

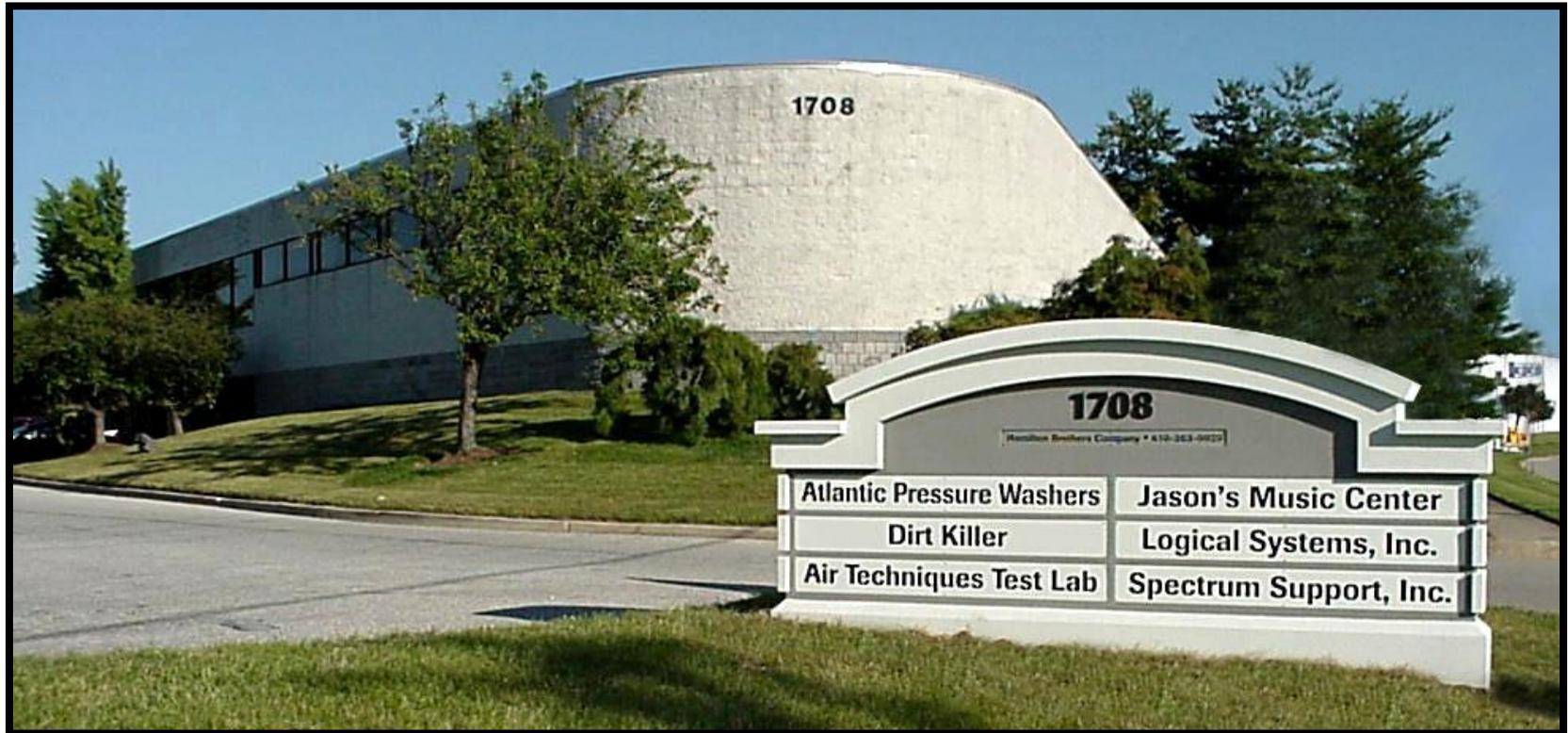
Air Techniques International Test Laboratory NQA-1 & DOE CERTIFIED

