



Theatrical Smoke, Fog and Haze Testing: Calibration Factors

Ramboll (formerly ENVIRON) collected the original exposure measurements on which the guidance levels for theatrical smoke and haze testing are based, and developed the air sampling protocol recommended by the Actors' Equity Association. As such, we are uniquely qualified to provide testing services and documentation that would be responsive to any inquiries made by Equity or your cast.



Ramboll has developed a protocol for using a Thermo Scientific PDR-1000AN aerosol monitor to measure concentrations of theatrical smoke, fog and haze. The monitor measures the light scattering produced by particles in the air and reports the results in terms of mass concentration (milligrams per cubic meter, or mg/m^3) with the assumption that the particles in the air are a fine dust. Because different types of particles have different light scattering properties, the readings from the monitor need to be adjusted (or calibrated) when measuring something other than dust (such as fog droplets). The user converts the dust readings to the correct mg/m^3 readings for the fog droplets by multiplying the dust readings by a *calibration factor* for the particular fog fluid/fog machine combination being used for the fog, smoke or haze effect. Calibration factors for certain machine-fluid combinations have also been developed for the Particulate Matter (PM) Sensor SPS30 manufactured by Sensirion.

The following calibration factors have been developed and approved by Actors' Equity Association and the Broadway League for use in measuring theatrical smoke, fog and haze:

Approved Calibration Factors for Monitoring Theatrical Smoke, Fog, and Haze (PDR-1000) (Updated June 2023)						
Manufacturer	Machine		Fluid	Fluid Type	Calibration Factor	Reference
Advanced Entertainment Systems (AES) / MT-Electronic	Vario 6	Humidity 100% Fog: 25%	Cryo Fog Fluid	Glycol	0.86	(49)
		Humidity 100% Fog: 50%			1.40	(49)
	Vario 8	Humidity 100% Fog: 25%	Cryo Fog Fluid	Glycol	0.66	(49)
		Humidity 100% Fog: 50%			0.70	(49)
American DJ (ADJ)	Fog Fury 3000		Froggy's Fog Backwood Bay	Glycol	0.39	(35)
			Froggy's Fog Bog Fog	Glycol	1.62	(35)
			Froggy's Fog Cryo Freeze	Glycol	0.64	(35)
			Froggy's Fog Quick Blast	Glycol	0.64	(35)
			Froggy's Fog Velocity	Glycol	0.64	(35)
	Fog Storm 1700 HD		Froggy's Fog Cryo Freeze	Glycol	2.67	(35)
			Froggy's Fog Quick Blast	Glycol	2.67	(35)
Froggy's Fog Velocity			Glycol	2.67	(35)	
Antari	1520 RGB Upshot		Froggy's Fog Quick Blast	Glycol	1.28	(35)

