

An Overview of Odour Regulation in the United States

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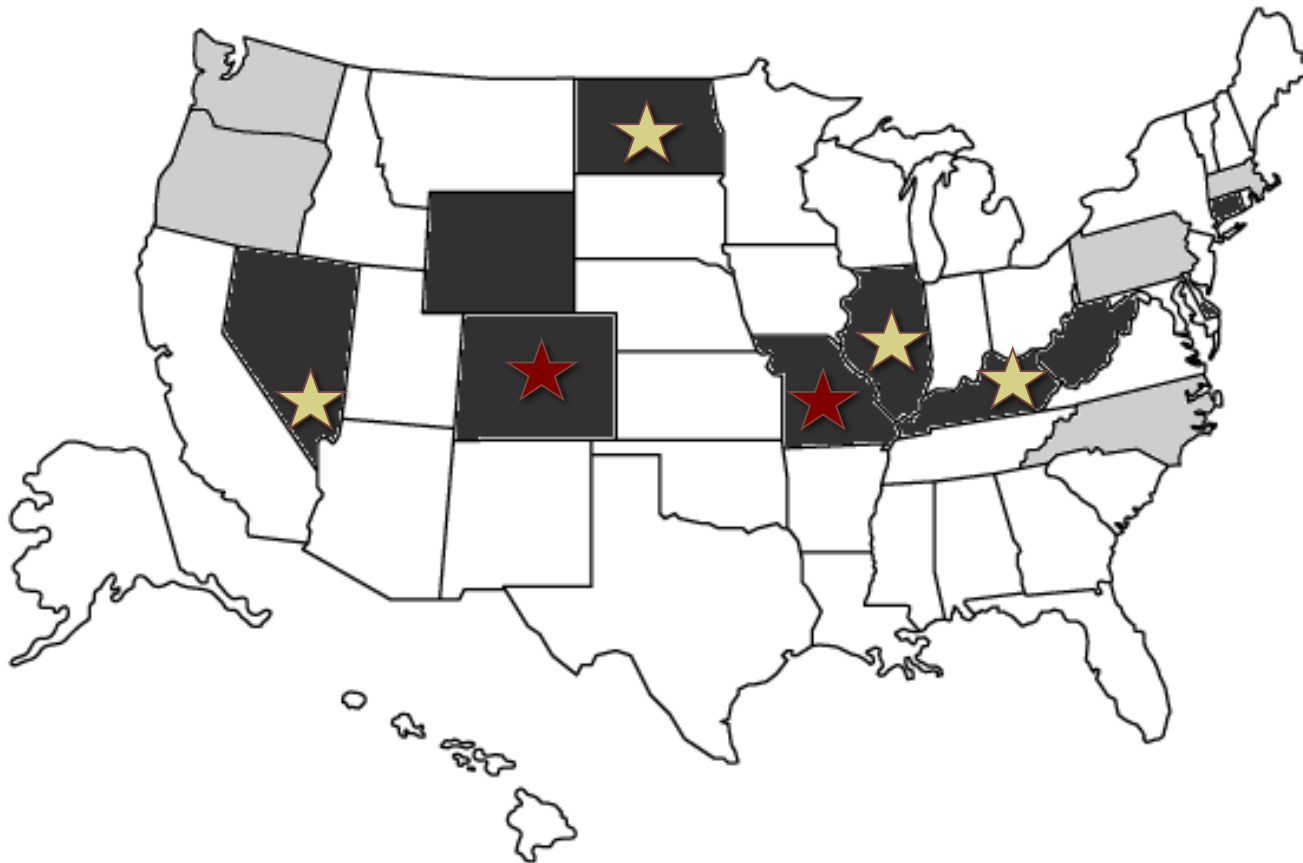
St. Croix Sensory, Inc.