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

Presented By: Christopher Hart



Air Techniques International Test Laboratory 1708 Whitehead Rd., Baltimore, MD 21207



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 ≤ 1.0 " w.g. for filters rated ≥ 500 -1250 cfm and 1.3" w.g. for filters rated ≤ 125 - ≥ 2000 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



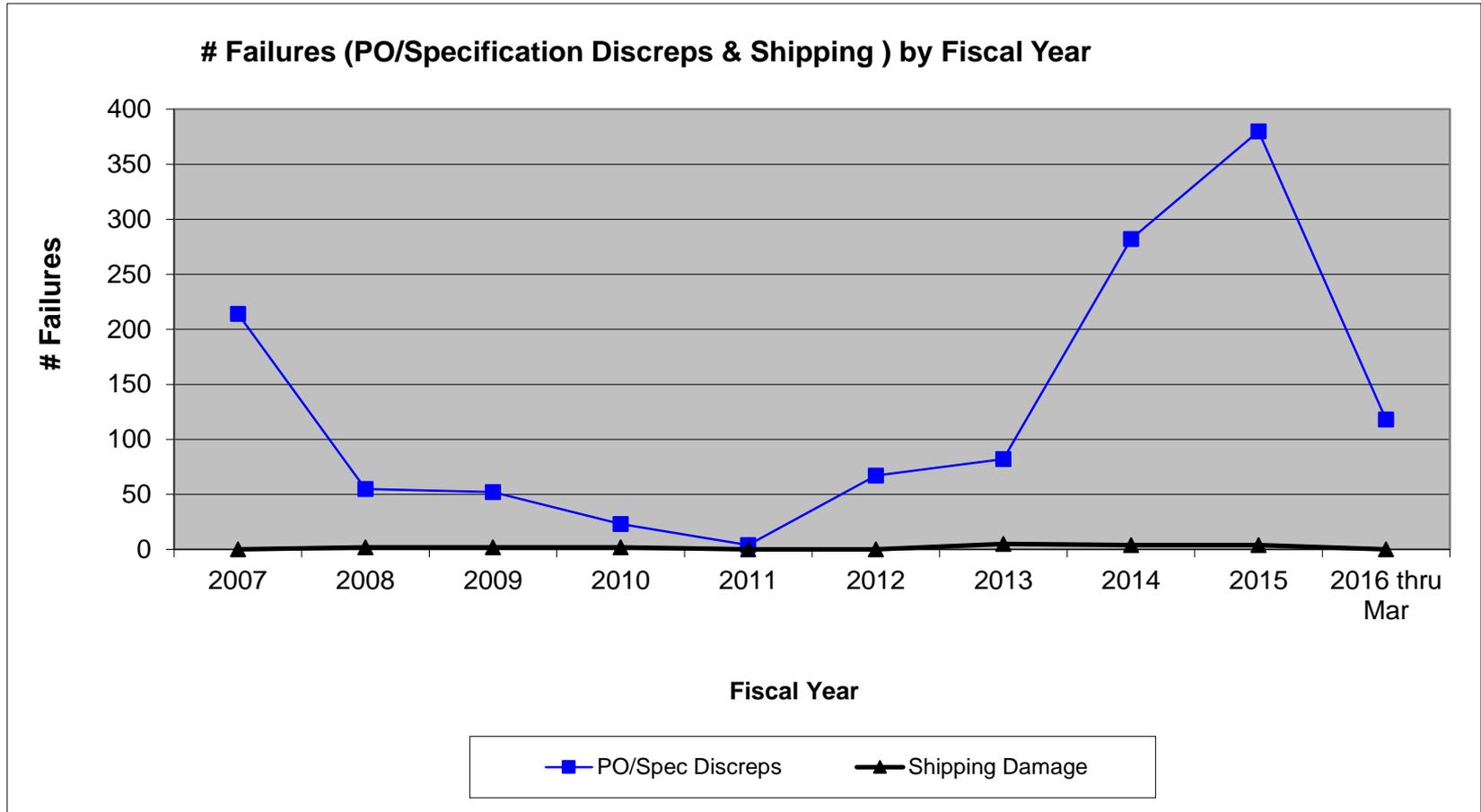
Summary Of Filter Rejections

Fiscal Year	Total Tested	Resistance	Penetration	Mfg. Defects	P.O. /Spec.	Shipping Damage	Total Rejected
2007	2472	6	18	237	214	0	475
2008	2012	0	59	104	55	2	220
2009	2175	1	29	133	52	2	217
2010	4025	21	25	228	23	2	299
2011	4636	1	23	477	4	0	505
2012	3238	0	35	492	67	0	594
2013	3023	37	42	302	82	5	468
2014	2525	39	20	199	282	4	544
2015	3535	5	11	700	380	4	1100
2016**	2094	0	3	25	118	0	146

