TriCon Environmental, Inc.

NIOSH Approvals

NIOSH APPROVALS	TLV	IDLH LIMIT	 60926	 FR-57	 FR-64
Organic Vapors			✯	✯	✯
Sulfur Dioxide	2 ppm TWA 5 ppm STEL	100 ppm	✯	✯	✯
Hydrogen Chloride	5 ppm C	100 ppm	✯	✯	✯
Chlorine	0.5 ppm TWA 1 ppm STEL	30 ppm	✯	✯	✯
Chlorine Dioxide	0.1 ppm TWA 0.3 ppm STEL	10 ppm	✯	✯	✯
Hydrogen Flouride	3 ppm C	30 ppm	✯	✯	✯
Ammonia	25 ppm TWA 35 ppm STEL	500 ppm	✯	✯	✯
Methylamine	5 ppm TWA 15 ppm STEL	100 ppm	✯	✯	✯
Formaldehyde	0.3 ppm 1 ppm STEL	30 ppm	✯	✯	✯
Hydrogen Sulfide	10 ppm TWA 15 ppm STEL	300 ppm	✯		✯
Phosphine	0.3 ppm 1ppm STEL	200 ppm			✯
CN	0.3 mg/m³	101 mg/m³			✯

	TWA				
CS	0.39 mg/m³ C	1.9 mg/m³			✯
P100 Particulates			✯		✯

NA = Not applicable ppm = parts per million mg/m3 = milligrams per cubic meter of air

1. TLV = Threshold Limit Value from the American Conference of Governmental Industrial Hygienists ACGIH Threshold Limit Values and Biological Exposure Indices, 2001.
2. IDLH = Immediately Dangerous to Life or Health limit. NIOSH Pocket Guide to Chemical Hazards, DHHS (NIOSH) Publication No. 90-177, 1990. Although newer IDLH values have been published, OSHA stated in a May 21, 1996 Memorandum that OSHA will use the older IDLH valves while NIOSH conducts further study.
3. DMMP is a common surrogate or simulant test agent for the nerve agent sarin (GB). TLV and IDLH limit values have not been established for DMMP.
4. C = Ceiling Limit refers to the concentration that should not be exceeded during any part of the working exposure without respiratory protection.

Common Military Agents

MILITARY SPECIFICATIONS TESTING	TLV	IDLH LIMIT	60926	FR-57	FR-64
Diethyl Methylphosphonate (DMMP)	NA	NA		✯	✯
Hydrogen Cyanide	4.7 ppm C	50 ppm		✯	✯
Cyanogen Chloride	0.3 ppm C	ND		✯	✯
Chloropicrin	0.1 ppm TWA	4 ppm		✯	✯
Phosgene	0.1 ppm TWA	2 ppm		✯	✯
CN	0.3 mg/m³ TWA	101 mg/m³	✯	✯	✯
CS	0.39 mg/m³ C	1.9 mg/m³	✯	✯	✯
	OASG limit value	OASG limit value			
Sarin (GB)	0.0001mg/m³	> 0.2 mg/m³	✯	✯	✯

3M™ Cartridge/Filter 60926, Multi Gas/Vapor/P100 60/Case

Use in a variety of applications, including petrochemical and chemical processing, utilities, pharmaceuticals, mining and primary metals. When properly fitted, helps provide respiratory protection from certain organic vapors and particulates, chlorine, hydrogen chloride, sulfur dioxide, chlorine dioxide, hydrogen sulfide (escape only), ammonia, methylamine, formaldehyde or hydrogen fluoride at concentrations up to 10 times the Permissible Exposure Limit (PEL) with half facepieces or 50 times PEL with full facepieces. Full facepieces must be quantitatively fit tested to claim assigned protection factor above 10 in negative pressure mode. Do not use in environments that are immediately dangerous to life or health (IDLH). OSHA requires that gas-proof goggles be worn with half facepiece respirators when used against formaldehyde.

3M™ Canister FR-64

3M's FR-64 canister has been tested against military and NIOSH protocol and found to be effective against a number of different chemical warfare agents and industrial chemicals (see testing footnotes below). The FR-64 canister contains a P100 filter to remove solid and liquid aerosols. It also contains activated and impregnated carbon to absorb or react with gases and liquid vapors. Air purifying respirators (APR) can only be used when sufficient oxygen is present and when the contaminant and concentration are known and below Immediately Dangerous to Life or Health (IDLH) limits. The maximum use concentration (MUC) in which an APR can be utilized is the product of the assigned protection factor (APF = 50 for a quantitatively fit tested full face piece respirator) multiplied by the airborne exposure limit (such as TLV®). This number must be lower than the IDLH, otherwise the IDLH becomes the MUC.

3M™ Canister FR-57

NIOSH-approved for: Organic Vapor, Acid Gas (Sulfur Dioxide, Chlorine and Hydrogen Chloride), Ammonia/Methylamine, Hydrogen Fluoride, Chlorine Dioxide, Formaldehyde, and HE Filter. Can also filter a wide range of chemical warfare agents such as: Nerve agents, Mustard agents, Tear agents, Blood agents, Chlorine, Phosgene, Chloropicrin, and Diphenylchloroarsine.

The FR-57 cartridge contains a high efficiency filter to remove solid and liquid aerosols. It also contains activated and impregnated carbon to absorb or react with gases and liquid vapors. Air purifying respirators (APR) can only be used when sufficient oxygen is present and when the contaminant and concentration are known and below Immediately Dangerous to Life or Health (IDLH) limits. The maximum use concentration (MUC) in which an APR can be utilized is the product of the assigned protection factor (APF = 1000 for a powered air purifying respirator with a hood or full facepiece) multiplied by the airborne exposure limit (such as TLVÆÊ). This number must be lower than the IDLH, otherwise the IDLH becomes the MUC

TriCon Environmental Inc.
1936 Mall Blvd
Auburn, Alabama 36830
Phone: 800-854-4334
Fax: 334-826-3008
Web: www.tricon-env.com
E-Mail: dans@tricon-env.com