-AND-DISTANCE GUIDELINES Electronic Actor Cigarette Prop with Cartridge Fluid</b>		
<b>Strength of "drag"</b>	<b>Speed of exhale</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>) at a distance of 1 ft.</b>
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: [Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: New Rule FX Electronic Actor Cigarette Prop with Cartridge Fluid](#), prepared by ENVIRON International Corporation for New Rule Productions Inc. and Foresight Theatrical, October 2014.

**PURE SMOKE**

<b>TIME-AND-DISTANCE GUIDELINES Pure Smoke Electronic Cigarette/ Electronic Cigarette Flavors</b>	
<b># of "drags" on electronic cigarette before exhalation</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>) at a distance of 1 ft.</b>
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: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Pure Smoke Electronic Cigarette with Electronic Cigarette Flavors, prepared by ENVIRON International Corporation for Clear Day Broadway LLC, January 2012.

**REEL EFX, INC.**

TIME-AND-DISTANCE GUIDELINES DF-50								
Fluid	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (25 mg/m <sup>3</sup> )						
		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
Froggy's Fog DaFiddy Fluid – Oil Based Haze	5	10	0	0	0	-	0	-
	15	10	0	0	0	-	0	-
	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. [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 O, Techno Fog/Beam Splitter, Neutronic Haze, DaFiddy, Swamp Juice 2009 Formula, Light Fog](#), prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.



**ROBE LIGHTING S.R.O**

TIME-AND-DISTANCE GUIDELINES							
Robe Fog 1550 FT							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	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
	65%	60	70	70	40	40	0
	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							
Froggy's Fog Amusement Park Fluid	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
	65%	60	70	70	40	40	0
	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							
Froggy's Fog Bog Fog Fluid	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
	65%	120*	80	60	50	30	10
	25%	60	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							
Froggy's Fog Velocity Fluid	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
	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 ran at reduced output volume after 20 seconds							
Froggy's Fog Cryo Freeze Fluid	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
	65%	60	20	10	0	0	0

**ROBE LIGHTING S.R.O**

TIME-AND-DISTANCE GUIDELINES							
Robe Fog 1550 FT							
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
	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						
Froggy's Fog Quick Blast Fluid	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
	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 ran at reduced output volume 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</u> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**ROSCO LABORATORIES**

<b>TIME-AND-DISTANCE GUIDELINES</b>								
<b>Rosco Model 1500/1600</b>								
<b>Fluid</b>	<b>Machine Setting</b>	<b>Release Duration (sec)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
			<b>3 ft</b>	<b>6 ft</b>	<b>9 ft</b>	<b>12 ft</b>	<b>15 ft</b>	<b>18 ft</b>
Rosco Clear Fog Fluid	Full	15	230	150	60	0	0	0
	Medium	15	230	70	60	0	0	0
Rosco Fog Fluid	Full	15	170	100	80	40	40	40
	Medium	15	170	100	80	40	40	40
Rosco Light Fog Fluid	Full	15	150	70	70	70	60	50
	Medium	15	150	50	50	50	50	50
Rosco Stage & Studio Fluid	Full	15	80	80	50	40	40	40
	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.

**ROSCO LABORATORIES**

TIME-AND-DISTANCE GUIDELINES Rosco Model 1750									
Fluid	Machine Setting	Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level ( 40 mg/m <sup>3</sup> )						
			3 ft	6 ft	9 ft	12 ft	15 ft	18 ft	
Rosco Fog Fluid	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	
		15	60	60	60	50	10	0	
		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	
	Rosco Stage & Studio Fluid	100%	15	25	25	20	15	0	0
			30	25	25	25	20	20	0
45			30	30	30	30	20	0	
60%		15	15	15	10	10	0	0	
		30	20	20	20	12	0	0	
		45	35	35	35	20	0	0	
30%		15	10	5	0	0	0	0	
		30	10	5	0	0	0	0	
		45	20	5	0	0	0	0	
Reference: <u>Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Rosco Model 1750</u> , prepared by ENVIRON International Corporation for Rosco Laboratories, August 2006.									