Approved Calibration Factors for Monitoring Theatrical Smoke, Fog, and Haze (PDR-1000) (Updated June 2023)						
Manufacturer	Machine	Fluid	Fluid Type	Calibration Factor	Reference	
Antari	CH-1 Cinema Hazer	Antari CHL-2 Fluid	Mineral Oil	0.30	(66)	
	DNG-200 Low Fog	Antari FLC Fog Fluid	Glycol	3.40	(45)	
		Froggy's Fog Cryo Freeze	Glycol	4.99	(35)	
	DNG-250 Low Fogger	Antari FLL Low Fog Fluid	Glycol	3.89	(66)	
	F-1 Fazer	Antari FLG Fog Fluid	Glycol	0.68	(45)	
	F-4 Fazer	Antari FLG Fog Fluid	Glycol	1.06	(45)	
	F-5/F-5D Fazer	Froggy's Fog Faze Haze	Glycol	0.69	(35)	
	F-7 Smaze	Antari FLG Fog Fluid	Glycol	0.97	(45)	
	ICE	Froggy's Fog Cryo Freeze	Glycol	2.54	(35)	
	M-5	Froggy's Fog Amusement Park Fluid	Froggy's Fog Backwood Bay	Glycol	1.41	(35)
			Froggy's Fog Bog Fog	Glycol	1.03	(35)
			Froggy's Fog Cryo Freeze	Glycol	1.74	(35)
			Froggy's Fog Quick Blast	Glycol	1.74	(35)
			Froggy's Fog Velocity	Glycol	1.74	(35)
			Antari FLG Fog Fluid	Glycol	2.17	(45)
	M-8	Froggy's Fog Amusement Park Fluid	Froggy's Fog Backwood Bay	Glycol	1.35	(35)
			Froggy's Fog Bog Fog	Glycol	1.29	(35)
			Froggy's Fog Cryo Freeze	Glycol	2.65	(35)
			Froggy's Fog Quick Blast	Glycol	2.65	(35)
			Froggy's Fog Velocity	Glycol	2.65	(35)
			Antari FLG Fog Fluid	Glycol	1.35	(35)
	M-10	Froggy's Fog Bog Fog	Froggy's Fog Cryo Freeze	Glycol	2.62	(35)
			Froggy's Fog Quick Blast	Glycol	2.46	(35)
			Froggy's Fog Velocity	Glycol	2.46	(35)
			Antari FLG Fog Fluid	Glycol	1.12	(45)
	W-515D	Antari FLC Fog Fluid	Glycol	1.58	(44,45)	
	W-715x Fog Jet	Antari FLC Fog Fluid	Glycol	1.58	(44,45)	
X-515	Froggy's Fog Amusement Park Fluid	Froggy's Fog Backwood Bay	Glycol	1.07	(35)	
		Froggy's Fog Bog Fog	Glycol	1.43	(35)	
		Froggy's Fog Cryo Freeze	Glycol	1.74	(35)	
		Froggy's Fog Quick Blast	Glycol	1.74	(35)	
		Froggy's Fog Velocity	Glycol	1.74	(35)	
		Froggy's Fog Beam Splitter	Glycol	1.90	(35)	
Z-350	Froggy's Fog Beam Splitter	Glycol	1.90	(35)		
Z-380 Fazer	Antari FLG Fog Fluid	Glycol	0.49	(45)		
Aspire	K4 Vape Pen**	Damokee E-Liquid Daily Dose Fluid	Glycol	0.10	(48)	
		American Patriots by Naked 100 E-Liquid	Glycol	0.02	(69)	
Blue Haze Entertainment (BHE)	1550	Froggy's Fog Amusement Park Fluid	Glycol	1.07	(35)	
		Froggy's Fog Backwood Bay	Glycol	1.07	(35)	
		Froggy's Fog Bog Fog	Glycol	1.43	(35)	
		Froggy's Fog Cryo Freeze	Glycol	1.74	(35)	
		Froggy's Fog Quick Blast	Glycol	1.74	(35)	
		Froggy's Fog Velocity	Glycol	1.74	(35)	
Chauvet	AmHaze ECO	Premium Haze Fluid	Glycol	0.17	(53)	
	AmHaze II	Froggy's Fog Faze Haze	Glycol	0.83	(35)	
	Amhaze Stadium	Grignard Pure	Glycol	0.16	(60)	
		Premium Haze Fluid	Glycol	0.33	(57)	
	Cloud 9	LLG Fog Fluid	Glycol & Glycerol	0.47	(57)	
	Geyser	Froggy's Fog Quick Blast	Glycol	1.62	(35)	
	Hurricane 1800 Flex	Froggy's Fog Amusement Park Fluid	Glycol	1.00	(35)	
		Froggy's Fog Backwood Bay	Glycol	1.00	(35)	

