



INSPECTION • ANALYSIS • TESTING

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Attn: Internal Vapor Analysis Group E-mail: iva@orslabs.com

Internal Vapor Analysis (IVA®) Submission Form

Client: \_\_\_\_\_ Date: \_\_\_\_\_
Company: \_\_\_\_\_ P.O. No.: \_\_\_\_\_
Address: \_\_\_\_\_ Rel No.: \_\_\_\_\_
Tel: \_\_\_\_\_
E-mail: \_\_\_\_\_ Fax: \_\_\_\_\_
ORS Quote No: \_\_\_\_\_

Package Description: \_\_\_\_\_ # of Samples: \_\_\_\_\_
(Manufacturer, Part No., Date Code, etc.) Do samples require ESD precautions during analysis? [ ] YES [ ] NO

PACKAGE HERMETICITY ANALYSIS

Hermeticity Testing

[ ] Combined He/O2 Dry Gross and Fine Leak (HSHLD®)\*
[ ] Helium Fine Leak\* [ ] Perfluorocarbon Gross Leak
[ ] Kr-85 Fine Leak\* [ ] Kr-85 Gross Leak\*
Internal Free Vol: \_\_\_\_\_ cc Max Pressure: \_\_\_\_\_ psig Class: \_\_\_\_\_
Rej. Limit (L): \_\_\_\_\_ atm cc/sec Air
Method: [ ] 883\* [ ] 750\* [ ] 202 [ ] Commercial [ ] Other

Leak Site Identification

[ ] Fluorescent Dye Impregnation/Cross-Sectioning
[ ] Helium Sniff Testing

Flight Hardware

Will test samples be used for Flight production (lot screening) [ ]

PACKAGE INTERNAL VAPOR ANALYSIS See reverse side for description of test methods.

[ ] SOP MEL-1053: Internal Vapor Analysis (IVA®) - Commercial Practice
or [ ] IVA® (sample volumes > 0.02cc) [ ] High Resolution IVA® (HR-IVA®) (sample volumes ≤ 0.02cc or vacuum sealed)

[ ] SOP MEL-1018\*: DLA Land and Maritime Suitability for Military Devices - Internal Gas Analysis
[ ] IVA® (sample volumes > 0.02cc) [ ] High Resolution IVA® (HR-IVA®) (sample volumes ≤ 0.02cc or vacuum sealed)
Device Type: [ ] 750 [ ] 883 [ ] Qualified Components [ ] Engineering Components

\*As part of the Laboratory Suitability program, ORS must include this data in its retention report to DLA Land and Maritime.

[ ] SOP MEL-1070: Gas Analysis of Sealing Chamber Atmosphere (sampling cylinders available from ORS).

Prebake [ ] None [ ] 16-24 Hrs. @ 100°C [ ] Other: \_\_\_\_\_
Device Test Temperature [ ] 100°C [ ] Other: \_\_\_\_\_
Special Puncture Site Required? [ ] No [ ] Yes; Location: \_\_\_\_\_
Wall Thickness at Puncture Site [ ] Mils: \_\_\_\_\_ [ ] Unknown
Failure Criteria [ ] 5000 ppmv Moisture [ ] Other: \_\_\_\_\_ [ ] None
Test Quantity [ ] All [ ] Other: \_\_\_\_\_
Additional Report Option [ ] Mass Spectra Report (AMU vs. Intensity) [ ] Partial Pressure Report
Seal Temperature [ ] \_\_\_\_\_ °C
Device Internal Pressure [ ] ~1 ATM [ ] Other: \_\_\_\_\_
Device Internal Free Volume [ ] \_\_\_\_\_ cc
Device / Cylinder Fill Gas [ ] Nitrogen [ ] Air [ ] Other: \_\_\_\_\_
Cylinder Pressure [ ] ~1 ATM [ ] Other: \_\_\_\_\_
Mandatory test conditions for SOP MEL-1018

[ ] SOP MEL-1080: Identification of UNKNOWN organic compounds by GC/MS.

