



# STP120

## Tissue Processor

### Operator Guide

387718 Issue 16 February 2022

**REF**

813140  
813150  
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To every one of us at EpreDia, this mission is personal. Many of us have loved ones and family who have been affected by cancer.

You are on the front line of this fight, and our pledge is to arm you with the most innovative tools to enable early detection and diagnosis of this disease.

Learn more at [epredia.com](http://epredia.com)



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These instruments conform to the general safety and performance of:

In Vitro Diagnostics Regulation (IVDR) EU 2017/746

Medical Devices Regulations 2002 (SI 2002 No 618, as amended) (UK MDR 2002)

## Safety Information

Epredia instruments are designed for convenient and reliable service; however, improper use or handling by a user may damage the instrument or cause a hazard to health. The instrument must not be used in a manner not specified by Epredia. Correct maintenance procedures are essential for consistent performance. It is recommended that users secure a maintenance contract with our service department.

To remain compliant with regulatory requirements, and to ensure that mandatory safety upgrades are performed at the earliest opportunity, it is strongly recommended that all service activities are performed by Epredia-factory trained Engineers. Warranty may be voided if service is performed by non-factory trained Engineers.

Maintenance or repairs that are not performed by Epredia trained Engineers with proven training may affect the safety, performance and compliance of the equipment.

Please consult your local sales or support teams for more information about service contracts



The following sections contain important information for the safe setup and use of the instrument, and should be read and understood by the user before using the instrument.

## General Safety



This instrument, as supplied, conforms to IEC61010-1 and IEC61010-2-101; however, the addition of chemicals introduces potential hazards. Good Laboratory Practice must be employed and consideration must be given to the potential for hazard when dealing with these chemicals.



Do not use this instrument in close proximity to strong electromagnetic radiation as these may interfere with the proper operation. The electromagnetic environment should be evaluated prior to operation of the device.



Good Laboratory Practice must be used when handling tissue samples to prevent cross contamination and infection. The user should complete a risk assessment to determine any potential hazards related to tissue handling.



- Do not introduce any source of ignition into, or near, the instrument once it has been loaded with reagents.
- Do not remove any panels or access covers, unless specifically instructed to do so. The instrument does not have any user serviceable parts. Potentially lethal voltages are present inside the instrument.
- The instrument must be properly connected to a good earth (ground) via the Mains input supply and positioned such that it is possible to interrupt the Mains supply at the source by removing the plug from the socket.
- Use only factory approved accessories or replacement parts with this instrument.

- Only use reagents recommended in the Operator Guide.
- Disconnect the instrument from the mains supply before performing maintenance.
- Take necessary precautions when handling glass. Wear Personal Protective Equipment (PPE) if required.

## Symbols

The following symbols and conventions may be used throughout this document and on the instrument:



This symbol is used on the instrument, or in a document, to indicate that instructions must be followed for safe and correct operation. If this symbol appears on the instrument, always refer to the operator guide.



This symbol indicates that a surface is hot. If this symbol appears on the instrument, always refer to the operator guide. Take suitable precautions



This symbol indicates that a surface is hot. If this symbol appears on the instrument, always refer to the operator guide. Take suitable precautions.



Manufacturer.



This symbol indicates the instrument is an in vitro diagnostic medical device.



This symbol is used on the instrument, or in the document to indicate that instructions for use must be consulted

## Chemical Safety

The introduction of chemicals creates potential hazards. EpreDia has adopted the following position with regard to the subject of volatile chemicals used in laboratories:



- Customers using non-specified chemicals in the instrument do so at their own risk.
- All chemicals recommended by EpreDia have auto-ignition temperatures considerably above any surface temperature that can be reached during a single fault failure on the instrument.
- The instrument contains no source of ignition in any areas of the instrument where chemicals are stored, or are likely to leak into in a single fault condition.
- The operator is fully aware of the contents of the specification documents detailing the properties of the chemicals they are using.
- The operator has carried out any legally required assessment of chemicals used and is using good laboratory practice.

## Environment

This instrument is required to comply with the European Union's Waste Electrical and Electronic Instrument (WEEE) Directive 2012/19/EU. It is marked with the following symbol:



EpreDia has contracts with one or more recycling / disposal companies in each EU Member State, and this product should be disposed of or recycled through them. For further information contact your EpreDia service representative.

## Warranty Statement

Epredia is proud of their quality, reliability and after-sales services. We continuously strive to improve our service to our customers.

Please ask your distributor or Epredia representative about service contracts which can help maintain your instrument in an optimal operating condition.

Warranty provisions necessarily vary to comply with differences in national and regional legislation. Specific details can be found in the delivery documentation or from your dealer or representative.

Please note that your warranty may be invalidated if:

- This instrument is modified in any way, or not used as intended by Epredia.
- Accessories and reagents which have not been approved by Epredia are used.
- The instrument is not operated or maintained in accordance with instructions.
- The installation of the instrument was not conducted by a certified Epredia representative.



Any serious incident that has occurred in relation to the device shall be reported to the manufacturer and the competent authority of the Member State in which the user/or the patient is established.

