

Vacuum Impregnation Unit



Especially designed for impregnation of porous materials

CitoVac gives you superior impregnation, carried out quickly and efficiently. Perfect for porous materials, such as specimens for failure analysis with cracks, porous casts and composites, electronic components, rocks minerals, ceramics and spray coatings.

CitoVac is extremely user-friendly, and is equipped with a spacious vacuum chamber.





Easy handling

- Handy inlet tube for trouble-free filling of the mounting cups, and no spilling
- Easy-to-read display and touch pad keys for user-friendly operation
- Transparent lid for a clear view during impregnation
- Disposable consumables for optimal safety and less cleaning

Room for many and/or large specimens

- Spacious vacuum chamber
- Practical mounting cup holder with room for up to 8 mounting cups (accessory)

CitoVac



Fast and easy impregnating with Struers mounting cup holder

Impregnation

Perfect impregnation of porous specimens requires that there is no air in the pores and cracks of the specimens when the impregnation material is applied. The only way to obtain this is to impregnate under vacuum. CitoVac ensures perfect impregnation of your specimens.

CitoVac is equipped with a large vacuum chamber and a user-friendly operational panel. The impregnation material (e.g. Struers EpoFix or ProntoFix) is supplied through a disposable tube, and is quickly and efficiently distributed, without messy spilling, to the individual mounting cups.

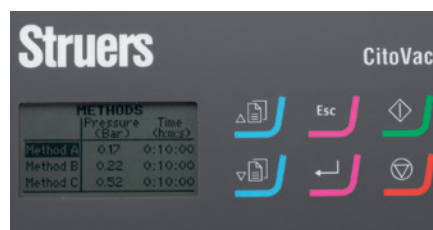
CitoVac features

Handy inlet tube

CitoVac is designed for trouble-free filling of the mounting cups, and is operated without spilling of impregnation material in the vacuum chamber or outside on the cabinet. This is achieved by manually rotating the mounting cups on the turntable to the fixed inlet tube. The valve controlling the flow of the impregnation material is also easy to handle.

User-friendly operation

CitoVac is operated with a few touch pad keys. The display presents both set values and present vacuum and time. Display and touch pad are placed behind the chamber to secure that they will not be soiled with mounting material.



User-friendly operation

A clear view during impregnation

The transparent lid allows a clear view when filling the mounting cups in the vacuum chamber. Therefore the amount of impregnation material per cup can be controlled, which results in less waste of impregnation material.

Optimal safety and less cleaning

All consumables which have contact with the mounting material are disposable. This ensures the optimal safety for the user and reduces cleaning to a minimum.



CitoVac with disposable dispensing tube for optimal safety and time-saving

A large vacuum chamber

With CitoVac many specimens can be impregnated at the same time. Using 30 mm / 1¼" mm dia. mounts 10 specimens can be mounted, using 40 mm / 1½" dia. mounts, 8 specimens can be mounted at the same time. In addition, the large vacuum chamber allows also impregnating large specimens under vacuum. Thus, CitoVac can use a 200 mm / 8" dia. mounting cup to impregnate large samples.



Spacious vacuum chamber for large specimens

Practical mounting cup holders

To make it fast and easy to handle many specimens we have designed special mounting cup holders. The holders are for Struers mounting cup FixiForm or Sample Chair for the TargetMaster.



Easy filling of mounting cups

Lid for gluing

CitoVac can be used to glue a specimen onto a glass slide for making thin sections. A special lid with a pressing rod is used for this purpose, in place of the standard lid. A support ring underneath the holder ensures that the holder does not move during gluing.

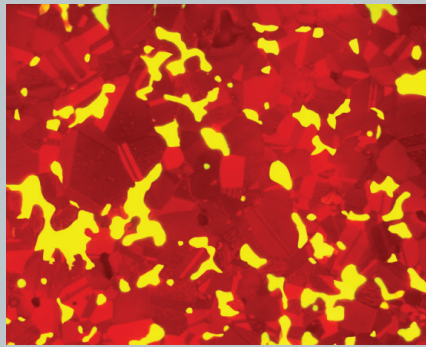
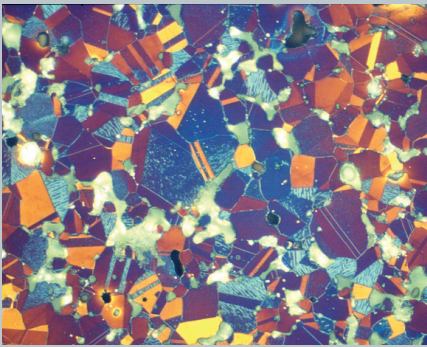
When gluing specimens for thin sections, the specimen is pressed against the glass slide using the pressing rod, which is led through a ball bearing in the lid. Thus an efficient gluing with an even, thin layer of glue, with no air bubbles, is obtained.



