Exposure Mitigation Health-Based Action Levels for Averaged Data

for field use with instruments that provide real-time averaging of data while stationary

These values should not be directly compared to instantaneous data

Chemical(s)	$^{EM}HBAL_{10min}$ (ppb)	$^{EM}HBAL_{1hr}$ (ppb)
Acetylene	75,000	50,000
Ammonia	2,550	1,700
Benzene	500 [b]	360
1,3-Butadiene	2,500 [b]	3,400
Butane	276,000	184,000
1-Butene	81,000	54,000
C3-C4 Saturated	--	--
Chlorine	200 [b]	140
Cyclohexane	3,000	2,000
Ethylbenzene	60,000	40,000
Ethylene Dichloride	1,000 [b]	1,080
Ethylene Glycol	5,700	3,800
Ethylene Oxide	2,500 [b]	1,820
Formaldehyde	50	88
n-Hexane	16,200	10,800
Hydrochloric Acid	1,000 [c]	880

Chemical(s)	$^{EM}HBAL_{10min}$ (ppb)	$^{EM}HBAL_{1hr}$ (ppb)
Hydrogen Sulfide	210	140
Isobutane	99,000	66,000
n-Octane	12,300	8,200
Propane [a]	--	--
Propylene [a]	--	--
Sodium Hydroxide	15	10
Styrene	10,000 [b]	10,200
Sulfur Dioxide	--	--
Sulfuric Acid	90	60
Toluene	12,000	8,000
Vinyl Chloride	216,000	144,000
Xylenes + Ethylbenzene	15,000 [d]	10,000 [d]
Xylenes	15,000	10,000
Associated Actions	Consider exposure mitigation if 5-10 min avg > level	Consider exposure mitigation if 30+ min avg > level

[a] Simple asphyxiant, non-toxic in ambient air; [b] Based on ½ occupational short-term exposure level (STEL); [c] Based on ½ occupational ceiling value;
[d] Values are based on acute health-based comparison values (AHBCV) for xylenes; "--"no value available; ppb – parts per billion;
***$^{EM}HBAL_{10min}$** – 10-minute exposure mitigation health-based action level;*
***$^{EM}HBAL_{1hr}$** – 1-hour exposure mitigation health-based action level*

Note: If a value does not exist and one is needed for screening, please contact the Toxicology Division for a trip-specific value at TOX@tceq.texas.gov or 512-239-1795.

Basis of exposure mitigation values and recommended actions if exceeded:

Comparison Value (Acronym)	Basis	Recommended Actions
10-min health-based action level for exposure mitigation ($^{EM}HBAL_{10min}$)	Lower of 3×AHBCV[a], ½ STEL[b], or ½ C[c]	Consider exposure mitigation for staff
1-hour health-based action level for exposure mitigation ($^{EM}HBAL_{1hr}$)	2×AHBCV	Consider exposure mitigation for staff

AHBCV – acute health-based comparison value; C – ceiling value; STEL – 15-minute short-term occupational exposure limit; the DUVAS caterpillar trail designated color for ^{EM}HBAL values is purple