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# Chapter 1 - Introduction to the EpreDia Tissue Processor STP120



## Intended Purpose:

The EpreDia STP120 automated tissue processor is an in vitro diagnostic device, designed to infiltrate tissue specimens with paraffin in medical, pharmaceutical research laboratories to allow for subsequent examination and diagnosis by a technologist or pathologist. Only qualified and trained laboratory personnel may operate the STP120.

The instrument may only be operated within the scope of its intended use as described above and as per the instructions given in this manual.

Any other use of this instrument is considered as an improper action.

## Description of the EpreDia Tissue Processor STP120

The STP120 has 12 reagent positions, between which baskets containing tissue samples are automatically transferred and processed from chemical dehydration to paraffin infiltration.

The instrument is programmable via a membrane keypad and display screen, and can store up to 10 user configured processing protocols. Variable parameters which can be selected by the user include; immersion time, reagent temperature and agitation.

The STP120 reduces carryover between reagent positions through centrifugal spinning of the tissue basket above the last used reagent position.

## Theory of Operation

### Processing – dehydration, clearing and infiltration

The EpreDia STP120 rotary movement transports tissue specimens through a sequence of reagents to complete the process of removing water from the tissue and replacing it with paraffin.

Samples are first transferred through progressively more concentrated dehydrants, such as Ethanol, to remove the water. This is followed by a hydrophobic clearing agent (such as xylene) to remove the alcohol, and finally molten paraffin which can then infiltrate the cleared tissue.

## Technical Specifications of the STP 120

<b>Sizes</b>	
Diameter of the carousel	850 mm
Height	500 – 700 mm
Diameter of the turning circle	670 mm
<b>Weight</b>	
Including packing	145 kg
Net (fully equipped)	70 kg
<b>Electrical installation</b>	
Rated Voltage ( $\pm 10\%$ )	100-120 V~, 50/60 Hz, 1.7A
	220-240 V~, 50/60 Hz, 0.9 A
Fuses	110-120 V: (2 x T4AH 250V) 220-240 V: (2 x T2AH 150V)
Battery	Nickel-Cadmium (12V 600 mA)
Overvoltage category	2
Pollution degree	II
Sound pressure	< 70 dBA
<b>Capacity</b>	
Reagent stations	
Number of reagent vessels	10 (9, if 3 are for paraffin.)
Volume per reagent vessel	1.8 L
Baskets for the specimen holders	
Number of baskets	1 (option of 2)
Basket capacity	120 specimen holders
Paraffin stations	
Number	2 (option of 3)
Volume	1.8 L
Rated Voltage	24 V ~
Rated power per station	100 VA
Temperature range	50 – 70 °C
Hysteresis margin	0.1 – 2 °C
Temperature cut-off	80 °C ( $\pm 4$ °C)
Thermal protection	Manual reset

<b>Programming</b>	
Number of programs	10 (selectable)
Programmable infiltration time per station	from 1 s to 90 h 59 m
Rotation stirring	selectable
Vertical shake	selectable
Centrifugation	selectable
Centrifugation time	selectable
Program start delay	selectable without time limit
<b>Environmental conditions</b>	
at a max. rel. humidity of	60% without condensation
Temperatures	from + 5 to + 40 °C
Storage temperature range	from -20 °C to +50°C
Altitude	up to 2000 m M.S.L.
Floor loading requirements	160,0 kg /m <sup>2</sup>
For indoor use only	

## Chapter 2 - Replacement and Emplacement

### Transport and Unpacking

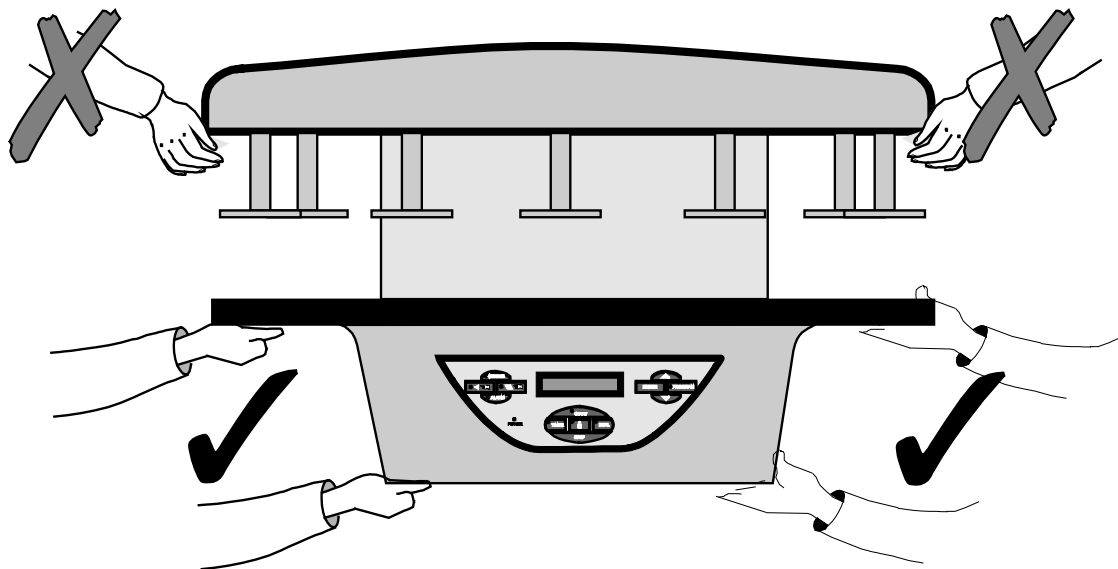
During transportation the STP 120 should always be kept in an upright position.

