



Fentanyl: Preventing Exposure to Emergency Responders

Per the CDC and NIOSH, Fentanyl is a powerful synthetic drug that is similar to morphine and heroin but is 50 to 100 times more potent. Fentanyl and its analogs are members of the class of drugs known as rapid-acting synthetic opioids that alleviate pain. Other drugs in this class include fentanyl analogs, such as acetylfentanyl, butyrfentanyl, carfentanil, alfentanil, sufentanil, and remifentanil. Fentanyl acts quickly to depress central nervous system and respiratory function and can be fatal even in small concentrations with a LD50 of 62mg/kg (lethal dose causing death of 50% of test animals) (DEA, 2015).

Fentanyl is often distributed as a crystalline powder; however, it is also used as a filler in cocaine, heroin, and other opiate based recreational drugs. First responders need to exercise extreme caution when handling known sources of Fentanyl as it is easily absorbed through inhalation, ingestion, or skin permeation. The table below provides PPE recommendations for first responders based on position and anticipated exposure. At a minimum, respirators need to use HEPA filters and disposable gloves need to be nitrile with a minimum five mil thickness (see items 2 and 6 respectively):

Personal protective equipment recommendations for protection against fentanyl

Personal Protective Equipment	Pre-Hospital Patient Care			Law Enforcement Routine Duties			Investigations and Evidence Collection			Special Operations and Decontamination			
	Exposure Level	Minimal	Moderate	High	Minimal	Moderate	High	Minimal	Moderate	High	Minimal	Moderate	High
<i>Respiratory Protection</i>													
Disposable N100, R100, or P100 FFR ¹		✓				✓			✓			✓	
Elastomeric APR ²								●	✓			●	✓
PAPR ³									●			●	●
SCBA ⁴									■				■
<i>Face and Eye Protection</i>													
Safety goggles/glasses ⁵		✓				✓			✓	✓		✓	✓
<i>Hand Protection</i>													
Nitrile gloves ⁶		✓	✓		✓	✓		✓	✓		✓	✓	✓
Nitrile gloves, double or use of thicker gloves			●			●			●	●		●	✓
<i>Dermal Protection</i>													
Wrist/arm protection ⁷			✓			✓			✓			✓	
Particulate hazards protective ensemble (i.e., NFPA 1999 Single or Multi-Use or NFPA 1994 Class 4 Ensemble)										✓			✓
Chemical hazards protective ensemble (i.e., NFPA 1994 Class 3 Ensemble or Higher)										●			●

1. FFR: filtering facepiece respirator, N: not resistant to oil, P: oil=proof, R: resistant to oil.
2. APR: air-purifying respirator; configurations recommended: half facepiece APR with N-,P-, or R100 cartridges; full facepiece APR with N-, P-, or R100 cartridges or a chemical, biological, radiological, and nuclear (CBRN) canister.
3. PAPR: powered air-purifying respirator, configuration recommended: PAPR with high efficiency particulate air (HEPA) filter.
4. SCBA: self-contained breathing apparatus; certified to NFPA 1981: *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*.
5. Face and eye protection is recommended when the respirator does not provide this type of protection, e.g., when wearing a disposable N-, P-, or R100 respirator or an elastomeric half facepiece APR with N-, P-, or R100 cartridges.
6. Powder-free nitrile gloves should be worn with a minimum thickness of 5+- 2 mil (i.e. 0.127 +- 0.051 millimeters; 1 mil=0.0254 millimeters), unless manufacturer data provides performance breakthrough data for thinner gloves.
7. Wrist/arm protection may include one or more of the following: on-duty uniform with sleeves, sleevecovers, gowns, or coveralls.

References:

https://www.deadiversion.usdoj.gov/drug_chem_info/acetylfentanyl.pdf

https://www.cdc.gov/niosh/ershdb/emergencyresponsecard_29750022.html

03/16/18