Lid for gluing specimens for thin sections

Efficient impregnation

An efficient impregnation depends on several conditions:



Left: Bright field, 200x. Right: Long pass blue/short pass orange filter, 200x

Material: Powder Metallurgy, stainless steel with 10% volume Cr₃C₂

Specimen impregnated with ProntoFix and EpoDye, using CitoVac. The micrograph to the right shows the specimen material in reddish colours and the voids filled with the mounting material in yellow. This impregnation technique, combined with the proper filters in the optical microscope, makes it easy to evaluate voids and/or cracks present within a specimen.

1. Open pores

Only pores, cracks etc. which are open can be filled with impregnation material. After the finished preparation, closed pores can be differentiated in the microscope from pores that are filled with impregnation material, due to the different reflection of the light. The contrast of the impregnation material in the pores can be further enhanced by using EpoDye, a fluorescent dye.

2. Vacuum

The specimen is evacuated to the lowest possible pressure. During the impregnation itself the pressure is then adjusted so the impregnation material does not start to foam inside the vacuum chamber.

3. The viscosity of the impregnation material

The best impregnation is obtained with the most fluid material. With e.g. EpoFix the lowest viscosity is obtained at 30-40°C. The best result is achieved by using the impregnation material immediately after mixing, before the viscosity of the material starts to increase due to the polymerization.

4. A clean specimen

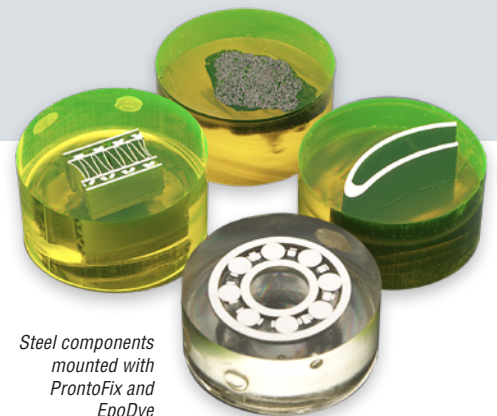
Grinding dust prevents the impregnation material from thoroughly penetrating the specimen. The specimen is best cleaned in an ultrasonic cleaner. Afterwards, it is rinsed with ethanol and dried thoroughly in order to make the impregnation agent adhere better to the surface.

5. Time

The smaller the specimen, the shorter the evacuation time to ensure that all air is removed from the voids and cracks. Depending on number and size of the specimens, the vacuum time can vary from a few minutes to 20 minutes or more.

Consumables

CitoVac is designed for optimal use with a disposable dispensing tube. CitoVac Consumable Kit contains 100 pcs. dispensing tubes and one protecting chamber. The protecting chamber is for easy maintenance of the vacuum chamber as it shields the chamber against the impregnation material.



Steel components mounted with ProntoFix and EpoDye

Technical data

Subject		Specifications	
		Metric/International	US/Imperial
Dimensions	Outer dimensions:		
	Height	190 mm	7.5"
	Width	380 mm	15"
	Depth	370 mm	14.5"
	Weight	9.5 kg	21 lbs
	Vacuum Chamber:		
	Inner diameter	ø200 mm	ø7.9"
	Inner height	100 mm	4"
Power	Power – constant	0.031 A	
	Power – intermittent	0.030-0.031 A	
	Maximum power	0.106 A	
	Current spikes (usually start-up and start of operation)	0.039 A	
Air supply CitoVac with built-in ejector	Compressed air:	4.5 - 6 bar	58 - 87 psi
	Recommended Air quality:	Class-3 as specified in ISO 8573-1	
	Consumption of compressed air:	12.5 l/min	3.2 gallon/min
	Hose connection:	ø1/4"	
	Vacuum (at compressed air 6 bar):	860 mBar	645 mm Hg
Vacuum CitoVac for External Pump	Recommended Vacuum	min. 900 mBar	675 mm Hg
	Recommended Output:	~30 l/min	~8 gallon/min
	Hose connection:	5/16"	
Operating Environment	Surrounding temperature	5-40°C	41-104°F
	Humidity	< 95% RH non-condensing	
Storage / Transport Conditions	Surrounding temperature	0 – 60°C	32 – 140°F
	Humidity	< 90% RH non-condensing	

Subject		
EU Directives		Please refer to the Declaration of Conformity
Noise level	A-weighted sound emission pressure level at workstations	LpA = 67 dB(A) (measured value), Uncertainty K = 4 dB(A) Measurements made in accordance with EN ISO 11202.

Struers' products are subject to constant product development. Therefore, we reserve the right to introduce changes in our products without notice.

Specifications

CitoVac with built-in vacuum ejector

Vacuum impregnation unit.
Compressed air supply 4.5 - 6 bar
required. 1 x 100-240 V / 50-60 Hz.
Cat. no: 05926119

CitoVac for external pump

Vacuum impregnation unit.
External vacuum pump required.
1 x 100-240 V / 50-60 Hz.
Cat. no: 05926219

Welch Vacuum Pump

Used on Discoplan-TS, CitoVac for
external pump and Accutom-100, -50,
-5 and -2. Vacuum: ~907 mbar.
Output: ~28 l/min. (06196133) ~34 l/min.
(06196121).
Dimensions L x W x H, cm (in):
37.5 x 21 x 25.5 (14.8 x 8.3 x 10.0)
115 V / 60 Hz Cat. no: 06196121
230 V / 50/60 Hz Cat. no: 06196133

Mounting Cup Holder for 8 FixiForm 30 mm / 1 ¼" dia.