Inspect the packaging and the STP 120. If either is damaged or the contents do not match the supplied packing list, inform your local Epredia representative.

Remove any support or brace holding the machine inside the packing box.



**Use safe lifting practices when moving the STP 120. At least two people are required to move the STP 120. Take care to always hold the STP 120 as shown in fig 1. Never lift the STP 120 by the upper cover or the carousel as this will cause irreparable damage to the unit.**



*Fig 1 – Correct Handling of the STP 120*

## Emplacement

Choose a suitable flat surface measuring at least 900 mm in width x 900 mm depth with 750 mm of headroom.



**It is absolutely necessary that the emplacement of the STP 120 has at least 750 mm of free headroom otherwise the carousel will be irreparably damaged when it opens.**

Make sure that:

- The surface is perfectly smooth, flat and stable.
- The site is well ventilated.
- There is sufficient surrounding space to allow easy access while safely supporting the weight of the machine.



**When selecting the emplacement for the machine, remember that the Main ON/OFF switch is located at the rear and that it must be accessible at all times**

### *Manual Rotation of the Whole Unit*

Apart from the automatic rotating system for the processor cover, the base of the unit is also fitted with wheels. This enables the whole unit to be turned by hand to enable easy access to all the reagent vessels and paraffin baths should it be placed close against a wall.



**Never turn the unit holding it by the cover.**

Before turning the unit, hold it by the reagent vessel support table and proceed as follows:

- Use the ↑↓ button, to raise the carousel cover to its uppermost position.
- Turn off the unit at the Main ON/OFF switch and unplug the power supply cable (see next page). This will enable the unit to be turned on its axis without any risk of damaging the power cable.

## Connection

The electronic unit of the STP120 is suitably protected and adequately shielded according to EC Standards on emission and reception of interference. Nevertheless, the unit should not be installed close to other high power equipment that could generate vibrations or strong electrical interference.

The STP120 is supplied with a power cable for connection to a standard outlet with earth. The electrical connection is located at the rear.



**Before connecting the power cable, make sure that the STP120 is adjusted to operate at the supply voltage**

Do not replace the detachable mains supply cord with an inadequately rated mains supply cord.

### *Initial Turn-On*

Before assembling the baths, start the unit to raise the carousel.



**Never attempt to turn, raise or lower the carousel cover by hand or force it in any way!**



**Always use the keys on the control panel to make any manual movements and keep hands away from any moving parts.**

Connect the power supply cable and start the STP 120 using the stop-start switch located at the rear of the unit, above the plug for the power supply cable.

When the power is connected, the STP 120 automatically begins a machine test cycle and the fume exhaust fan will be operating.

This message appears on the display  
(V1.XX indicates the software version).

This is followed by:

FILTER CHANGE XXXX HOURS (Refer to 'Changing the Filter'), and then:

C10 C11 C12

16° 16° 16°

This indicates the temperature of the paraffin baths.

**SPIN TISSUE  
PROCESSOR V1.XX**

### **Note**

*These messages may appear in a language other than your own. If you want to change the language now, refer to section Changing the Language. Furthermore, the date and time perhaps do not coincide with those in your country. If you want to adjust the time, refer to chapter Changing the Date and Time section.*

The display indicates (in the pre-set language), a message like the one shown here.

Press the ↑ ↓ button once. Note that the carousel opens to a half-way position and the basket holder begins to turn.

<b>READY</b>	<b>01/01</b> <b>12:50</b>
--------------	------------------------------

When the carousel stops opening, press the ↑ ↓ key once again to continue opening the basket holder as far as possible. The screen will display the message indicating 'Take sample' and the reagent vessel located at 'C01'.

<b>TAKE SAMPLE</b> <b>C 011</b>
------------------------------------

If the basket holder is not physically in the position of reagent vessel 1, press the key ↑ ↓ repeatedly to advance the basket to the position of reagent vessel No 1. Disconnect the unit from the power supply.

- Now you can place the reagent vessels and paraffin baths in position.
- Connect the paraffin baths.



**Before connecting or disconnecting the paraffin baths, make sure that the unit is disconnected from the power supply by turning off the main switch located at the rear of the unit.**

Now you can turn the unit on again.



### Main Parts of the STP 120



Fig 2 – Main Parts of the STP 120

The model shown in the figure 2 corresponds to the version with two basket holders, three paraffin baths and reagent vessels.

