

The WORKHORSE® DYK Series RESPIRATORY PROTECTION



1 DID YOU KNOW...What/Who NIOSH is?

- The National Institute for Occupational Safety and Health (NIOSH) is responsible for conducting research and making recommendations for the prevention of work-related injury and illness. Although NIOSH is generally characterized as a non-regulatory agency, guidance and recommendations issued by NIOSH are often used by other agencies responsible for developing and enforcing workplace safety and health regulations.
- NIOSH is also directly responsible for several regulations. These regulations mostly outline procedures and requirements for specific health and safety related matters involving a particular industry or set forth rules for NIOSH to follow in administering programs assigned to the Institute. One of these regulations include rules regarding Approval of respiratory protective equipment.
- **For Example:** NIOSH issues recommendations for respirator use. Industrial type approvals are in accordance to the NIOSH federal respiratory regulations **42 CFR Part 84**.

2 DYK what APR's (Air-Purifying Respirators) are?

- Air-purifying respirators can remove contaminants in the air that you breathe by filtering out particulates (e.g., dusts, metal fumes, mists, etc.).
- Other APRs purify air by adsorbing gases or vapours on a sorbent (adsorbing material) in a cartridge or canister. They are tight-fitting and are available in several forms:
- **Quarter-Mask** - covering the nose and mouth
- **Half-Face Mask** - covering the face from the nose to below the chin
- **Full Facepiece** - covering the face from above the eyes to below the chin. Respirators with a full facepiece also protect the eyes from exposure to irritating chemicals.

3 DYK When a respirator should be used?

- Workers should use respirators for protection from contaminants in the air when the hazard cannot be controlled through:
- Elimination, Enclosure/isolation of a process or environment, Properly ventilated environment, Substitution of a less hazardous contaminant.

4 DYK the difference between Air-Purifying vs. Supplied-Air respirators?

- **Air-purifying respirators (APR's)** - can remove contaminants in the air that you breathe by filtering out particulates (e.g., dusts, metal fumes, mists, etc.). Other APRs purify air by adsorbing gases or vapors on a sorbent (adsorbing material) in a cartridge or canister. They are tight-fitting and are available in several forms (i.e. ¼ mask, ½ mask, full mask).
- **Supplied-air respirators (SARs)** - supply clean air from a compressed air tank or through an air line. This air is not from the work room area. The air supplied in tanks or from compressors must meet certain standards for purity and moisture content (e.g., **CSA Standard Z180.1: Compressed Breathing Air and Systems**).
- Supplied-air respirators may have either tight-fitting or loose-fitting respiratory inlets. Respirators with tight-fitting respiratory inlets have half or full facepieces. Types with loose-fitting respiratory inlets can be hoods or helmets that cover the head and neck, or loose-fitting facepieces with rubber or fabric side shields. These are supplied with air through airlines.

5 DYK What types of filters & cartridges there are?

- **Particulate Filters** - Filters only aerosols (e.g., dust, mists, fumes, smoke, mold, bacteria, etc). Some filters also have nuisance-level gas and vapor capabilities.
- **Gas & Vapor Cartridges** - Filters only gases and vapors. There are different kinds of cartridges for different kinds of gases and vapors.
- **Combination Cartridge/Filters** - Filters particles, gases and vapors. Different combination particulate/cartridge filters are used depending on the gas or vapor present in the air.



6 DYK the difference between cartridges & filters?

- Filters are used to protect from exposure to particulates such as dust, mists, fumes, fibers, and bioaerosols. Alternatively, cartridges are used for protection against specific gases and vapors.

7 DYK how particulate respirators work?

- Particulate filters capture particles through the mechanisms of impaction, interception and diffusion. Additionally, these filters are enhanced with electrostatically charged fibers to help trap particulates within the filter media. As particulate filters load up with the contaminant, they typically become more efficient; however, they also become harder to breathe through.
- **NIOSH** has nine classifications for filters and cartridges based on minimum filtration efficiency and the type of aerosol (non-oil or contains oil).

8 DYK why & how often you need to replace your filters?

- As particles are collected on the filter media, the respirator will eventually become more difficult to breathe through comfortably.
- **Replace Particulate Filters When** - It becomes difficult to breathe comfortably (this will vary from individual to individual), or the filter becomes dirty or physical damage occurs, or for the P series filters only when used in environments containing oil aerosols.

9 DYK how gas & vapor cartridges work?

- These cartridges utilize sorbent material to filter the gas or vapor molecules. Typically the sorbent is activated carbon. Different chemical treatments may also be added to the surface of the activated carbon to adsorb different types of gases or vapors. When the cartridges reach their capacity, the gases or vapors start to come through the cartridge to the user. This is called "breakthrough."

10 DYK why you need to replace cartridges? Or when you need to replace them?

- The service life (i.e., how long it will last) of any gas and vapor cartridge is affected by many factors such as the: contaminant, contaminant concentration, breathing rate, humidity level, temperature and other use conditions.
- **Replace Particulate Gas & Vapor Cartridges when** - In accordance with your established change schedule or government regulation or sooner if the contaminant can be detected inside the respirator by smell or taste. Dispose of P-Series filters after 40 hours of use or 30 days, whichever is first.

11 DYK what the shelf life of most cartridges is?

- Provided they are stored unopened in the original packaging and away from direct sun light, humidity and sources of high temperature, cartridges will last five years from manufacture date.

12 DYK How you should store your respirator, cartridges and filters?

- Prior to first use and when not in use your respirator, cartridges and filters should be kept clean, cool and dry, away from contaminated atmospheres to avoid deterioration. Store cartridge in a sealed container or bag.

13 DYK why some applications require use of particulate filters & a gas & vapor cartridge?

- The particulate filter helps remove tiny droplets or particles in the air (e.g., mists from spray painting). The gas and vapor cartridges do not help filter these particles.

14 DYK whether or not you can wear a tight-fitting respirator with a beard/facial hair?

- No. OSHA requires respirator wearers to be clean-shaven. Do not use a tight-fitting respirator with beards or other facial hair.

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A N95 - Non-oil Particulate Protection



B ATSM LEVEL 2 - Moderate Risk Medical Use



C ATSM LEVEL 1 - Low Risk Medical Use



15 Disposable Mask Selection Tips - Things to Consider when Selecting a Mask

- Take into consideration the environment you are working in (i.e., dusty/particulate filled environment, health care, heavily populated/crowded areas etc.)
- Respiratory hazards can include airborne contaminants such as dust particles, mists, biological contaminants, etc. Note that more than one respiratory hazard can be present at the same time.
- Choose a mask that fits snugly over your nose, mouth and chin.
- Consider relevant/required standards and regulations that are conducive to your environment (i.e., NIOSH approved or ASTM standards).
- Identify the hazard(s) in the environment you wish to protect against.
- **Once contaminants are identified** - Occupational exposure limits need to be determined. In order to determine exposure limits, we recommend consulting the **Canadian Centre for Occupational Health and Safety** where references to federal legislation can be found.

D FFP1 MASK - Isolate Suspended Particles



E CLOTH - Light Duty Protection



F SPONGE - Sport/Fashion Use

