

Hydrogen Cyanide (HCN) Structure Fire Gases & Toxins

Firefighter Decontamination Best Practice

Introduction:	Structure fires produce a dangerous and lethal combination of toxic gases including Hydrogen Cyanide, Carbon Monoxide, Benzene and Dioxins. Each causes cancer. Hydrogen Cyanide is the most lethal and of most concern.
HCN & Toxins	Produced at structure fires, room and contents fires, car fires, and kitchen fires. HCN is a stable gas that does not break down. It affixes itself to all clothing and skin. It requires washing and rinsing to remove.
Route of Entry:	HCN enters the body by ingestion, inhalation, eyes, or skin
HCN Signs & Symptoms:	Drowsiness, headaches, shortness of breath, chest tightening, bright red skin, eye irritation, weakness of the extremities, difficulty breathing.
IDLH:	HCN- 50 ppm. Carbon Monoxide - 1200 ppm
Impacts:	Without SCBA, exposure to 10 ppm of HCN for a period of 30 minutes can lead to permanent brain and organ tissue damage. (NIOSH)
Warnings:	HCN detectors typically alarm at a 4.7 ppm industry pre-set.

Decon Best Practice

Warm Zone Responders **Not Wearing Firefighter PPE.** At 10 ppm or greater remove outer clothing. Store in plastic bag for transport. Use wipes to clean hands, neck, and face before leaving scene. Machine wash clothes ASAP.

Hot Zone Firefighters **Wearing Firefighter PPE and SCBA** Decontaminate on scene with water and detergent. Use wipes to clean face, neck and hands. Machine wash PPE. Shower before eating or any other activity.

Decon Procedures

Firefighters working at all structure fires are expected to decontaminate immediately before leaving the scene, according to the following steps:

STEP 1: Wearing full PPE and SCBA, completely rinse head to foot.

STEP 2: Apply detergent, completely scrub all PPE and SCBA.

STEP 3: Thoroughly rinse until soap is removed.

STEP 4: Remove all PPE at the station for machine washing. Using wipes, clean hands, neck, and face to complete decon.

STEP 5: As soon as practical, shower before eating or any other activity

Deviation from decontamination procedures is contrary to firefighter health and safety best practice and must be justified by Command and the Safety Officer.