Decomposition Effusion Cell (DECO-P)

sales@createc.de | www.createc.de

The Decomposition Effusion Cell is designed to generate ultra-pure phosphorous (P_2) by decomposition of gallium phosphide (GaP | 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 GaP, the P_2 is generated by a lower temperature compared to Ga. Therefore, the Ga remains stable inside the crucible, while the P_2 comes out of the effusion cell at the orifice. To avoid the Ga atoms to flow out of the cell with the P_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 P2: *Ga in the P_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 P_2 beam in a very short time in a ratio approx. 1:10. This version of a P_2 source is an affordable and easily operated alternative to valved phosphorus sources.

Available versions

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

TYPE	DECO-P	
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 temperature: 5 - 15 °C connection: ø 6 mm	25 cc crucible
SHUTTER	integrated rotary shutter (manual, pneumatical or eletrical actuation)	SHUTTER DATA SHEET
POWER SUPPLY	PS - S800	
CABLE	length 6 m (bakeable)	others on request

Elements to be evaporated

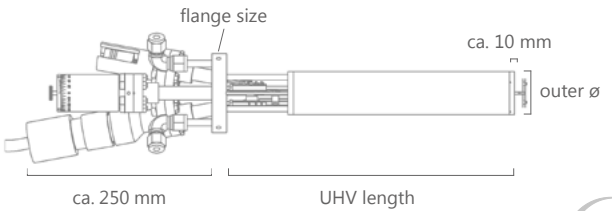
H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Lr	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Uut	Fl	Uup	Lv	Uus	Uuo

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

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