

Oxygen Resistant Effusion Cells



Production Effusion Cell PEZ DN63 CF (O.D. 4.5") flange with optional oxygen resistant wire heater.

Modified effusion cells are required for compound growth in an Oxygen rich or reactive gas atmosphere, ZnO is an example. We provide Oxygen resistant constructions for all of our wire heater effusion cells.

The use of a special Ni-alloy for heater wires and shielding parts allows cell operation in UHV and oxygen containing atmosphere up to cell temperatures of 1000°C.

Operation temperatures of up to 1200°C are attainable by the use of noble-metal-alloys for heater wires, shieldings and construction materials.

Effusion cells compatible with most MBE systems are available.

We offer a wide range of options for the oxygen resistant effusion cells.

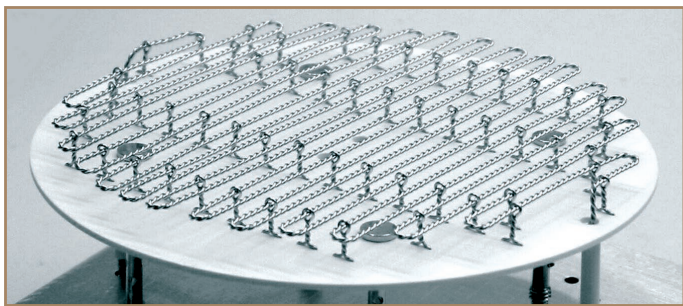
- Heater options: hot lip, cold lip and dual filament
- Crucible materials: PBN, Al₂O₃, MgO, BeO, Y₂O₃, Quartz
- Crucible sizes : 1.5ccm – 420ccm
- Cell mounting: CF-flange, KF-flange, ISO-flange, free standing or customized
- Thermocouple: Chromel-Alumel (Type K); Type R or S on request
- Water cooling
- Integrated shutter

- Oxygen resistance option for standard wire heater cells (WEZ, PEZ, NTEZ)
- Ni-alloy-wire-heaters up to 1000 °C
- Noble-metal-alloy wire heaters up to 1200 °C
- Pressure range: UHV up to several mbar
- Compatible with most MBE systems



Free standing Oxygen Resistant Effusion Cell OREZ with Ni-alloy heater
Application : Evaporation of PbO in 10⁻³ mbar oxygen atmosphere

Oxygen Resistant Substrate Manipulators



4' substrate heater with noble-metal-alloy wire

- Oxygen resistance option for substrate manipulators
- Substrate temperatures up to 700 °C with Ni-alloy heater
- Substrate temperatures up to 900 °C with noble-metal-alloy heater
- Pressure range: UHV up to several mbar

Dr. Eberl MBE-Komponenten GmbH offers ovens and heaters, which are resistant to oxygen or reactive gas atmosphere.

Maximum substrate temperatures of 700 °C are possible using Ni-alloy heaters.

Noble-metal-alloy heaters work well for higher substrate temperatures of up to 900 °C.

Selected shielding and construction materials are used for high temperature applications in oxygen rich environments.

A wide range of different applications and processes in oxygen rich environments makes a general recommendation of heater and construction materials difficult.

Please contact our specialists for your application.

Options for substrate manipulators :

- Sample size up to 6"
- Continuous substrate rotation
- Water cooled ceramic bearings
- Linear travel for substrate transfer
- Thermocouple: Chromel-Alumel (Type K); Type R or S on request
- Integrated main shutter



4' substrate manipulator with noble-metal-alloy wire heater

Special care must be taken when compounds are operated at high temperature and high gas pressures. In case of pressures above 10^{-4} mbar the thermal conductivity of gases has significant effects to heat transfer from heater to sample. Other products for operation in oxygen or reactive gas atmosphere are available on request.

Please contact our specialists for your application.

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