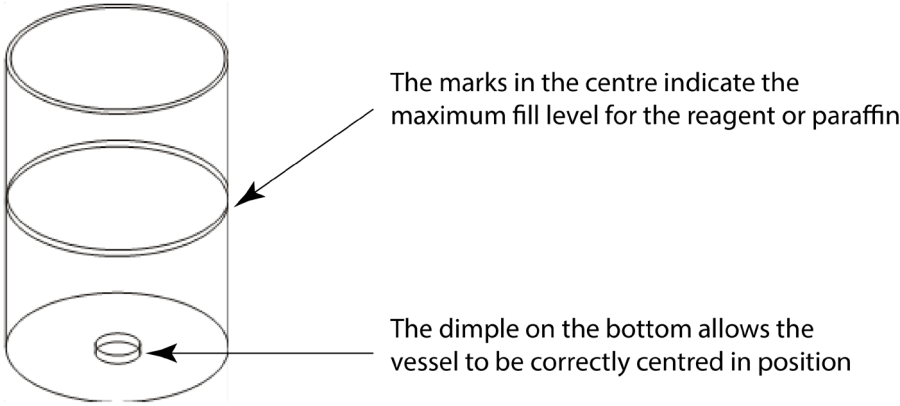


Fig 3



**Under no circumstances should the maximum fill level be exceeded as the process will not be performed correctly and reagent or paraffin could be spilled.**

## Connection of the Paraffin Baths

The paraffin baths are connected from the rear of the STP 120.



**Before connecting or disconnecting the paraffin baths, make sure that the STP 120 is disconnected from the power supply by turning off the main switch located at the rear of the unit.**

**Always** use the following connections:

- The connection marked with the number 10 only if a third paraffin bath has been installed in position 10.
- The connection marked with the number 11 only if the paraffin bath has been installed in position 11.
- The connection marked with the number 12 only if the paraffin bath has been installed in position 12.



### Note

*The **grooves** in the edge of the processor table to allow connection of the cables to the paraffin baths.*

## Placement of the baskets

The baskets are held in position by a **four point** bayonet connector.

When fitting the baskets, make sure that the four studs fit into the four grooves on the edge; turn the basket as far as possible inside the groove and allow it to rest on the pivots of the basket holder (see picture on the right).

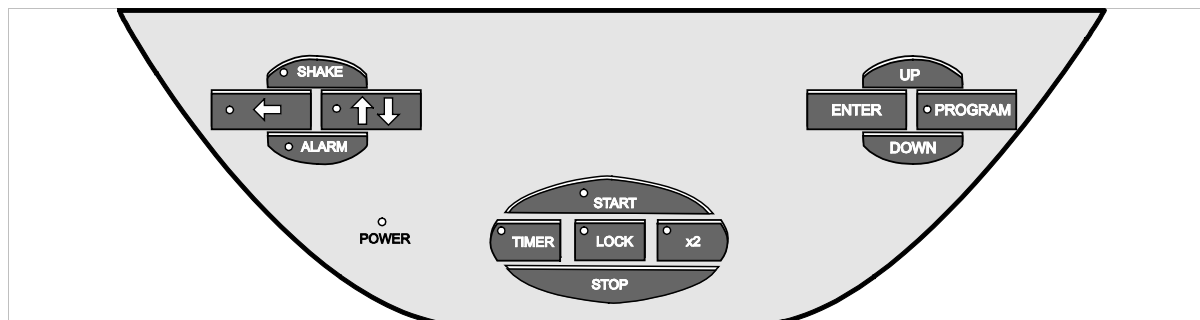


Before beginning to process tissues, you should become familiar with the handling and programming of the STP120. Design a small test program and perform some manual movements without any reagents in the vessels or samples in the baskets.

## Chapter 3 - Control Panel

### Control Panel

The control panel at the front of the STP 120 contains all the keys required for handling and programming. Activate the keys by pressing in the centre of the corresponding icon or indicator. Do not use sharp objects as they could damage the keyboard.



#### The actions of the keys:

##### SHAKE

Vertical shake. Pressing this key lights the indicator light and activates the **SHAKE** function. This function enables vertical shaking of the basket during the stirring process (refer to Basket Cycle).

←

Press this key to make the machine perform a partial rotation, moving the basket holder to the next station. This is only possible when the basket holder is in the upper position.

↑↓

These keys raise and lower the basket holder, as required. If pressed when the basket holder is moving, it will reverse the direction. The **STOP** key stops all movement

##### POWER

The LED lights up to indicate that the unit is connected to the power supply. A flashing LED indicates that the unit is operating on the emergency battery (for more information refer to section Power Failure).

##### START

Key to start the automatic operating cycle (program). When the STP 120 is operating in automatic mode, the pilot beside the key is lit.

##### STOP

Key to stop the automatic operating cycle. If this key is pressed the STP 120 indicates for confirmation of whether the process is to be aborted. Once the stop is confirmed, the program is cancelled and the STP 120 must be controlled in manual mode using the keys **↑↓** and **←** to place the basket holder above the first reagent vessel. The **STOP** key also halts any movement of the machine at any time.

