safematic

Provider of
citical-point
drying systems

ONE patented device
full-automated
dehydration and
critical point drying

make it visible

CDS-020 COMPACT DRYING SYSTEM

Safematic CDS-020 Compact Drying System

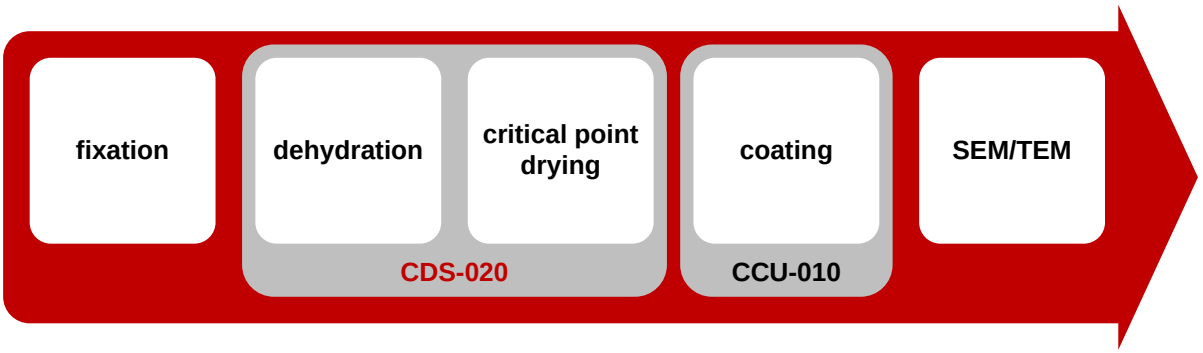
Dehydration and critical point drying of your samples, fully automatic in ONE device.

The advantages:

- fully automated hands off process without necessity of monitoring
- start a process in the evening get your dried specimen in the morning
- greater process reliability and traceability due recipes and process tracking
- dehydration and critical point drying in ONE piece of equipment
- less space required in the laboratory
- samples up to the size of 30mm
- less sample handling
- no use of refrigerants

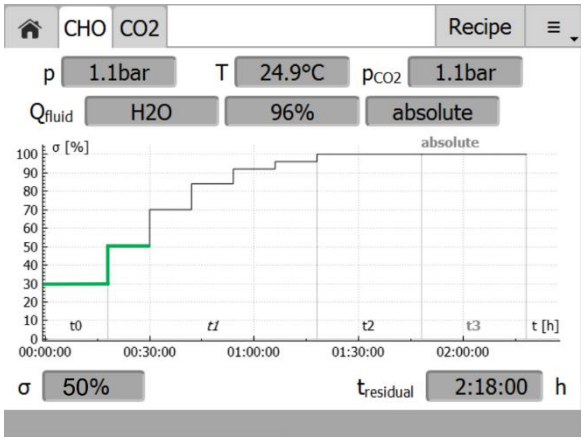
Area of application:

Water-containing structures or moist samples (usually biological) can be altered or destroyed during drying in air or in a vacuum.
Critical point drying with the safematic CDS-020 is an efficient method to preserve these structures. The tangential forces of interfacial tension that occur during drying between water and air are avoided by transferring the liquid phase of CO2 into the gas phase without a phase transition. For this purpose, water is replaced by the solvent ethanol that is miscible with liquid CO2, as this can then be exchanged for CO2 again.
The steps required to prepare any hydrated biological samples for SEM/TEM include fixation, dehydration, critical point drying, mounting, and coating with metal to improve electron conductivity of sample surface.
The safematic Compact Drying System CDS-020 covers the steps of dehydration and critical point drying. The automated process produces repeatable high quality results.



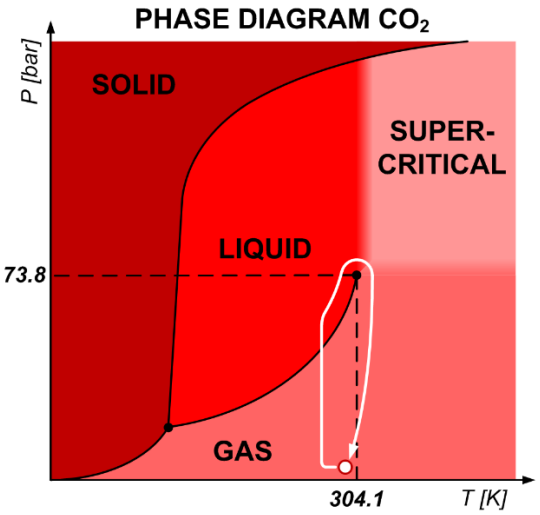
Dehydration

The high water content of chemically fixed samples requires appropriate dehydration of biological samples. Under high vacuum conditions (e.g. in a scanning electron microscope), residual water would evaporate and damage the biological structures. Similarly, drying the samples directly from water leads to severe structural destruction due to surface tension effects. An exchange of the water for liquids with lower surface tension and subsequent drying by evaporation of the substitution fluid will improve morphological structure.

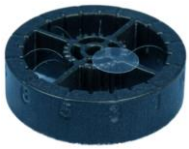
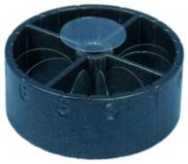
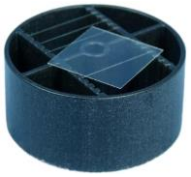


Critical point drying

Critical point drying is a preparation technique used to prepare soft tissue samples for imaging under vacuum conditions (e.g. in a scanning electron microscope) without the artefacts caused by evaporative drying. During evaporation, the liquid in the sample crosses a phase boundary, which can lead to. By increasing the temperature and pressure in the processing chamber, the critical point of the liquid can be reached when sublimation to a gaseous phase occurs. After the critical point is passed, the pressure can be lowered so that the dried sample can be removed.



Specimen holders that come with the CDS

Coverslips Ø 12mm	Coverslips Ø 18mm	Coverslips ☐ 22mm	Strainer holder
			

The specimen holders are handled with the included grabber and can be stacked in the chamber. Additional specimen holders can be customized on request.

Specifications	**CDS-020**
Dimensions (L x W x H)	55 x 37 x 43cm
Weight	42kg
Electrical connection	100 to 240VAC, 50 / 60Hz, max. 500W
Noise level	maximum 55dB(A)
Chamber dimensions	Ø 60 x 44mm
Cup (vessel for sample holders)	Ø 50 x 34mm
Chamber volume	160ml
Operating pressure	max. 80bar
Bursting pressure	125bar @ 20°C (Bursting membrane)
Operating temperature environment	+17 to +27°C
Temperature range dehydration	+1 to +24°C
Storage temperature	+5 to +40°C
Exchange fluid	Ethanol (only), Distilled water
Exchange fluid consumption	< 1L per run and fluid type (depending on recipe)
Transitional fluid	Carbon dioxide (CO_2)
Gas inlet	3/8 inch external thread
Gas cylinder type	With or without feed pipe
Gas cylinder size	≥ 10L
CO_2 purity	≥ 99.9%
CO_2 consumption	< 0.3kg per run
Min. pressure CO_2 (Inlet)	52 bar
Waste out	Ø 8mm
Waste bin	Container 5L (monitored)

THE COMPANY

Our company is nestled along the upper Rhine in Switzerland, with its long history of innovation in vacuum and coating technology. With our new compact drying system CDS-020 we are proud to support our customers in a further step in sample preparation with an innovative and fully automated solution. We are Swiss made, guaranteeing quality and a deep understanding of your needs and how to meet them.

Swiss made

Your preparation solution

Apart from our standard products, we also offer customised extensions

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