Date**:** Click or tap to enter a date.

**Coil support ABC // Name of component
DuPont // Manufacturer PEEK // Main material

Outgassing – Optical contamination test report**

|  |  |  |
| --- | --- | --- |
| Test done at **:** | **EGO – Cascina, Italy1500N Vacuum Laboratory//** *Name of the Lab - facility* |  |

# Summary

|  |  |
| --- | --- |
| * Test of component
 | Click or tap here to enter text. |
| * Materials, Manufacturing processes
 | Click or tap here to enter text. |
| * Exposed surface
 | Click or tap here to enter text. |
| * Description, documentation
 | Click or tap here to enter text. |

|  |  |
| --- | --- |
|  |  |
| Figure : Component XXX | Figure : Component XXX -2 |

# Aim and procedure

The test aim is to (check the appropriate position)

[ ]  Evaluate the composition of residual gases or the presence of a specific compound

[ ]  Evaluate the outgassing rate (total gas load and/or outgassing of specific species)

[ ]  Contamination test of optical sample (by //Name of lab.).
*Please add in “details” synthetic information about the testing method.*

|  |  |
| --- | --- |
| Details:  |  |

# Test conditions

|  |  |
| --- | --- |
| Sample Received as:  |  |
| Sample Cleaning method:  |  |

Method of measuring outgassing:

|  |  |
| --- | --- |
| [ ]  Throughput’ method: C [l/s] (N2 eq.) | Click or tap here to enter text. |
| [ ]  Modified Throughput method | Click or tap here to enter text. |
| [ ]  Rate of Rise method | Click or tap here to enter text. |
| [ ]  Rate of Rise method and Throughput method | Click or tap here to enter text. |

|  |  |
| --- | --- |
|  |  |
| Figure : Outgassing bench | Figure :Outgassing bench - 2 |

|  |  |  |
| --- | --- | --- |
| Test chamber description: |  |  |
| Internal surface of the chamber:  |  |
| [ ]  Is the chamber the sample to be tested? |
|  | Figure 5:Component in the chamber |

|  |  |
| --- | --- |
| * Procedure: Evacuation for
 | ……… Days. |
| * Temperature cycle:
 |  |
| * Employed pumps:
 | Click or tap here to enter text. |
| * Particular test conditions:
 | Click or tap here to enter text. |

Optical sample tested before insertion in the vacuum chamber:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test mirror ID: | …………. | ppm | …………. | Date | ….…………. | Surface absorption at 1064 nm |

# Background

|  |  |
| --- | --- |
|  |  |
| Figure 6: Empty chamber pump down curve | Figure 7: RGA of Empty chamber |

|  |  |
| --- | --- |
| * Date
 | Click or tap here to enter text. |
| * Baking temperature:
 | Click or tap here to enter text. |
| * Baked chamber pressure:
 | Click or tap here to enter text. |

Comments: Click or tap here to enter text.

|  |  |  |  |
| --- | --- | --- | --- |
| * RGA in-situ “calibration” done for:
 | // Choice of injected gasesRGA VS Extractor gauge | Date | Click or tap to enter a date. |
| * Pressure gauge in-situ “calibration”:
 |  | Date | Click or tap to enter a date. |

# Results

Total pressure trend, RGA spectra and temperature cycle are shown in the following figures:

|  |  |
| --- | --- |
|  |  |
| Figure : Temperature Cycle: | Figure 9: Pressure trend over XX days |
|  |  |
|  |  |
| Figure 10: RGA spectrum after xxxx days | Figure 11: RGA spectrum after YYY days |

*Note: For practical reasons, we are interested in three values of outgassing over time. Indeed, the pump-down curve will give us an indication on the required waiting time before* *the experiment can be relaunched. The outgassing shall then be already relatively low at 200h, or about one week. 200 hours is an arbitrary value; it depends on the characteristics of the experiment and the volume of the tower.*

Calculation of outgassing flow Q, in mbar.l/s, for different species.

* H2, H2O, N2 and Large Organics (HC) pressures in mbar are respectively indicated with “a.m.u 2”, “a.m.u 18”, “a.m.u 28 & 14” and “a.m.u > 44”.
* We consider here that all relative sensitivities are equal to 1 (Nitrogen equivalent). The error given by this approximation will be included in the total uncertainty.
* The pressure calculated via the relative sensitivities is shown as P2.
* BG is the abbreviation for Background.
* Estimate for sticky gases (water, volatile organics, …) is done either conventionally (neglecting wall effects) or with dedicated procedure (to be synthetically specified).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | @ 24h | @ 200h | @ 800h | BG |
| **P tot**  | mbar | … | … | … | … |
| **Σ I** | A | … | … | … | … |
| **(P tot / Σ I)-1** | A/mbar | … | … | … | … |
| **P2**  | mbar | … | … | … | … |
| **a.m.u. 2** | mbar |  | … |  | … |
| **a.m.u. 18** | mbar | … | … | … | … |
| **a.m.u. 28 & 14** | mbar |  | … |  | … |
| **a.m.u. > 44** | mbar |  | … |  | … |

|  |  |
| --- | --- |
| Comments: | // *Here are indicated the basic formulas to have an estimation of the flow. If available, consider advanced methods for gas species identification and for calculation of outgassing flow.* |

|  |  |  |  |
| --- | --- | --- | --- |
| Outgassing Flow rate (mbar.l/s) | Q @ 24h | Q @ 200h | Q @ 800h |
| **H2: a.m.u. 2** |  | … |  |
| **H2O: a.m.u. 18** | … | … | … |
| **N2: a.m.u. 28 & 14** |  | … |  |
| **HC: a.m.u. > 44** |  | … |  |

|  |  |
| --- | --- |
| Uncertainties: |  |

# Results: Optical contamination

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test mirror ID: | …………. | ppm | …………. | Date | ….…………. | Surface absorption at 1064 nm |

# Remarks/Comments:

|  |  |  |
| --- | --- | --- |
| Vacuum measurements | Click or tap here to enter text.Click or tap here to enter text.Click or tap here to enter text.Click or tap here to enter text. | ExpectedNot expectedTotal outgassingGas composition |

Click or tap here to enter text.

|  |  |
| --- | --- |
| Optical contamination | Click or tap here to enter text. |