Introduction
Over the past few years the asbestos, lead, and mold abatement industry has steadily moved toward using Powered Air Purifying Respirators (PAPRs) for their respiratory protection. Due to the unique needs of the abatement industry, the following guidelines are provided to help extend product life of 3M PAPR components.

Background
Abatement generally refers to the removal of asbestos, mold or lead based paint. These substances are generally abated by removal, encapsulation, or a combination of both. Water and liquids are used to reduce airborne dust, to apply encapsulating agents, and to decontaminate people and equipment. Extensive use of water may lead to reduced battery and motor blower service life unless precautions are taken.

3M Abatement PAPRs
3M PAPRs are available in three basic designs: 1) helmet mounted, 2) belt mounted and 3) face mounted. The most common PAPRs used in the abatement industry are belt and face mounted. Basic components of all PAPR designs are a blower motor, filter or cartridges, breathing tube, and respiratory inlet cover (head gear). 3M offers a number of PAPR systems for a variety of applications. Those systems identified in the chart below are generally recognized for use in abatement.

For information on product selection, please contact your local 3M sales representative or call 3M Technical Service Phone Line at (800) 243-4630. The Phone Line is staffed Monday–Friday, 8:00 a.m.–4:30 p.m. CST.

<table>
<thead>
<tr>
<th>3M™ PAPR Model</th>
<th>Facepiece/Headgear</th>
<th>Cartridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powerflow™ Face-Mounted</td>
<td>6000DIN</td>
<td>HE only</td>
</tr>
<tr>
<td>Belt-Mounted GVP-Series</td>
<td>Various</td>
<td>Gas &amp; Vapor/HE</td>
</tr>
<tr>
<td>Face-Mounted W-3265</td>
<td>7800</td>
<td>HE only</td>
</tr>
<tr>
<td>Breathe Easy™ Belt-Mounted</td>
<td>6000DIN</td>
<td>Gas &amp; Vapor/HE</td>
</tr>
</tbody>
</table>

Unique Needs of Abatement Industry
Due to extensive use of water during abatement processes, components of the PAPR system are at risk of corrosion. This primarily involves the motor blowers and batteries. 3M offers general recommendations and PAPR accessories, which are intended to help prolong the product life.

Battery Maintenance for Abatement
3M PAPR systems listed in the table are equipped with a rechargeable nickel cadmium battery. These batteries should never be submerged in water. Submerging batteries will significantly shorten the life of the battery cells. Users should take precautions to prevent spray and mist from entering the battery during encapsulation, dust mitigation and decontamination showers. For 3M™ Powerflow™ Face-Mounted Powered Air Purifying Respirator (PAPR) users, 3M offers a water repellent battery cover (3M™ Battery Cover 529-01-56R01, Water Repellent). Technical Data Bulletin #144 offers additional information regarding charging and maintenance of NiCd batteries.
Motor Blower Units
Over time, water can corrode components in the PAPR motor blower units. With the exception of the GVP, these units should never be submerged in water. The GVP blower unit comes equipped with two screw-in plugs (3M™ Blower Plugs GVP-115) which allow the unit to be submerged or placed in an industrial respirator washer. The Powerflow face-mounted powered air purifying respirator (PAPR), 3M™ Breathe Easy™ Belt-Mounted Powered Air Purifying Respirator (PAPR) and 3M™ Face-Mounted Powered Air Purifying Respirator (PAPR) System W-3265 should be cleaned as specified in the User Instructions. In the event that water does get into the motor blowers they should be connected to their power source without filters/cartridges attached and run for 30–45 minutes.

Filter/Cartridge Service Life
Most abatement applications require the use of high efficiency particulate (HE) filters exclusively. For these applications, filters should be changed when loading prevents adequate airflow, when they become damaged, or as determined by the employer. Prior to each use, a performance check is required in order to verify that the PAPR is operating within the system specifications. Each PAPR includes an airflow meter or indicator that is used to check overall system airflow. Performance checks will help determine when the cartridge/filter needs to be changed due to reduced airflow, when the battery needs charging, or if there are other blockages, such as in the breathing tube. Refer to the system user instructions for information on completing the performance check.

Studies have demonstrated that efficiency of high efficiency (HE) respirator filters is not significantly affected by water mist or spray. Large amounts of water may increase resistance but efficiency of the HE filter material is not significantly affected. In addition, a study has shown that biological contaminants such as bacteria, do not grow in the filter media even under favorable conditions. Cartridge service life for gas and vapor exposures requires information on the specific conditions of use including contaminant concentration, relative humidity, temperature, and work activities. 3M offers a few resources for determining cartridge service life, including the 3M Respirator Service Life Software. This software will allow you to determine the service life of 3M chemical cartridges when exposed to organic and some inorganic compounds. It also allows calculations for mixtures. The software is available for free on our website, www.3M.com/occsafety, as a web-based version and downloadable version.

The following products may help reduce water entering filters/cartridges.
- 3M™ Filter Cover W-3271-5, Filter Cover for the Face Face-Mounted Powered Air Purifying Respirator (PAPR) W-3265
- 3M™ Filter Cover GVP-114 for the 3M™ GVP Powered Air Purifying Respirator (PAPR)

References
Recommended Technical Data Bulletins

The following publications provide excellent information that may be beneficial. All can be downloaded from our website, www.3M.com/occsafety, or by calling 3M Technical Service Help Line at (800) 243-4630.

143 – Maximizing PAPR Life in Primary Metal Industries
150 – Inspection, Cleaning, and Storage Procedures for 3M™ Reusable Respirators
144 – Maintenance & Management of Battery Packs for 3M™ Powered Air Purifying Respirators (PAPRs)
142 – Reuse of Organic Vapor Chemical Cartridges