Theatrical Smoke, Fog and Haze Testing: Calibration Factors

Approved Calibration Factors for Monitoring Theatrical Smoke, Fog, and Haze (PDR-1000) (Updated June 2023)						
Manufacturer	Machine		Fluid	Fluid Type	Calibration Factor	Reference
Chauvet	Hurricane 1800 Flex		Froggy's Fog Beam Splitter	Glycol	2.94	(35)
			Froggy's Fog Bog Fog	Glycol	1.07	(35)
			Froggy's Fog Cryo Freeze	Glycol	0.76	(35)
			Froggy's Fog Quick Blast	Glycol	0.76	(35)
			Froggy's Fog Techno	Glycol	2.94	(35)
			Froggy's Fog Velocity	Glycol	0.76	(35)
	Hurricane Haze 1XD		Grignard Pure	Glycol	0.21	(60)
Vesuvio II		Ultratec Quick Dissipating Fluid	Glycol	1.2	(65)	
CITC	AquaMax		Organic Haze Fluid	Glycerol	1.36	(33)
	Fantasy FX spray can		Fantasy FX Professional Haze	Mineral Oil	0.87	(20)
	Fog Max		Natural Fogging Fluid	Glycol	0.66	(4)
	HazeMax		Water Vapor Haze Fluid	Glycerol	1.87	(33)
	Starhazer		High Performance Fluid	Mineral Oil	0.87	(4)
Elation	Magma Prime		AEF Fog Fluid	Glycol	0.43	(58)
ePuffer	D-1500/Robusto Electronic Cigar**		e-Liquid	Glycol	1.04	(30,42)
	Snaps Rev4 E-Cigarette**		e-Liquid	Glycol	0.054	(63)
FireBase	SG-1300		Froggy's Fog Training Smoke FR-Fire Rescue Formula	Glycol	0.58	(35)
			Froggy's Fog Training Smoke Q-Quick Dissipating	Glycol	1.69	(35)
			Froggy's Fog Training Smoke XD-Extreme Density	Glycol	0.86	(35)
	SG-2600		Froggy's Fog Training Smoke FR-Fire Rescue Formula	Glycol	0.99	(35)
			Froggy's Fog Training Smoke XD-Extreme Density	Glycol	3.11	(35)
			Froggy's Fog Training Smoke FR-Fire Rescue Formula	Glycol	1.41	(35)
	SG-M1500		Froggy's Fog Training Smoke Q-Quick Dissipating	Glycol	1.74	(35)
			Froggy's Fog Training Smoke XD-Extreme Density	Glycol	1.03	(35)
			Froggy's Fog Training Smoke FR-Fire Rescue Formula	Glycol	1.35	(35)
	SG-M1800		Froggy's Fog Training Smoke Q-Quick Dissipating	Glycol	2.65	(35)
			Froggy's Fog Training Smoke XD-Extreme Density	Glycol	1.29	(35)
			Froggy's Fog Training Smoke Q-Quick Dissipating	Glycol	2.46	(35)
	SG-M3000		Froggy's Fog Training Smoke XD-Extreme Density	Glycol	2.62	(35)
			Froggy's Fog Training Smoke Q-Quick Dissipating	Glycol	2.62	(35)
Froggy's Fog	Poseidon	Humidity: 50-100% Fan: 15-65% Fog: 50%	Froggy's Fog Aqua Fog Fluid/Long Distance Formula	Glycol	0.43	(54)
		Humidity: 50-100% Fan: 15-65% Fog: 70%	Froggy's Fog Aqua Fog Fluid/Long Distance Formula	Glycol	0.55	(54)
		Humidity: 50% Fan: 35-65% Fog: 80%	Froggy's Fog Aqua Fog Fluid/Short Distance Formula	Glycol	0.67	(54)
hazebase	Base Classic / Classic2		Froggy's Fog Amusement Park Fluid	Glycol	0.58	(35,71)
			Froggy's Fog Backwood Bay	Glycol	0.58	(35,71)
			Froggy's Fog Bog Fog	Glycol	0.86	(35,71)
			Froggy's Fog Cryo Freeze	Glycol	1.69	(35,71)
			Froggy's Fog Quick Blast	Glycol	1.69	(35,71)
			Froggy's Fog Velocity	Glycol	1.69	(35,71)