##### TIMER

Allows delaying the start. Refer to Delayed Start. When the **TIMER** is active the display appears as dimmed the pilot light of the key is lit

##### LOCK

Pressing this key blocks all the keys on the control panel (to prevent accidental operation). Restore the key actions by holding down this key for more than two seconds.

##### x2

This key should always be pressed when the STP 120 is fitted with a double basket holder (optional accessory). For more information, refer to section Working with two baskets.

##### UP

When adjusting values it increases the value displayed, or goes back to the previous option

##### DOWN

When adjusting values it decreases the value displayed, or goes to the next option.

##### PROGRAM

Use this key to access the mode for editing programs or making adjustments.

##### ENTER

Validates the option or adjustments made.

For more information, refer to [Chapter 4 – Programming](#).



**Before executing the first real process with reagents and paraffin, remember that paraffin can sometimes take a long time to melt. After a long period of disconnection (for example the first start or after power**

**failure), the basket will not descend into the paraffin bath (even though this is programmed) until the default safety period has elapsed. When testing the programming, skip paraffin bath positions 11 and 12 (and 10 if working with two baskets) by assigning them a time period of 00:00.**

If you program a time period of more than 00:00 in positions 11 and 12 (10, if working with three paraffin baths), the screen will display this message, where XX is the number of the reagent vessel programmed prior to paraffin bath 11 (10 if a third bath is installed).

<b>WAITING FOR PARAFFIN</b>		
<b>Po 1□□</b>	<b>C XX□□□</b>	<b>TR=00:00</b>

## Chapter 4 - Programming

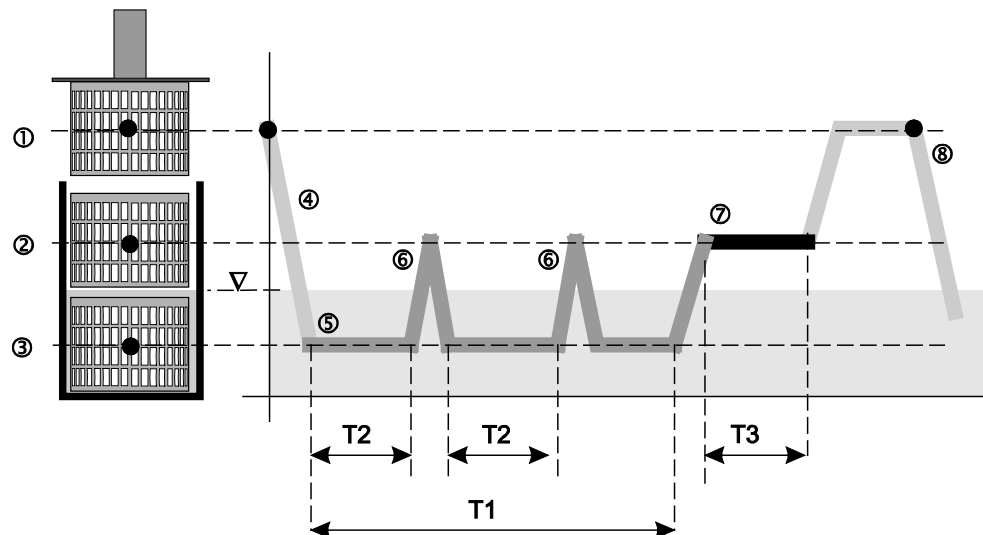
The STP 120 offers a wide range of possibilities for programming protocols for fixing and dehydrating histological samples with reagents and then infiltrating them with paraffin.

The control system enables up to 10 different processes to be programmed (programs 01 to 10).

Before beginning to enter programs, it is a good idea to become familiar with the cycle of the carousel. Pay close attention to the cycle performed by the basket at each of the 12 reagent vessels.

### Basket Cycle

The figure below shows the movements of the basket and the different phases that it goes through. The text describes these movements and the times that can be adjusted.



① Basket in the upper position or changing reagent vessel.

② Basket in central position or centrifugation.

③ Basket in lower position or immersion.

④ Downward movement. The basket does not turn.

⑤ Stirring by rotation for time T1 (programmable in each reagent vessel). Reversal of the direction of rotation each minute, with programmable rotation speed (0, 60, 70 rpm) at each reagent vessel.

⑥ Only if **SHAKE** (vertical shake) is activated, at each time T2 (set at 10 minutes), the basket with

⑦ On completing time T1 for immersion, the basket is centrifuged for programmable time T3. The direction of rotation is reversed four times during the centrifugation process.

⑧ On completing the transfer stage, a new cycle begins in the next reagent vessel.

T1 Time of immersion of the samples. The process time for each reagent vessel, refer to [Chapter 4 – Programming](#).

T3 Programmable centrifugation time. Eliminates any excess reagent from the basket and avoids mixing the products in the vessels.

▽ Level of the liquid in the reagent vessel (about half).

the specimen holders shakes vertically when rising and lowering.