For easy handling of mounting cups.
With support for safe storage when not
placed in CitoVac.
Cat. no: 05926901

Mounting Cup Holder for 5 FixiForm 40 mm / 1½" dia.

For easy handling of mounting cups.
With support for safe storage when not
placed in CitoVac.
Cat. no: 05926902

Sample Chairs Holder for 6 x 30 mm and 5 x 40 mm

For easy handling of Sample Chairs. With
support for safe storage when not placed
in CitoVac.
Cat. no: 05926905

Lid for Gluing

Complete with pressing rod and support
ring for gluing specimens on glass slides
for making thin sections.
Cat. no: 05926904

Consumable Kit for CitoVac

Disposable consumables for CitoVac.
100 dispensing tubes and one chamber
protector.
Cat. no: 40300080

EpoDye

Fluorescent dye to use in microscopy
to make cracks and pores visible. For
use with ProntoFix, Specifix, EpoFix,
CaldoFix-2, ClaroCit and ViaFix. Special
filters for microscope required.
Cat. no: 40300002

EpoFix kit

Epoxy cold mounting system curing at
room temperature in about 12 hours,
with no shrinkage, especially suited for
vacuum impregnation. Transparent.
Cat. no: 40200029

EpoFix resin. 1 l

For EpoFix epoxy cold mounting system.
1 l EpoFix Resin corresponds to 130 ml
EpoFix Hardener.
Cat. no: 40200030

EpoFix hardener. 500 ml

For EpoFix epoxy cold mounting system.
500 ml EpoFix Hardener corresponds to
4 l EpoFix Resin.
Cat. no: 40200031

ProntoFix Kit

Epoxy cold mounting system. Curing at
room temperature and within 90 minutes
and with no shrinkage. Well suited for
vacuum impregnation. cat. no. 40200108

ProntoFix resin, 1 l.

For ProntoFix epoxy cold mounting
system. 1 l ProntoFix Resin corresponds
to 275 ml hardener. If curing time with
the ProntoFix Hardener is too long the
ProntoFix Accelerator can be added. 1.3
l ProntoFix Resin corresponds to 275 ml
hardener plus 70 ml accelerator
Cat. no: 40200109

ProntoFix Hardener. 500 ml

For ProntoFix epoxy cold mounting
system. 500 ml hardener corresponds to
1.8 l ProntoFix resin
Cat no: 40200110

Specifix-40 Kit

Epoxy cold mounting system curing at
elevated temperature (40-60 °C) in about
3.5 hours, with very low shrinkage, suitable
for vacuum impregnation. Transparent.
1 l resin, 500 ml curing agent and required
consumables
Cat no: 40200049

ProntoFix Accelerator. 70 ml

To accelerate the ProntoFix system
if curing time with the ProntoFix
Hardener is too long. 70 ml accelerator
must be mixed with 275 ml ProntoFix
Hardener. The mixture corresponds to
1.3 l ProntoFix Resin. Empty bottle for
premixing Hardener and Accelerator is
available
Cat no: 40200111

Specifix resin. 1 l

For Epoxy cold mounting system.
For use with Specifix-40 Curing Agent.
Cat. no: 40200051

Specifix-40 curing agent. 1 l

For Epoxy cold mounting system curing
at elevated temperature (40 - 60 °C).
1 l Specifix-40 Curing Agent corresponds
to 2 l Specifix Resin.
Cat. no: 40200053

CaldoFix-2 Kit

Epoxy cold mounting system, curing
within 1½ hours when heated to 75 °C /
167 °F. Very low shrinkage, suitable for
vacuum impregnation. Transparent.
Cat. no: 40200084

CaldoFix Resin. 1 l

To be mixed with CaldoFix-2 Hardener.
1 l resin corresponds to 325 ml hardener.
Cat. no: 40200085

CaldoFix Hardener. 500 ml

To be mixed with CaldoFix-2 Resin. 500
ml hardener corresponds to 1.5 l resin.
Cat. no: 40200086

Please see special brochure for mounting
cups, dye, taper section angles and other
accessories for cold mounting.

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Ensuring Certainty

With offices and affiliates in 24 countries and a presence in more than 50 countries worldwide, Struers is the world's leading materialographic solution supplier. We are dedicated to enabling our customers to ensure certainty in all aspects of materialographic preparation and testing as well as material hardness testing - wherever they are in the world. Struers offers a complete range of equipment, consumables, service and training programmes – all supported by the most comprehensive knowledge base, global applications support and a certified global service set-up.

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