Approved Calibration Factors for Monitoring Theatrical Smoke, Fog, and Haze (PDR-1000) (Updated June 2023)					
Manufacturer	Machine	Fluid	Fluid Type	Calibration Factor	Reference
hazebase	Base Classic / Classic2	Ultratec Molecular Fog Fluid	Glycol	2.15	(43,71)
	Base Hazer Pro	Base Hazer Liquid / BaseH	Glycol	0.43	(35,71)
		Froggy's Fog Faze Haze	Glycol	0.76	(35)
	Base Highpower 220V / Highpower2	Froggy's Fog Backwood Bay	Glycol	0.99	(35,71)
		Froggy's Fog Bog Fog	Glycol	3.11	(35,71)
	Cube Hazer2	Base V Fluid	Glycerol	0.0007	(67)
	FAB	Base V Fluid	Glycerol	0.0006	(67)
Piccola	Base B Fluid	Glycol	0.49	(71)	
High End Systems (ETC)	F-100	Atmosphere HQ Fluid	Glycol	1.21	(10)
		Atmosphere Cold Flow Formula	Glycol	2.41	(1)
		Atmosphere Stage Formula	Glycol	0.25	(1)
	FQ-100	Atmosphere HQ Fluid	Glycol	1.30	(26)
		Atmosphere Stage Formula	Glycol	0.96	(26)
HQ100 Hazer	HQ100 Haze Fluid	Glycol	0.41	(56)	
Kandypens	Rube Vape Pen**	Lava Flow by Naked 100 E-Liquid	Glycol	0.02	(61)
Le Maitre Ltd.	G300	Molecular Fog Fluid	Glycol	0.53	(4,24,25)
		Quick Dissipating	Glycol	2.65	(4,24,25)
		Regular Haze (C-Beam) Fluid	Glycerol	0.09	(10,24,25)
		Standard Smoke Fluid	Glycol	0.30	(4,9,24,25)
	G300/LSG/Freezefog Pro or equivalent chiller	Molecular Fog Fluid	Glycol	4.95*	(7,25,28)
	G-Force, Gforce3	Molecular Fog Fluid	Glycol	0.53	(4,24,28,47)
		Quick Dissipating	Glycol	2.65	(4,24,28,47)
		Standard Smoke Fluid	Glycol	0.30	(4,9,24,25,47)
	G-Force/Gforce3/LSG/Freezefog Pro or equivalent chiller	Molecular Fog Fluid	Glycol	4.95*	(7,25,28,47)
	Mini Mist	Standard Smoke Fluid	Glycol	2.24	(10,25)
	MVS	Froggy's Fog Neutronic Haze Fluid	Glycerol	0.35	(35)
	Neutron XS	Froggy's Fog Neutronic Haze Fluid	Glycerol	0.09	(35)
		Neutron Haze Fluid	Glycerol	0.12	(2,25)
	Opti Mist Ranger	Mini Mist Canister	Glycol	3.01	(1,25)
Look Solutions	Cobra 1.8	Quick-Fog Fluid	Glycol	1.51	(52)
		Regular-Fog Fluid	Glycol	0.76	(52)
		Slow-Fog Fluid	Glycol	1.10	(52)
	Cobra 1.8 / CryoGate	Cryo-Fog Fluid	Glycol	3.93	(52)
	Cobra 1.8 / LSG	Cryo-Fog Fluid	Glycol	1.72	(51)
	Cryo-Fog	Cryo-Fog Fluid	Glycol	0.91	(16,21)
	Orka	Regular-Fog Fluid	Glycol	0.23	(8)
	Power Tiny	Tiny Fluid	Glycol	0.49	(15)
	Tiny Compact/Tiny C07	Tiny Fluid	Glycol	0.76	(4,21)
	Tiny Fogger/Tiny F07	Tiny Fluid	Glycol	0.76	(4,21)
	Tiny FX/Tiny CX	Tiny Fluid	Glycol	0.71	(31,37)
	Tiny S	Tiny Fluid	Glycol	0.69	(31)
	Unique/Unique2 Hazer	Unique Fluid	Glycol	0.30	(4,12)
	Uniques Hazer fitted with an accumulator box	Unique Fluid	Glycol	0.26	(46)
	Viper (NT, S, 2.6)	Quick-Fog Fluid	Glycol	2.02	(17,50)
		Regular-Fog Fluid	Glycol	1.46	(4,12,50)
		Slow-Fog Fluid	Glycol	0.90	(31,50)
	Viper / LSG MKII or equivalent chiller	Quick-Fog Fluid	Glycol	0.89	(32,50)