U.S. - EPA



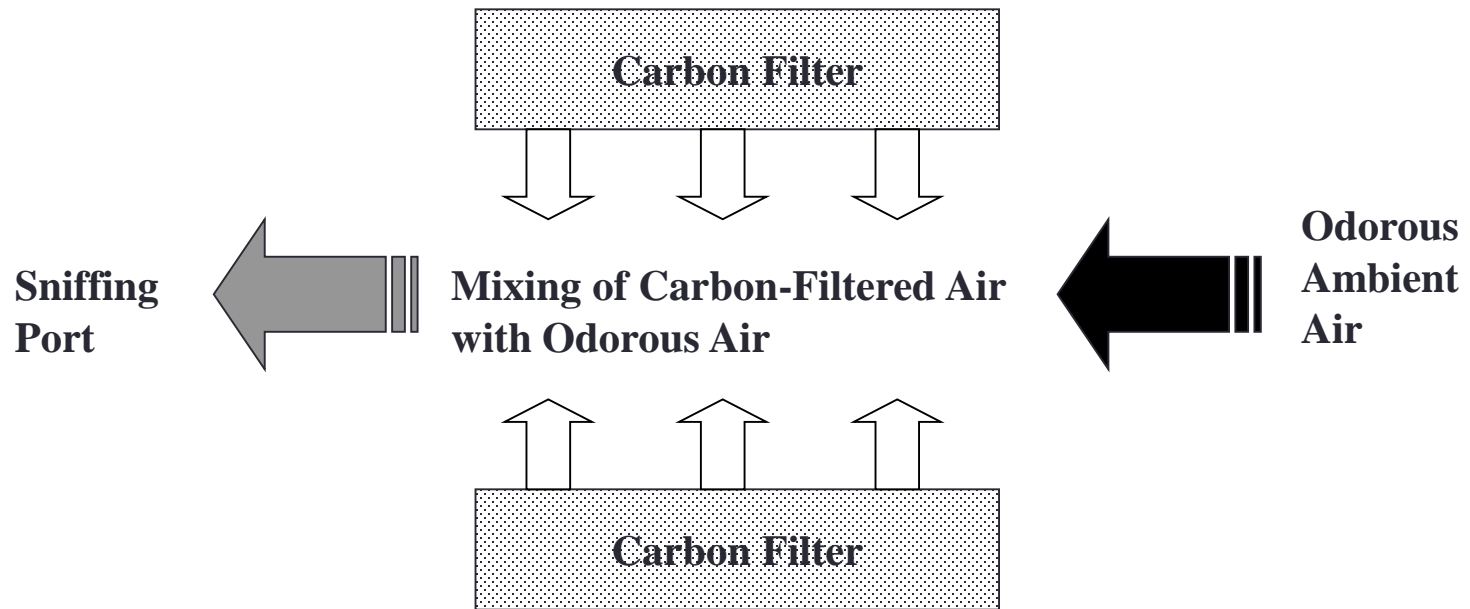
- Does not regulate odour directly
- Regulates chemical constituents of odour
- Does not preclude states from regulating odour directly

Ten States Regulate Odour using the Dilution-to-Threshold (D/T) Method



- Colorado
- Connecticut
- Delaware
- Illinois
- Kentucky
- Missouri
- Nevada
- North Dakota
- West Virginia
- Wyoming

Field Olfactometer



State of Colorado

5CCR 1001-4 AQCC Regulation No. 2

- ✓ 7 D/T residential or commercial
- ✓ 15 D/T “other” areas
- ✓ Never > 127 D/T
- ✓ Swine facility: never >7 D/T @ boundary
- ✓ Swine facility: never >2 D/T off-site
- ✓ **Two or more exceeding measurements within an hour & more than 15-min apart**

Municipality Example

...if any of the following conditions are present:

- ✓ ambient air after it is diluted with four equally sized samples of odour-free air, for two samples or observations not less than fifteen minutes apart within a one hour period;
- ✓ ambient air intensity greater than 75 ppm n-butanol;
- ✓ a written citizen complaint...verified