MATERIALS / ADHESIVE OUTGASSING STUDIES

[ ] Static Headspace by GC/MS Prebake / Test Conditions: \_\_\_\_\_
[ ] Outgassing Analysis by ORS Glass Ampule Sealing Method
Analytical Technique: [ ] IVA® [ ] GC/MS

Return Shipment

UPS: [ ] Red [ ] Blue [ ] Ground
Fed Ex: [ ] Pr. 1 [ ] Std. [ ] Econ.
Acct. #: \_\_\_\_\_

Additional Instructions or Restrictions

# **DESCRIPTION OF TEST METHODS**

## **SOP MEL-1053: Internal Vapor Analysis (IVA®) – Commercial Practice**

This test procedure is used for testing hermetic devices in accordance with ORS' Commercial Practice for Internal Vapor Analysis. This test method extends the scope and capabilities of traditional Mil-Std 883, Test Method 1018 analysis. It permits variations to the procedure and/or device test conditions to achieve the best test conditions for specific client applications. Client specific protocols may be established for maximum accuracy and sensitivity for product monitoring applications, process development, R&D, materials evaluations and Failure Analysis projects. The data is not subject to inclusion in the annual retention report to DLA Land and Maritime and all records regarding these tests are confidential. Contact ORS for a copy of this extended test method.

## **SOP MEL-1018: DLA Land and Maritime Suitability for Military Devices - Internal Gas Analysis**

This test procedure is used exclusively for testing hermetic devices in accordance with Mil-Std 883 or 750, Test Method 1018 per the conditions of "Suitability" status granted by DLA Land and Maritime. No variations are permitted to this procedure or to the device test conditions. Furthermore, all tests performed per this procedure are subject to inclusion in the annual retention report to DLA Land and Maritime and all records regarding these tests are subject to audit and inspection by the U.S. Government. Suitability range: 0.0003cc to infinite volume.

- **IVA®:** Internal Vapor Analysis utilizing a Quadrupole Mass Spectrometer for sample volumes greater than 0.02cc.
- **HR-IVA®:** High Resolution Internal Vapor Analysis utilizing a custom compact Time-of-Flight (TOF) Mass Spectrometer designed specifically for sample volumes less or equal to 0.02cc and/or vacuum sealed devices.

## **SOP MEL-1070: Gas Cylinder Analysis of Sealing Chamber Atmospheres**

This test method quantitatively measures the process sealing gases sampled from sealing chambers and/or gas supply lines using a specially prepared sampling cylinder. Sampling procedures are described in the instructions provided with the sampling cylinders. Contact ORS for availability and retail sampling cylinders.

## **SOP MEL-1080: Identification of UNKNOWN Volatile Organic Compounds by GC/MS**

This test method is used to identify unknown volatile compounds that may be detected in IVA® test methods (identified as UNKNOWN compound(s)) but may not be conclusively identified due to the complexity or trace quantity of the mass spectra. The method uses IVA® inlet technology interfaced with GC/MS. Standard hermetic devices or individual materials sealed in gas ampules may be analyzed. The technique is useful in understanding the chemical processes of material outgassing and chemical reactions from environmental stress.

## **SOME IMPORTANT REMINDERS**

- Please provide a valid Purchase Order and, if requested by your company, a Release Number.
- Please be sure to specify "Additional Instructions or Restrictions" that should be followed during sample handling, testing or shipment.
- Unless otherwise requested, test reports will be sent electronically and samples will be returned via UPS Ground.
- All shipping and handling fees associated with the transportation of samples to and from our testing facility, as well as special courier fees for expediting test reports, are the responsibility of the client.
- Standard IVA® and HR-IVA® tests are typically completed within 2 – 3 working days. Method development and extraordinary applications may extend this time frame.
- On-site visits are encouraged and we welcome your personal involvement during sample analysis.
- IVA® and HR-IVA® are destructive tests. Damage to internal elements may occur as a result of the test procedure. Package leads may be bent or trimmed to facilitate proper mounting. The puncture location may be thinned or milled as needed based on the wall thickness and material type. Device mounting, sample preparation and set-up is performed at the discretion of ORS technical staff unless otherwise noted.
- For additional technical information, please contact the Internal Vapor Analysis Group at (855) ORS-LABS.
- Please refer to the ORS terms and conditions of Quotation and Sale at: [www.orslabs.com/terms-conditions-sale](http://www.orslabs.com/terms-conditions-sale).