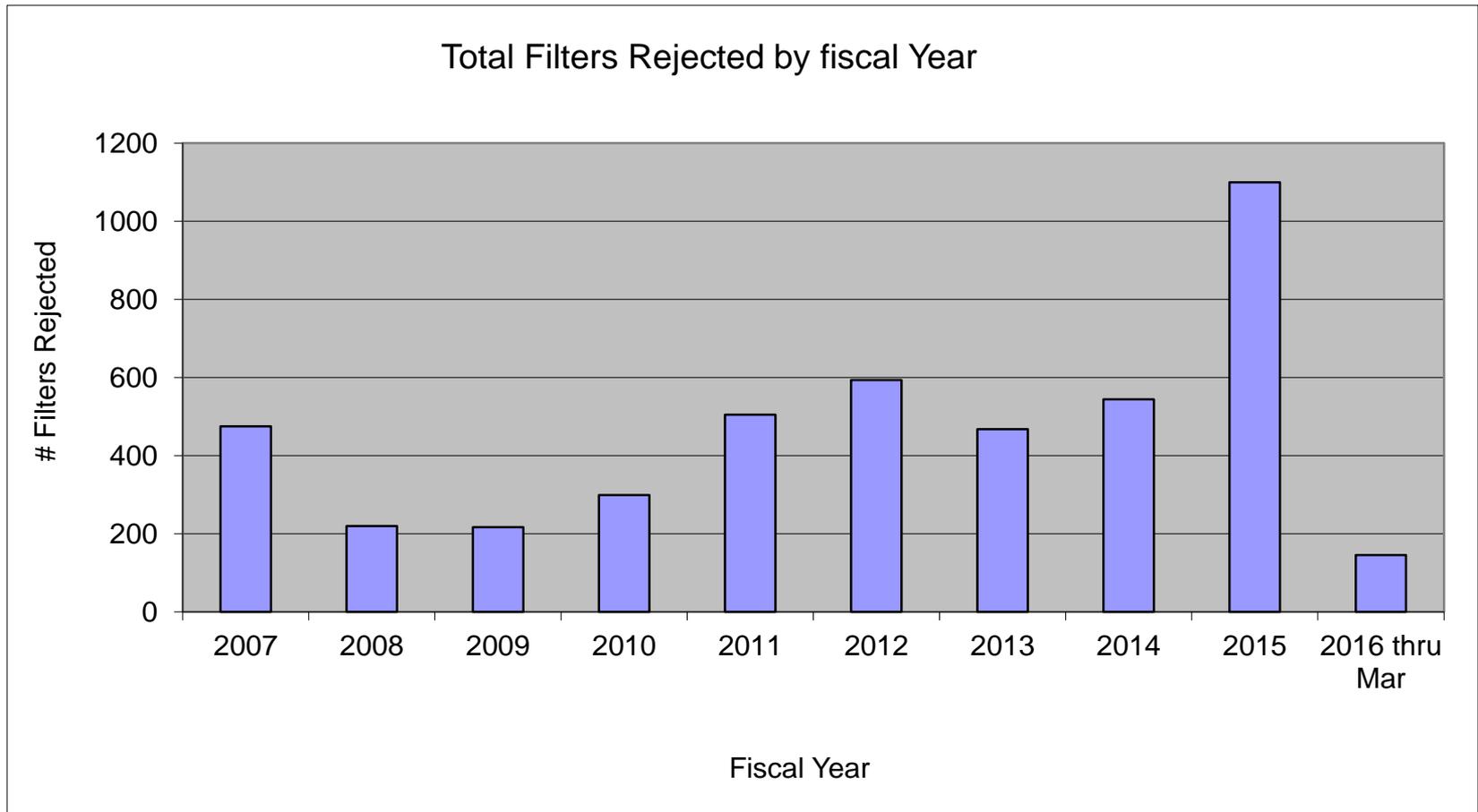
** Thru Mar 2016



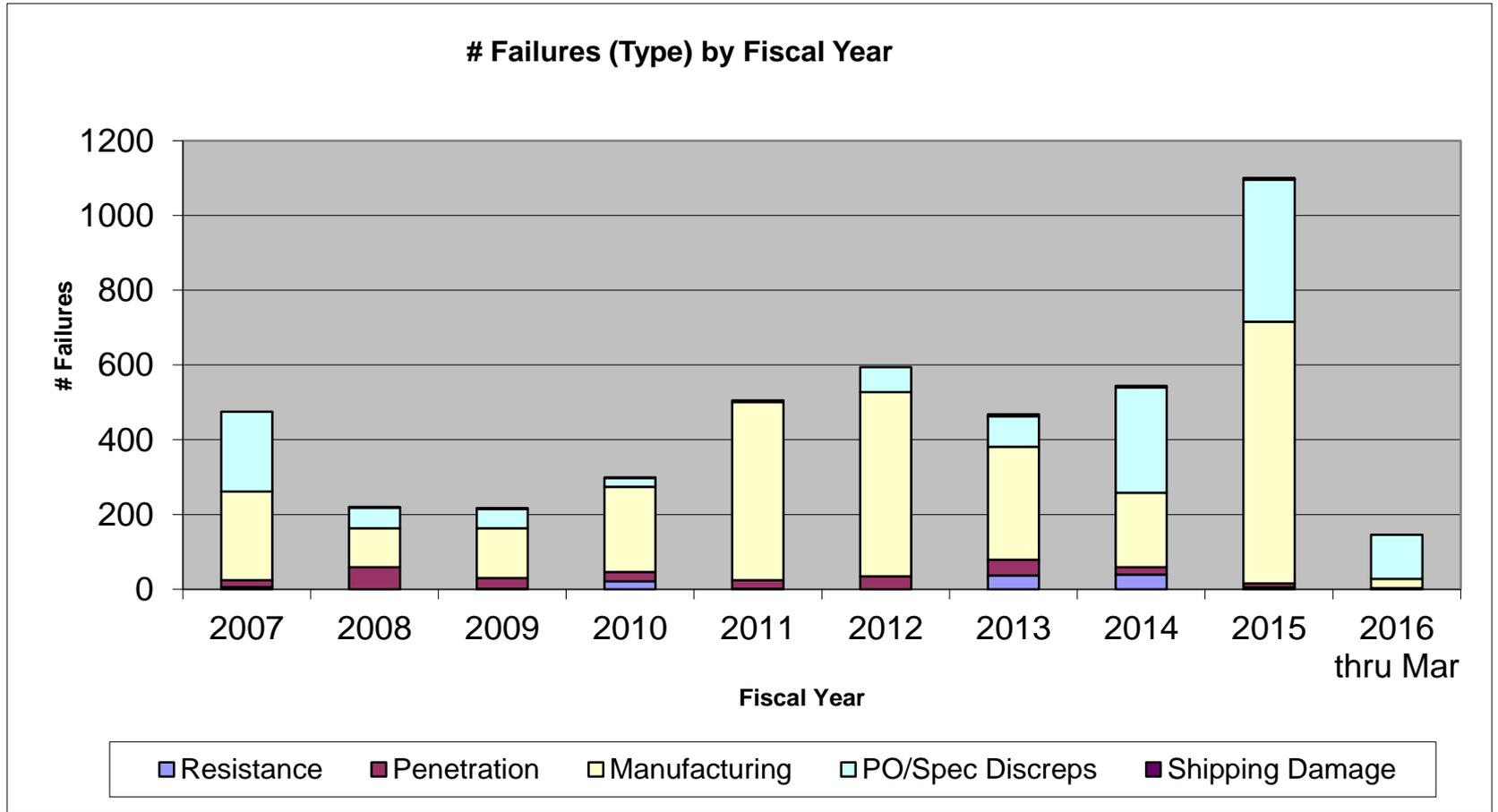
HEPA FILTERS TESTED / REJECTED