ODOR COMPLAINT INVESTIGATION PROCEDURES

FIDO CHART

ODORS CHARACTERIZED AS **HIGHLY OFFENSIVE**

		FREQUENCY				
		Single Occurrence	Quarterly	Monthly	Weekly	Daily
D U R A T I O N	1 minute	NA	NA	VS	S	M
	10 minutes	NA	VS	S	M	L
	1 hour	VS	S	M	L	VL
	4 hours	S	M	L	VL	VL
	12 hours+	M	L	VL	VL	VL

ODORS CHARACTERIZED AS **OFFENSIVE**

		FREQUENCY				
		Single Occurrence	Quarterly	Monthly	Weekly	Daily
D U R A T I O N	1 minute	NA	NA	NA	VS	S
	10 minutes	NA	NA	VS	S	M
	1 hour	NA	VS	S	M	L
	4 hours	VS	S	M	L	VL
	12 hours+	S	M	L	VL	VL

ODORS CHARACTERIZED AS **UNPLEASANT**

		FREQUENCY				
		Single Occurrence	Quarterly	Monthly	Weekly	Daily
D U R A T I O N	1 minute	NA	NA	NA	NA	VS
	10 minutes	NA	NA	NA	VS	S
	1 hour	NA	NA	VS	S	M
	4 hours	NA	VS	S	M	L
	12 hours+	VS	S	M	L	VL

ODORS CHARACTERIZED AS **NOT UNPLEASANT**

		FREQUENCY				
		Single Occurrence	Quarterly	Monthly	Weekly	Daily
D U R A T I O N	1 minute	NA	NA	NA	NA	NA
	10 minutes	NA	NA	NA	NA	NA
	1 hour	NA	NA	NA	NA	VS
	4 hours	NA	NA	NA	VS	S
	12 hours+	NA	NA	VS	S	M

INTENSITY LEGEND
VS
Very Strong
S
Strong
M
Moderate
L
Light
VL
Very Light



Highly Offensive

- * Blood drying operations
- * Sewage treatment primary sludge
- * Putrefying animals/fish
- * Hide processing
- * Rancid grease
- * H₂S (Landfill gas, leachate, paper mill black liquor, etc.)
- * Mercaptans (natural gas odorant)

Offensive

- * Landfill garbage/waste
- * Cattle lagoon cleanout
- * Confined hog/poultry operations under best management practices
- * Decaying silage/composting
- * Unprocessed rendering plant material and wastewater
- * Typical grease trap odor
- * Waste burning (rubber, plastic, tires, other non-wood materials)
- * Failing or improperly operated septic systems
- * Organic products like auto-body paint & styrene (fiber-glass, cultured marble mfg)¹

Unpleasant

- * Well digested or chemically-treated sludge
- * Cattle operation under best management practices
- * Waste-activated sludge processes
- * Water-based painting
- * Gasoline, diesel fuel
- * Diesel exhaust
- * Asphalt odors
- * Burned coffee/food
- * Brush/wood burning
- * Ammonia
- * Chlorine

Not Unpleasant

- * Ketones, esters, alcohols
- * Fresh-cut grass or hay
- * Normal coffee roasting
- * Normal food preparation
- * Bakery
- * Perfume
- * Spice packaging
- * Winery



Example

ODORS CHARACTERIZED AS OFFENSIVE

		FREQUENCY				
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D U R A T I O N	1 minute	NA	NA	NA	VS	S
	10 minutes	NA	NA	VS	S	M
	1 hour	NA	VS	S	M	L
	4 hours	VS	S	M	L	VL
	12 hours+	S	M	L	VL	VL



Challenges for Odour Ordinance Development

- ✓ Lack of understanding ODOUR

**Technical Infrastructure as important as
Administrative Infrastructure**

- ✓ Reluctance to prosecute nuisance
- ✓ Investigation cost prohibitive
- ✓ Political obstacles