**ROSCO LABORATORIES**

TIME-AND-DISTANCE GUIDELINES Rosco Alpha 900								
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
			3 ft	6 ft	9 ft	12 ft	15 ft	18 ft
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**

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

Reference: Development of Time-and-Distance Guidelines For Use Of Theatrical Smoke Equipment: Rosco Delta 3000, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2004

<b>TIME-AND-DISTANCE GUIDELINES Rosco Delta 3000 (10% Setting)</b>								
<b>Fluid</b>	<b>Machine Setting</b>	<b>Release Duration (sec)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
			<b>3 ft</b>	<b>6 ft</b>	<b>9 ft</b>	<b>12 ft</b>	<b>18 ft</b>	
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	13	0	

Reference: Development of Time-and-Distance Guidelines For Use Of Theatrical Smoke Equipment: Rosco Delta 3000, prepared by ENVIRON International Corporation for Rosco Laboratories, May 2004

**ROSCO LABORATORIES**

<b>TIME-AND-DISTANCE GUIDELINES Rosco Delta Hazer with Delta Hazer Fluid</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>	<b>3 ft</b>	<b>6 ft</b>	<b>12 ft</b>	<b>15 ft</b>	<b>21 ft</b>	<b>27 ft</b>
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		X	X	X	X	X	X
60	30	0	0	0	0	0	0
300		X	X	X	X	X	X
600		X	X	X	X	X	X

Note: X = not tested, but results are expected to be comparable to those at the 100% machine setting.

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

<b>TIME-AND-DISTANCE GUIDELINES Mini-V with Rosco Fog Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>5 ft</b>	<b>10 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: 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**

<b>TIME-AND-DISTANCE GUIDELINES Mini-V with Rosco Stage and Studio Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>8 ft</b>	<b>11 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: 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.

<b>TIME-AND-DISTANCE GUIDELINES Rosco PF-1000</b>								
<b>Fluid</b>	<b>Machine Setting</b>	<b>Release Duration (sec)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
			<b>3 ft</b>	<b>6 ft</b>	<b>9 ft</b>	<b>12 ft</b>	<b>15 ft</b>	<b>18 ft</b>
Rosco Fog Fluid	Full	15	60	40	0	0	0	0
	Medium	15	60	0	0	0	0	0
Rosco Stage & Studio Fluid	Full	15	100	70	60	60	0	0
	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**

<b>TIME-AND-DISTANCE GUIDELINES V-Hazer with V-Hazer Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>5 ft</b>	<b>10 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: 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**

<b>TIME-AND-DISTANCE GUIDELINES Vapour with Rosco Fog Fluid</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>	<b>5 ft</b>	<b>8 ft</b>	<b>10-12 ft</b>	<b>15-16 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: 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**

<b>TIME-AND-DISTANCE GUIDELINES Vapour with Rosco Stage and Studio Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>8 ft</b>	<b>11 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: 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**

<b>TIME-AND-DISTANCE GUIDELINES Vapour Plus with Rosco Fog Fluid</b>							
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>						
	<b>Machine Setting</b>	<b>5 ft</b>	<b>8 ft</b>	<b>12 ft</b>	<b>16 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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

Reference: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: 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**

<b>TIME-AND-DISTANCE GUIDELINES Vapour Plus with Rosco Stage and Studio Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>8 ft</b>	<b>11 ft</b>	<b>15 ft</b>	<b>20 ft</b>	<b>25 ft</b>
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: Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: 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.

**SMOKE IN STYLE**

<b>TIME-AND-DISTANCE GUIDELINES Smoke In Style Electronic Pipe Prop with FeelLife E-Liquid Fluid</b>		
<b>Strength of Drag</b>	<b>Speed of Exhale</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>) at a distance of 1 ft.</b>
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: [Environmental Testing of Theatrical Equipment: Smoke In Style Electronic Pipe Prop with FeelLife E-Liquid](#), prepared by Ramboll Environ US Corporation the Oregon Shakespeare Festival, May 2015.

**ULTRATEC SPECIAL EFFECTS**

TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects G100								
Fluid	Machine Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
			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 Setting	Release Duration (sec)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )					
			3 ft	6 ft	9 ft	12 ft	15 ft	18 ft
Extra Quick Dissipating Fluid	Full	15	50	40	40	30	30	30
	Medium	15	50	0	0	0	0	0
Molecular Fog Fluid	Full	15	90	50	40	0	0	0
	Medium	15	90	0	0	0	0	0
Quick Dissipating Fluid	Full	15	60	60	40	0	0	0
	Medium	15	60	0	0	0	0	0
Director's Choice Fluid	Full	15	110	80	70	70	0	0
	Medium	15	60	50	50	0	0	0

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.