### Example of a Process

The table below lists Protocol Specifications:

Reagent vessel No.	Reagent	Immersion Time Hours : Minutes	Stirring rate	
			rpm.	Program-med value
1	Formol	01:00	60	1
2	Formol	01:00	60	1
3	Alcohol 70%	01:30	70	2
4	Alcohol 80%	01:30	70	2
5	Alcohol 96%	01:30	70	2
6	Alcohol 100%	01:00	70	2
7	Alcohol 100%	01:00	70	2
8	Alcohol 100%	01:00	70	2
9	Xylol	01:30	70	2
10	Xylol	01:30	60	1
11	Paraffin	02:00	60	1
12	Paraffin	02:00	60	1

The 'programmed value' is a digit that appears on the programming display. It has the following meaning:

- 0 = without rotation stirring
- 1 = rotation stirring at 60 rpm.
- 2 = rotation stirring at 70 rpm

In cases 1 and 2, the direction of rotation of the motor is reversed every 60 seconds.

## Entering the Program

Enter the program when the STP 120 is connected to the power supply and in the stop position. Make sure that:

- The vessels contain the reagents indicated on the list.
- The basket holder is located at station 1 (if not, raise the carousel by pressing the ↑↓ key and advance by repeatedly pressing the ← key until it is located in position 1). Press the ↑↓ key to lower the basket holder into reagent vessel 1 and prevent the reagents from evaporating while carrying out the programming.



**The paraffin baths may reach high temperatures. Take precautions to avoid burns.**

In this situation the screen displays the following message:

If the date and time hour or language of the display are not correct, they should first be adjusted.

Refer to Changing the language and Changing the date and time.

If the date, time hour and language are correct, proceed as follows.

<b>READY</b>	<b>01/01</b> <b>12:34</b>
--------------	------------------------------

Press the **PROGRAM** key and then the **ENTER** key.

The pilot light of the **PROGRAM** key will light and the screen will display the following message:

Note that '01' is flashing. This means that, of the 10 programs available in the unit, program number 01 is to be used.

Program several different processes by selecting a different number for each of them using the **UP** or **DOWN** keys.

If program No 01 is selected the screen will appear as shown below:

P 01 indicates that program number 01 is being edited.

C 01 indicates that the values are being assigned to reagent vessel 01.

HH:MM is the time the samples remain in reagent vessel 01, expressed in Hours and Minutes

A is the stirring rate:

- 0 no stirring
- 1 stirring at 60 rpm
- 2 stirring at 70 rpm.

Pulse **ENTER** to assign the values to reagent vessel 01.

<b>SELECT PROGRAM</b>	<b>P 01</b>
-----------------------	-------------

<b>P 01</b>	<b>HH:MM</b>	<b>A</b>
<b>C 01</b>	<b>00:00</b>	<b>0</b>

Use the **UP** or **DOWN** keys to increase or reduce the value and **ENTER** to confirm the value and go to the next option.

If a reagent vessel is assigned a time of 00:00, the carousel will not immerse the basket in the corresponding reagent.

The option of vertical shake is common to all the vessels and is activated by the **SHAKE** key, when starting program, refer to [Starting the program section](#).

If the STP 120 is fitted with a second basket holder for operation in double capacity mode (two baskets), refer to section Working with two baskets.

Once the times and stirring rate have been programmed for each reagent vessel, press **PROGRAM** to exit program edit mode.

Before executing the program for the first time, verify that the default values (factory settings) or those modified using the edit menu, are suitable for the process to be performed:



- Temperature of the paraffin baths. Default value: 62 °C.
- Frequency of the vertical shake (only if this option is activated by pressing the **SHAKE** key when starting the program). Default value: every 10 minutes.
- Centrifugation time, before the change of reagent vessel. Default value: 60 seconds.

## Starting the Program

Make sure that each reagent vessel contains the appropriate reagent coinciding with the selected program:

The vessels should not be filled to more than the **marks etched at half their height**, otherwise the centrifugation process, apart from not having the required effect of not mixing reagents, could cause mechanical damage to the unit.

If the STP 120 is fitted with a second basket holder, refer to section Working with two baskets.

Proceed as follows:

1. Raise the basket holder by pressing the  $\uparrow\downarrow$  key.
2. Place the basket with the specimen holders in the basket holder. Make sure that the bayonet lock closes correctly.
3. Press **STOP** to exit manual operating mode
4. **Only** if vertical shake is required, press the **SHAKE** key. The key indicator lights up.
5. **Only** if working with a double basket, press the **x2** key. The pilot beside the key will light
6. Press the **START** key to begin the program. The display suggests executing program P 01
7. If a program other than 01 is to be used, press the **UP** or **DOWN** keys to modify the option.
8. Start the program immediately by pressing **START** again. The program will begin to execute.
9. **Only** if the start of the program is to be **delayed** so that it **finishes** at a certain date and time, press the **TIMER** key. The screen will display the following message

<b>SELECT?</b>	<b>15/08</b>
<b>P 01</b>	<b>08:20</b>

## Delayed Start

Depending on the times specified in the program for each reagent vessel, the STP 120 calculates and displays the date and time when the program will **finish**. If the program is to finish **later** than the time indicated on the display, the date and time values can be altered using the **UP** and **DOWN** keys and confirmed by pressing **ENTER**. If by error the value entered is less than that suggested by the STP 120, the original value will be restored (immediate execution of the program).