HEPA FILTER REJECTION BY NUMBER



HEPA FAILURES BY TYPE



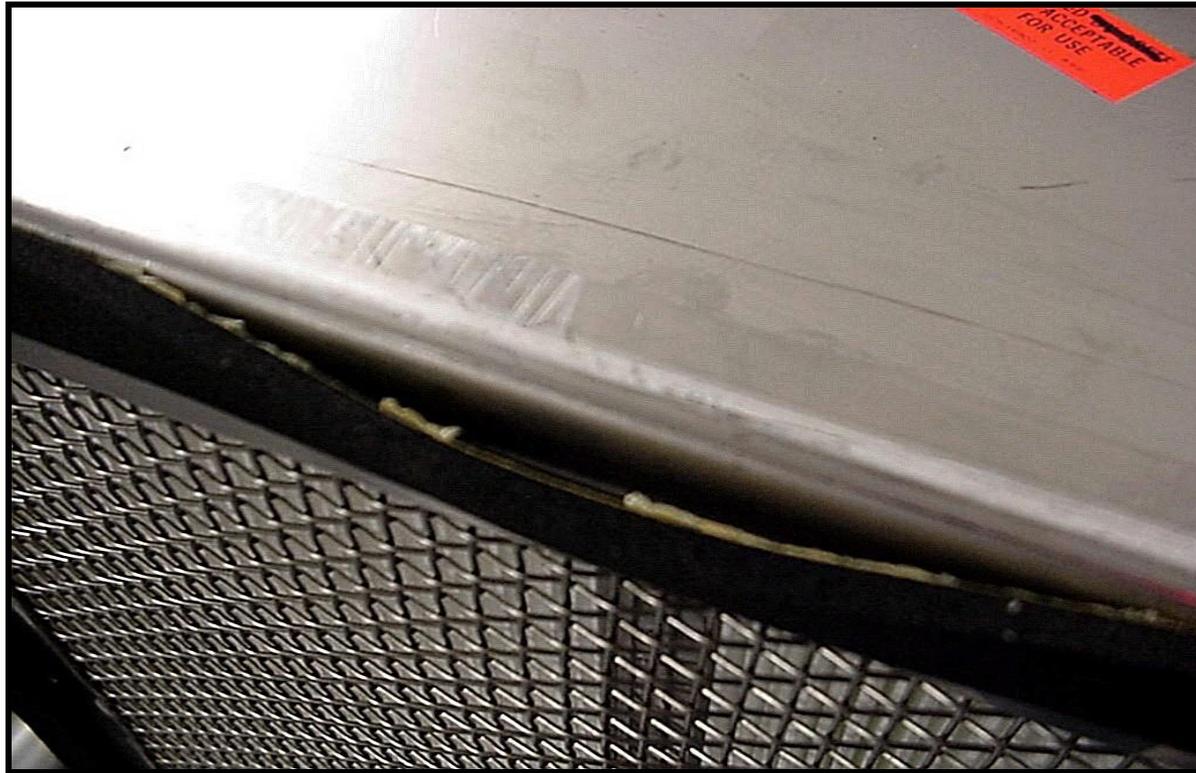
REJECT EXAMPLES



GASKET - REJECT



LOOSE GASKET - CASE - REJECT