**ULTRATEC SPECIAL EFFECTS**

TIME-AND-DISTANCE GUIDELINES Ultratec G-3000							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
Froggy's Fog Backwood Bay Fluid	15*	100%	90	90	90	30	0
	30	100%	90	90	90	60	0
	30	65%	50	50	50	0	0
	60	65%	100	60	60	30	0
	120†	65%	100	60	60	30	0
	60	25%	100	60	30	30	0
	120†	25%	100	60	30	30	0
*Machine takes 6 seconds to release fog after button is pressed † Machine runs at reduced output volume after 60 seconds							
Froggy's Fog Amusement Park Fluid	15*	100%	90	90	90	30	0
	30	100%	90	90	90	60	0
	30	65%	50	50	50	0	0
	60	65%	100	60	60	30	0
	120†	65%	100	60	60	30	0
	60	25%	100	60	30	30	0
	120†	25%	100	60	30	30	0
*Machine takes 6 seconds to release fog after button is pressed † Machine runs at reduced output volume after 60 seconds							
Froggy's Fog Bog Fog Fluid	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
	120†	65%	70	70	60	60	60
	60	25%	60	0	0	0	0
	120†	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							
Froggy's Fog Velocity Fluid	15*	100%	30	30	0	0	0
	30	100%	40	40	30	20	20
	30	65%	30	20	0	0	0
	60	65%	30	30	0	0	0
	120†	65%	30	30	0	0	0
	60	25%	30	0	0	0	0
	120†	25%	30	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							
Froggy's Fog Cryo Freeze Fluid	15*	100%	30	30	0	0	0
	30	100%	40	40	30	20	20
	30	65%	30	20	0	0	0
	60	65%	30	30	0	0	0
	120†	65%	30	30	0	0	0



**ULTRATEC SPECIAL EFFECTS**

TIME-AND-DISTANCE GUIDELINES Ultratec G-3000							
Fluid	Release Duration (secs)	Machine Setting	Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m <sup>3</sup> )				
			5 ft	10 ft	15 ft	20 ft	25 ft
	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 † Machine runs at significantly reduced output volume after 80 seconds						
Froggy's Fog Quick Blast Fluid	15*	100%	30	30	0	0	0
	30	100%	40	40	30	20	20
	30	65%	30	20	0	0	0
	60	65%	30	30	0	0	0
	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 † Machine runs at significantly reduced output volume after 80 seconds							
References: <a href="#">Calibration Factors and Time-And-Distance Guidelines for Use of Theatrical Fog Equipment: Bog Fog/K-razy Haze/Training Smoke XD</a> , <a href="#">Backwood Bay/Faze Haze/Training Smoke FR</a> , <a href="#">Velocity/Cryo Freeze/Quick Blast/Training Smoke Q</a> , <a href="#">Techno Fog/Beam Splitter</a> , <a href="#">Neutronic Haze</a> , <a href="#">DaFiddy</a> , <a href="#">Swamp Juice 2009 Formula</a> , <a href="#">Light Fog</a> , prepared by ENVIRON International Corporation for Froggy's Fog, October 2014.							

**ULTRATEC SPECIAL EFFECTS**

<b>TIME-AND-DISTANCE GUIDELINES</b>						
<b>Ultratec Special Effects LSG MKII -PFI9D with Molecular Fog Fluid</b>						
<b>Release Duration (secs)</b>	<b>Time (in sec) After Which Air Concentrations Are Below Guidance Level (40 mg/m<sup>3</sup>)</b>					
	<b>Machine Setting</b>	<b>3 ft</b>	<b>6 ft</b>	<b>12ft</b>	<b>18 ft</b>	<b>30 ft</b>
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		X	X	X	X	X
30	10	0	0	0	0	0
60		0	0	0	0	0
120		0	0	0	0	0
300		X	X	X	X	X

Note: X = not tested, but results are expected to be comparable to those at the 100% machine setting

Reference: Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Le Maitre LSG-MKII with Power Fog Industrial 9D (PFI9D) Low Smoke Generator, prepared by ENVIRON International Corporation for Le Maitre Special Effects, August 2006.

**ULTRATEC SPECIAL EFFECTS**

TIME-AND-DISTANCE GUIDELINES Ultratec Special Effects Radiance Hazer									
Fluid	Release Duration (secs)	Time (in sec) After Which Air Concentrations Are Below Guidance Level (50 mg/m <sup>3</sup> )							
		Fan speed/Haze output	3-4 ft	6 ft	8-9 ft	12 ft	15-16 ft	18 ft	20 ft
Neutron/ Luminous 7 Haze Fluid	30	100/100	5	5	5	5	0	0	-
	60		10	10	10	10	10	0	-
	180		10	10	10	10	10	0	-
	300		10	10	10	10	10	0	-
	180	50/100	0	0	0	0	0	0	-
	300		X	X	X	X	X	X	-
Froggy's Fog Neutronic Haze Fluid	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
	120		30	-	30	0	0	-	0
	30	5/9	20	-	20	0	0	-	0
	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: [Development of Time-And-Distance Guidelines for Use of Theatrical Smoke Equipment: Le Maitre Radiance Hazer](#), prepared by ENVIRON International Corporation for Le Maitre Special Effects, August 2006. [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.