Approved Calibration Factors for Monitoring Theatrical Smoke, Fog, and Haze (PDR-1000) (Updated June 2023)					
Manufacturer	Machine	Fluid	Fluid Type	Calibration Factor	Reference
Martin Professional	Jem Compact Hazer Pro	JEM C-Plus Haze Fluid	Glycol	0.70	(38,55)
	Jem Glaciator	JEM Low-Fog Fluid	Glycol	3.41	(4,55)
	Jem Glaciator X-Stream	JEM Low-Fig Fluid, High Density	Glycol	3.23	(23,55)
	Jem Hazer Pro	JEM C-Plus Fluid	Glycol	0.88	(38,55)
	Jem Ready 365	JEM R365 Haze Fluid	Glycol & Glycerol	0.24	(38)
	Jem Roadie	JEM Pro-Fog Fluid	Glycol	0.62	(27,55)
	Jem ZR12-DMX	JEM Pro-Fog Fluid	Glycol	1.12	(4,55)
	Jem ZR24/7 Hazer	RUSH & THRILL Haze Fluid	Glycol	0.76	(5,41,55)
	Jem ZR33 Hi-Mass	Froggy's Fog Cryo Freeze	Glycol	2.20	(35)
	Jem ZR33 Hi-Mass	Froggy's Fog Quick Blast	Glycol	2.20	(35)
		Froggy's Fog Velocity	Glycol	2.20	(35)
		JEM Pro-Fog Fluid	Glycol	0.79	(23,55)
		JEM Pro-Fog Fluid, Extra Quick Dissipating	Glycol	2.31	(23,55)
	Jem ZR44	Froggy's Fog Backwood Bay	Glycol	0.77	(35)
		Froggy's Fog Bog Fog	Glycol	1.40	(35)
		Froggy's Fog Cryo Freeze	Glycol	0.95	(35)
		Froggy's Fog Quick Blast	Glycol	0.95	(35)
		Froggy's Fog Velocity	Glycol	0.95	(35)
	K-1	Froggy's Fog K-razy Haze	Glycol	0.49	(35)
	Magnum 2000	Froggy's Fog Backwood Bay	Glycol	0.93	(35)
		Froggy's Fog Bog Fog	Glycol	1.21	(35)
		Froggy's Fog Cryo Freeze	Glycol	1.01	(35)
		Froggy's Fog Quick Blast	Glycol	1.01	(35)
Froggy's Fog Velocity		Glycol	1.01	(35)	
Magnum 2500Hz	RUSH & THRILL Haze Fluid	Glycol	0.28	(23,41,55)	
MDG Fog Generators	Mini-Max	MDG Dense Fluid	Glycol	3.21	(1)
	ATMe	MDG Neutral Fluid	Mineral Oil	0.78	(70)
	Atmosphere APS	MDG Neutral Fluid	Mineral Oil	0.78	(1)
	MAX 3000 APS	MDG Neutral Fluid	Mineral Oil	0.78	(1)
	MDG MAX 3000 APS through accumulator box	MDG Neutral Fluid	Mineral Oil	0.27	(6)
New Rule FX	Electronic Actor Cigarette Prop**	Cartridge Fluid	Glycol	0.44	(36)
Practical Magic & Innovations	SmokeGENIE	Cloud Liquid	Glycol	0.089	(62)
Pure Smoke	Electronic Cigarette**	Electronic Cigarette Flavors	Glycol	0.33	(29)
Reel EFX, Inc.	DF-50	Diffusion Fluid	Mineral Oil	0.78	(1)
		Froggy's Fog DaFiddy Oil-Based Haze	Mineral Oil	0.40	(35)
		Master Fog DEE-EFF-50	Mineral Oil	0.37	(40)
Robe	Fog 1550 FT	Froggy's Fog Amusement Park Fluid	Glycol	1.07	(35)
		Froggy's Fog Backwood Bay	Glycol	1.07	(35)
		Froggy's Fog Bog Fog	Glycol	1.43	(35)
		Froggy's Fog Cryo Freeze	Glycol	1.74	(35)
		Froggy's Fog Quick Blast	Glycol	1.74	(35)
		Froggy's Fog Velocity	Glycol	1.74	(35)
Rosco Laboratories	1500 / 1600	Rosco Clear Fog Fluid	Glycol	1.82	(1)
		Rosco Fog Fluid	Glycol	1.27	(1)
		Rosco Light Fog Fluid	Glycol	1.38	(1)
		Rosco Stage & Studio Fluid	Glycol	1.56	(1)
	1750	Rosco Fog Fluid	Glycol	0.58	(19)
		Rosco Stage & Studio Fluid	Glycol	0.67	(19)
	Alpha 900	Rosco Clear Fog Fluid	Glycol	1.82	(1)
		Rosco Fog Fluid	Glycol	1.27	(1)
		Rosco Light Fog Fluid	Glycol	1.38	(1)

