Filter Test Facility
Report On The Testing of HEPA Filters for the DOE

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Air Techniques International Test Laboratory Overview

- Air Techniques International Filter Test Laboratory (ATITL) is an established independent Filter Test Facility (FTF) in Baltimore, Maryland under DOE contract.

- DOE performs a ASME/ANSI NQA-1 Quality Audit.

- Secretary of Energy Memo, June 4, 2001, the Filter Test Lab is to be utilized by DOE Site Contractors.

- Testing service is provided to the DOE complex.

- DOE work has top priority.
Rejection Categories

**Resistance:** Criteria of \( \leq 1.0 \) \( \text{w.g.} \) for filters rated \( \geq 500-1250 \text{cfm} \) and \( 1.3 \) \( \text{w.g.} \) for filters rated \( \leq 125 - \geq 2000 \text{cfm} \)

**Penetration:** \( \leq 0.03\% \)

**Manufacturing Defects:**
- Filter Frame/Case Defective
- Gaskets
- Faceguard installation
- Filter pack installation
- Defective media
- Sealant problems
- Separators
- Missing rivets or bolts
- Dimensional tolerance
- Out of square measurements
Rejection Categories

P.O/ Specification Discrepancy:
- Missing UL labels
- Labeled incorrectly***
- Filters rated incorrectly***
- Wrong model number***
- Packaging

Shipping Damage:
- (Inspect Damage to Shipping Crates, Pallets & Filter Cartons)
- Reject Filter when Damaged
## Summary Of Filter Rejections

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Total Tested</th>
<th>Resistance</th>
<th>Penetration</th>
<th>Mfg. Defects</th>
<th>P.O./Spec.</th>
<th>Shipping Damage</th>
<th>Total Rejected</th>
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</thead>
<tbody>
<tr>
<td>2007</td>
<td>2472</td>
<td>6</td>
<td>18</td>
<td>237</td>
<td>214</td>
<td>0</td>
<td>475</td>
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<td>2008</td>
<td>2012</td>
<td>0</td>
<td>59</td>
<td>104</td>
<td>55</td>
<td>2</td>
<td>220</td>
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<tr>
<td>2009</td>
<td>2175</td>
<td>1</td>
<td>29</td>
<td>133</td>
<td>52</td>
<td>2</td>
<td>217</td>
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<tr>
<td>2010</td>
<td>4025</td>
<td>21</td>
<td>25</td>
<td>228</td>
<td>23</td>
<td>2</td>
<td>299</td>
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<td>2011</td>
<td>4636</td>
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<td>23</td>
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<td>4</td>
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<td>505</td>
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<td>2012</td>
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<td>492</td>
<td>67</td>
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<td>594</td>
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<tr>
<td>2013</td>
<td>3023</td>
<td>37</td>
<td>42</td>
<td>302</td>
<td>82</td>
<td>5</td>
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<tr>
<td>2014</td>
<td>2525</td>
<td>39</td>
<td>20</td>
<td>199</td>
<td>282</td>
<td>4</td>
<td>544</td>
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<tr>
<td>2015</td>
<td>3535</td>
<td>5</td>
<td>11</td>
<td>700</td>
<td>380</td>
<td>4</td>
<td>1100</td>
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<td>2016**</td>
<td>2094</td>
<td>0</td>
<td>3</td>
<td>25</td>
<td>118</td>
<td>0</td>
<td>146</td>
</tr>
</tbody>
</table>

**Thru Mar 2016**
HEPA FILTERS TESTED / REJECTED

# Failures (PO/Specification Discreps & Shipping) by Fiscal Year

- **Fiscal Year**: 2007 to 2016 (March)
- **# Failures**:
  - PO/Spec Discreps
  - Shipping Damage

- **Graph Legend**:
  - Blue square: PO/Spec Discreps
  - Black triangle: Shipping Damage
HEPA FAILURES BY TYPE

# Failures (Type) by Fiscal Year

Fiscal Year

# Failures

0 200 400 600 800 1000 1200


- Resistance
- Penetration
- Manufacturing
- PO/Spec Discreps
- Shipping Damage
REJECT EXAMPLES
GASKET - REJECT
LOOSE GASKET - CASE - REJECT
GASKET - REJECT
Fluid Seal - REJECT
FACEGUARD – EXPOSED STAPLE - REJECT
FILTER CRATE – CONCEALED DAMAGE
Damaged Hi Temp Gasket
Summary

• ALL MANUFACTURERS’ FILTER QUALITY HAS VARIED DURING LAST TEN YEARS AS SHOWN BY THE FILTER TEST FACILITY (FTF) REPORTS

• A NEED FOR MANUFACTURERS’ TO TIGHTEN QUALITY CONTROL SPECIFICALLY WITH MANUFACTURING DEFECTS

• A NEED FOR QUALITY CONTROL INSPECTIONS OF MANUFACTURERS IN ADDITION TO AUDITS
Any Questions?

- Don Largent - Director App Eng & Tech Services
- Christopher Hart - Lab Manager
- Benita Nicholson - Filter Technician
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