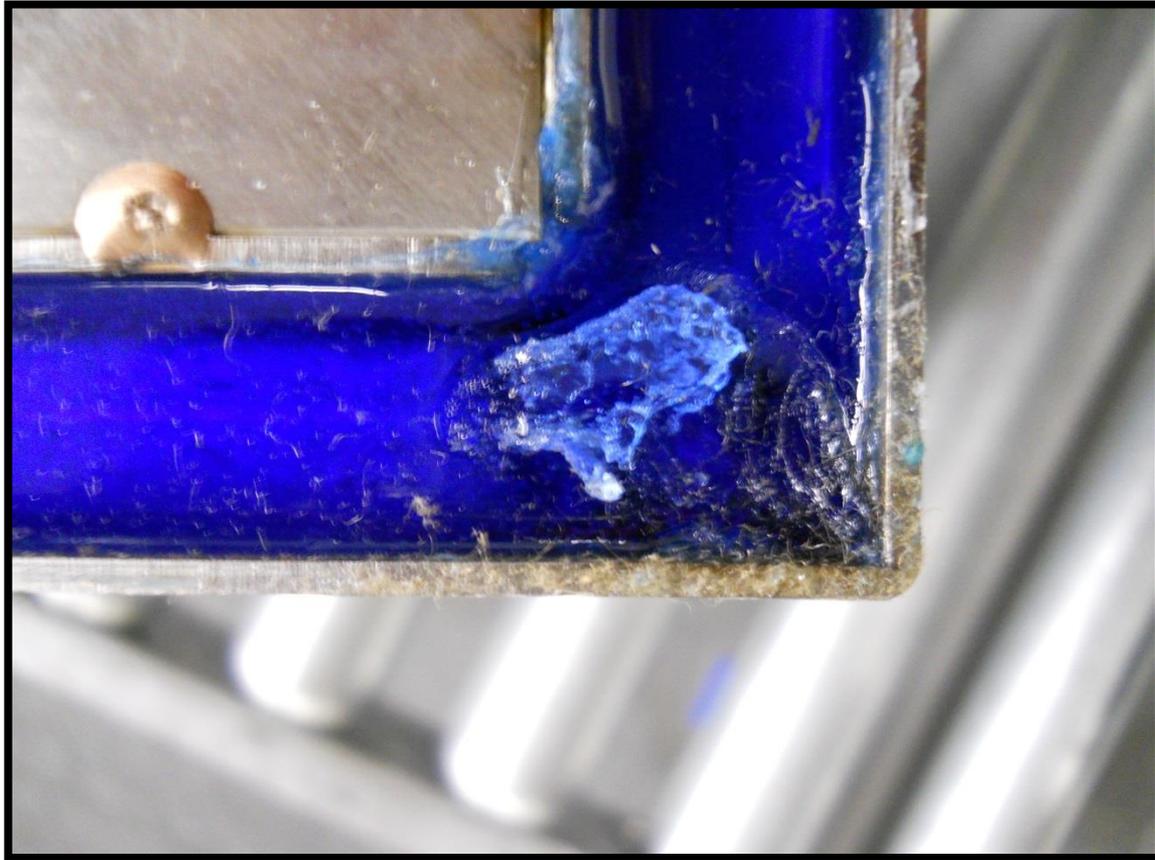
GASKET - REJECT



CASE - 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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**THE VIEWS EXPRESSED ARE SOLELY THOSE OF THE
PRESENTERS AND NO ENDORSEMENT BY THE
U. S. DEPARTMENT OF ENERGY IS INTENDED**