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Manufacturer	Machine	Fluid	Fluid Type	Calibration Factor	Reference
Rosco Laboratories	Alpha 900	Rosco Stage & Studio Fluid	Glycol	1.56	(1)
	Delta 3000	Rosco Clear Fog Fluid	Glycol	1.43	(4)
		Rosco Fog Fluid	Glycol	1.00	(4)
		Rosco Light Fog Fluid	Glycol	1.35	(4)
		Rosco Stage & Studio Fluid	Glycol	1.97	(4)
	Delta Hazer	Rosco Delta Hazer Fluid	Glycol	0.71	(18)
	Mini-V	Rosco Fog Fluid	Glycol	0.55	(34)
		Rosco Stage & Studio Fluid	Glycol	0.85	(34)
	PF-1000	Rosco Clear Fog Fluid	Glycol	1.82	(1)
		Rosco Fog Fluid	Glycol	1.27	(1)
	PF-1000	Rosco Light Fog Fluid	Glycol	1.38	(1)
		Rosco Stage & Studio Fluid	Glycol	1.56	(1)
	V-Hazer	Rosco V-Hazer Fluid	Glycol	0.68	(34)
	Vapour	Rosco Fog Fluid	Glycol	0.44	(34)
		Rosco Stage & Studio Fluid	Glycol	0.85	(34)
Vapour Plus	Rosco Fog Fluid	Glycol	0.82	(34)	
	Rosco Stage & Studio Fluid	Glycol	0.78	(34)	
SFX Design	Fog Master FM-1	AquaFog Fluid	Glycol	0.19	(3)
Smoke Factory	Captain D	Gotham Fog Fluid	Glycol	0.57	(64)
	Tour Hazer	Gotham Haze Fluid	Glycol	0.30	(4)
	Tour Hazer II	Gotham Haze Fluid	Glycol	0.43	(64)
Smoke In Style	Electronic Pipe Prop**	Feellife E-Liquid	Glycol & Glycerol	0.42	(39)
Ultratec Special Effects (fka Le Maitre Special Effects)	G100	Director's Choice	Glycol	4.17	(1,9,25)
		Extra Quick Dissipating	Glycol	3.17	(1,25)
		Quick Dissipating	Glycol	3.45	(1,25)
	G150	Director's Choice	Glycol	4.17	(1,9,25)
		Extra Quick Dissipating	Glycol	3.17	(1,25)
		Molecular Fog Fluid	Glycol	2.58	(1,25)
		Pro Beam (Long Lasting)	Glycol	1.42	(4,25)
		Quick Dissipating	Glycol	3.45	(1,25)
		Director's Choice	Glycol	0.30	(4,9,24,25)
	G3000	Molecular Fog Fluid	Glycol	0.53	(4,24,25)
		Pro Beam (Long Lasting)	Glycol	0.67	(4,24,25)
		Quick Dissipating	Glycol	2.65	(4,24,25)
		Regular Haze Fluid	Glycerol	0.09	(10,24,25)
		Froggy's Fog Amusement Park Fluid	Glycol	1.07	(25,35)
		Froggy's Fog Backwood Bay	Glycol	1.07	(25,35)
		Froggy's Fog Bog Fog	Glycol	0.88	(25,35)
		Froggy's Fog Cryo Freeze	Glycol	2.96	(25,35)
		Froggy's Fog Quick Blast	Glycol	2.96	(25,35)
		Froggy's Fog Velocity	Glycol	2.96	(25,35)
	G3000/LSG or equivalent chiller	Molecular Fog Fluid	Glycol	4.95*	(7,25)
	Handy Fogger	Director's Choice	Glycol	0.49	(59)
		Quick Dissipating	Glycol	1.60	(59)
		Pro Beam	Glycol	1.18	(59)
	Power Fog Industrial (PFI) or PFI 9D	Director's Choice	Glycol	0.99	(4,9,11,25)
		Molecular Fog Fluid	Glycol	2.77	(4,11,25)
		Pro Beam (Long Lasting)	Glycol	1.36	(4,11,25)
		Quick Dissipating	Glycol	1.37	(4,11,25)
	Power Fog Industrial 9D (PFI 9D) with LSG-MKII or equivalent chiller	Extra Quick Dissipating	Glycol	1.23	(22,25)
		Molecular Fog Fluid	Glycol	0.75	(13,25)
		Quick Dissipating	Glycol	0.21	(22,25)
Radiance Hazer	Froggy's Fog Neutronic Haze Fluid	Glycerol	1.06	(25,35)	
	Neutron/Luminous 7 Haze Fluid	Glycerol	0.26	(14,25)	

