

Decomposition Effusion Cell (DECO-As)

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The Decomposition Effusion Cell is designed to generate ultra-pure arsenic (As_2) by decomposition of gallium arsenide ($GaAs$ | purity > 6N). The use is similar to a standard effusion cell, where the source material is loaded into the crucible and evaporated by heating the crucible via radiation heating stage.

Because of the incongruent evaporation of $GaAs$, the As_2 is generated by a lower temperature compared to Ga . Therefore, the Ga remains stable inside the crucible, while the As_2 comes out of the effusion cell at the orifice. To avoid the Ga atoms to flow out of the cell with the As_2 beam out, there is a Ga trapping cap at the orifice. This ensures that no Ga atoms can leave the effusion cell.

The ratio As_2 : Ga in the As_2 molecular beam is approx. 1:10-5, by using the Ga trapping cap.

An extra valve above the Ga trapping cap is available to lower the beam intensity. This valve allows shutting ON and OFF the As_2 beam in a very short time in a ratio approx. 1:10. This version of As_2 source is an affordable and easily operated alternative to valved arsenide sources.

Available versions


- Valved Decomposition Effusion Cell (V-DECO- As_2)
- Multiple cell

| TYPE | DECO-As | |
|-----------------------|--|-------------------------------------|
| TEMPERATURE RANGE | 150 - 800 °C | |
| HEATING SYSTEM | wire filament radiation heating | |
| TEMPERATURE STABILITY | ± 0.1 °C depending on the PID controller | |
| THERMOCOUPLE | type C | |
| MAX. OUTGAS TEMP. | 1200 °C | |
| MAX. POWER | 360 W | 25 cc crucible |
| MAX. CURRENT | 12 A | 25 cc crucible |
| BAKE-OUT TEMP. | 250 °C | |
| FLANGE SIZE | DN 40 CF 63 100 160 | others on request |
| MAX. OUTER DIAMETER | 38 mm 61 mm 97 mm | others on request |
| MIN. UHV LENGTH | 180 mm | |
| CRUCIBLE MATERIAL | PBN | CRUCIBLE DATA SHEET |
| CRUCIBLE INSERT | integrated | |
| CRUCIBLE SIZE | 2 - 40 cc | CRUCIBLE DATA SHEET |
| OPTIONAL | | |
| COOLING | integrated water cooling separated cooling jacket | |
| COOLING DATA | water consumption: | 1l/min 25 cc crucible |
| | temperature: | 5 - 15 °C |
| | connection: | ø 6 mm |
| SHUTTER | integrated rotary shutter (manual, pneumatical or electrical actuation) SHUTTER DATA SHEET | |
| POWER SUPPLY | PS - S800 | |
| CABLE | length 6 m (bakeable) | others on request |

Elements to be evaporated

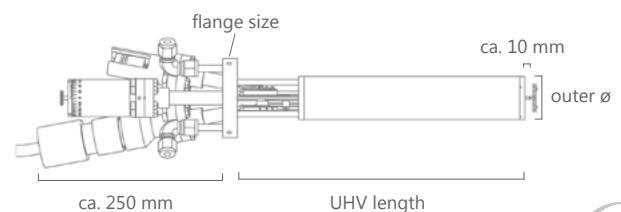
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|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|-----|----|-----|-----|
| H | | | | | | | | | | | | | | | | | He |
| Li | Be | | | | | | | | | | | B | C | N | O | F | Ne |
| Na | Mg | | | | | | | | | | | Al | Si | P | S | Cl | Ar |
| K | Ca | Sc | Ti | V | Cr | Mn | Fe | Co | Ni | Cu | Zn | Ga | Ge | As | Se | Br | Kr |
| Rb | Sr | Y | Zr | Nb | Mo | Tc | Ru | Rh | Pd | Ag | Cd | In | Sn | Sb | Te | I | Xe |
| Cs | Ba | Lu | Hf | Ta | W | Re | Os | Ir | Pt | Au | Hg | Tl | Pb | Bi | Po | At | Rn |
| Fr | Ra | Lr | Rf | Db | Sg | Bh | Hs | Mt | Ds | Rg | Cn | Uut | Ff | Uup | Lv | Uus | Uuo |

| | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| La | Ce | Pr | Nd | Pm | Sm | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb |
| Ac | Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Md | No |

Evaporation Guide of Elements 

How to order?

Individual Cell Request 



| | |
|---------------|---|
| SUPPORT | support@createc.de |
| APPROVAL | Drawing will be provided before manufacturing |
| CONDITIONING | Heated to maximum temperature with and without crucible |
| DOCUMENTATION | User manual will be provided with the delivery |
| SHIPPING | In stainless steel container under dry nitrogen |
| SERVICE | On request, a general overhaul can be performed after long-term use |