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Manufacturer	Machine	Fluid	Fluid Type	Calibration Factor	Reference
Ultratec Special Effects	Show Fogger Pro	Director's Choice	Glycol	0.44	(4,9,25)
		Pro Beam (Long Lasting)	Glycol	0.44	(4,25)
		Quick Dissipating	Glycol	2.56	(4,25)
	Stage Fogger DMX	Director's Choice	Glycol	0.99	(4,9,25)
		Molecular Fog Fluid	Glycol	2.77	(4,25)
		Pro Beam (Long Lasting)	Glycol	1.36	(4,25)
		Quick Dissipating	Glycol	1.37	(4,25)
Vosentech	Microfogger 3 Pro	Fog Fluid	Glycol	0.10	(68)

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

Notes:

* Due to monitor overloading during the calibration testing for this combination, the resulting calibration factor of 4.95 is known to be overestimated. This value can be used as a conservative (i.e., health protective) screening value. If monitoring results using this calibration factor result in exposures exceeding the guidance levels, it is recommended that additional testing to refine this calibration factor be conducted.

** Testing of vape pens, e-cigarettes 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.

Approved Calibration Factors for Monitoring Theatrical Smoke, Fog, and Haze (Sensirion SPS30) (Updated November 2020)					
Manufacturer	Machine	Fluid	Fluid Type	Calibration Factor	Reference
Chauvet	Amhaze Stadium	Grignard Pure	Glycol	0.21	(60)
	Hurricane 1800 Flex	Grignard Pure	Glycol	0.40	(60)
	Hurricane Haze 1XD	Grignard Pure	Glycol	0.32	(60)

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

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