Press **START**. The **TIMER** pilot light will flash. The display is dimmed showing the date and time at which the program will **start**.

<b>PROGRAM END</b>	
<b>16/08/01</b>	<b>08:00</b>

<b>PROGRAM START</b>	
<b>16/08/01</b>	<b>08:00</b>

## Stopping the Program

Press the **STOP** key to halt:

- the current program if it is running
- the delay start timer, if programmed.

In each case, the microprocessor asks for confirmation of the operation with the message:

<b>DO YOU REALLY WANT TO STOP THE PROCESS?</b>
--

(or the **TIMER** if it is activated).

Press **START** and the process will continue or the **TIMER** will continue its down count. Press **STOP** again and the process will be interrupted.

If the process is stopped use the  $\updownarrow$  key to raise the basket holder and remove the basket with the specimen holders. If necessary, use the  $\leftarrow$  key to move the basket holder to the position of reagent vessel 1. Otherwise, when a new basket holder is loaded and **START** pressed to begin a program immediately, the carousel will automatically move to reagent vessel 1 before beginning the process.

## End of the Program

Under normal operating conditions, the program will stop in paraffin bath 12, and issue a warning beep every five seconds. If the program being run was P 01, the screen will display the following message.

Press the **STOP** key to stop the program.

Then press the  $\uparrow\downarrow$  key to raise the basket holder and remove the basket with the infiltrated samples.



**The paraffin may be very hot.  
Take adequate precautions to avoid burns.**

<b>END OF PROGRAM P 01</b>
--------------------------------

### NOTE

Start a new process **immediately** by placing the new basket in the basket holder and pressing **START** to begin processing. The carousel automatically moves to reagent vessel 1 to begin the process.

If the next process is to use the delay start **TIMER**, or the STP 120 is not going to be used until the next day, the basket holder should be moved to reagent vessel 1 using the  $\leftarrow$  key and lowered with the  $\uparrow\downarrow$  key to prevent the reagents from evaporating.

## Temperature Display

The temperature of the paraffin baths can be consulted at any time during the process by pressing the **DOWN** key.

The screen will display the temperatures of each of the vessels for a period of 3 seconds.

<b>C10</b>	<b>C11</b>	<b>C12</b>
<b>55°C</b>	<b>54°C</b>	<b>57°C</b>

## End of Process Display

The expected time for completing the process can be consulted at any time by pressing the **UP** key.

The screen displays the expected date and time for completion of the process for a period of 3 seconds.

<b>C10</b>	<b>C11</b>	<b>C12</b>
<b>55°C</b>	<b>54°C</b>	<b>57°C</b>

## Chapter 5 – Instrument Setup

### Setup Menu

For more detailed information on how to enter a program, refer to chapter Entering the program.

The **SETUP MENU** can only be accessed if the carousel is in the stop position and no program is being run. Press the **STOP** key. If the pilot light of the **LOCK** key is on the keyboard is blocked. Press the **LOCK** key to extinguish the pilot light located beside it.

If the language has been correctly configured, refer to [Changing the language](#) and [Changing the date and time](#) sections. The screen will display the following message.

The table below summarises the use of the keyboard in the **SETUP MENU**:

	<b>05/02</b>
<b>READY</b>	<b>10:50</b>

Key	Action	
<b>PROGRAM</b>	Enter <b>EDIT PROGRAM</b> mode. Press the <b>UP</b> or <b>DOWN</b> key to access the <b>SETUP MENU</b>	
Key	When the text displayed ...	
	Does not flash	Flashes
<b>UP</b>	Access to higher levels	Increases the value displayed
<b>DOWN</b>	Access to lower levels	Decreases the value displayed
<b>ENTER</b>	Access to the next lower level of the same option.	Confirms the value entered
<b>PROGRAM</b>	Exits the SETUP MENU. Values not confirmed by pressing <b>ENTER</b> are not changed	

The **SETUP MENU** includes the following options and levels:

Setup Menu	Options	Comments
1. Language		Changes the language used to display messages
1.1 Spanish	Y/N (YES/NO)	Selects Spanish as the language
1.2 English	Y/N (YES/NO)	Selects English as the language
1.3 Francaise	Y/N (YES/NO)	Selects French as the language
1.4 Italiano	Y/N (YES/NO)	Selects Italian as the language
1.5 Deutsch	Y/N (YES/NO)	Selects German as the language
2. Units Temp.		Enables the user to define the temperature units
2.1 Temperatures in	Celsius/Fahrenheit	
3. Clock		Adjustment of local date and time
3.1 Day	00 to 31	
3.2 Month	00 to 12	
3.3 Year	2000 to 2999	
3.4 Hour	00 to 24	
3.5 Minute	00 to 59	
4. Filter		Enables the values associated with the filter to be queried and adjusted.
4.1 Filter Time	0001 to 9999	Theoretical hours of filter service life (according to the manufacturer)
4.2 Change Filter	0001 to 9999	Remaining hours of life since the last change (Reset)
4.3 Filter Reset		<b>Caution:</b> Confirm by pressing <b>ENTER</b> , <b>only</b> after really changing the filter
5. Paraf. Temp		
5.1 Paraf. Temp. 10	from 50 to 70 °C	Allows adjustments to be made to the temperature of the paraffin baths
5.2 Paraf. Temp. 11		
5.3 Paraf. Temp. 12		
6. Timers		Allows adjustments to be made to the centrifugation times and the frequency of the vertical shake.
6.1 Centrifugation	000 to 180 s	Centrifugation time in seconds before the change of reagent vessel
6.2 Vertical Shake	0600 to 3000	Frequency for performing the vertical shake (if the ' <b>SHAKE</b> ' key is activated)

Two examples of modification of the Setup are shown below: Changing the language and changing the date and time:

## Changing the Language

The carousel display can be configured to display messages in five different languages:

Spanish, English, French, Italian, Dutch

**Step 1:** Press the **PROGRAM** key. If the currently configured language is English, this message appears:

A rectangular box with a black border containing the text "EDIT PROGRAM" in bold, uppercase letters.

**Step 2:** Press the **DOWN** key to go to the next option. The following menu appears:

A rectangular box with a black border containing the text "SETUP MENU" in bold, uppercase letters.

**Step 3:** Press **ENTER** to confirm access to the **SETUP MENU**.

**Step 4:** Press **ENTER** again to access the language option. The **UP** or **DOWN** keys then allow access to other Setup options:

2. Temperature Units
3. Clock
4. Filter
5. Paraffin temperature
6. Timers

**Step 5:** Press **ENTER** to display the first option (1.1 Castellano). Press the **DOWN** key until the desired language appears. When it appears, press **ENTER**. The screen will display a flashing N (No). Press **UP** to change it to a Y (Yes). Press **ENTER** again to confirm the option.

A rectangular box with a black border containing the text "1.1 CASTELLANO" in bold, uppercase letters, with a "Y" centered below it.

## Changing the Date and Time

Access the **SETUP MENU** as indicated for changing the language until Step 5.

Press the **DOWN** key until option 3 appears on the screen. Clock.

**SETUP MENU**  
**3. CLOCK**

Press **ENTER** to select the option to change the date and time. Each time the **DOWN** key is pressed the display will advance from the day to the minute in the following order:

- 3.1 Day
- 3.2 Month
- 3.3 Year
- 3.4 Hour
- 3.5 Minute

Use the **UP** key to move backwards from Minute to Day.

When the screen displays the value to be changed, (in this example, the hour) press **ENTER** to access the value (which will begin flashing) and then use the **UP** and **DOWN** keys to make appropriate changes. Once correctly adjusted, press **ENTER** to confirm the value and go to the next option.

**3.4 HOUR**

**10**

## Working with Two Baskets

As an optional extra, the STP120 may be fitted with a second basket holder to double its processing capacity.

When the unit is fitted with two baskets the following points should be taken into consideration:

- When starting the process, the additional basket (which is located over reagent vessel 2), will not be able to perform the process of reagent vessel 1 (unless this first process is performed manually by the operator).
- Irrespective of the times programmed for each reagent vessel (even if the programmed value is 00:00), the processing time will be the same for all the vessels and will be the value assigned to the first reagent vessel.
- On finalising the process, the original basket (not the additional one), will be located above reagent vessel 11 and will not undergo the process of reagent vessel 12 (unless this is final process is performed manually by the operator).

This situation can be corrected by installing a third paraffin bath.



**When working with two baskets remember to press the 'x2' key before starting the program with the START key (this will light the indicator located beside the 'x2' key). Otherwise, the second basket (optional) will be erroneously submerged in the reagent in reagent vessel 1 when the carousel moves to position 12.**



## Power Failure

The STP 120 is fitted with an emergency **backup battery** to enable processing to continue uninterrupted or to allow manual operation to remove, if necessary, the basket with the specimen holders (refer to 'Emergency Movements').



**The backup battery is designed to continue controlling the process times and enable completion of all the movements that have been started. That is, to leave the carousel in the submerged position in the reagent and, eventually, enable the carousel to be moved manually using the ↑↓ and ← keys.**

Whenever a power failure occurs, the green pilot light beside the POWER indicator will **flash**. If the carousel is performing the movement of changing vessels, the STP 120 will automatically complete the movement and leave the basket holder in the corresponding vessel, without performing any of the operations of stirring or heating of the paraffin baths, but controlling the time period elapsed.

When the power supply is returned, the process will continue from this point.



**The temperature of the paraffin baths is not maintained during battery operation. When the power supply is returned, the process will continue from this point.**

After a power loss of more than 7 minutes, the paraffin may be solidified and any basket movement/transfer is inoperable. An automatic remelt timer is started which disables any basket movements for the next four hours. The screen shows the message: "Waiting for paraffin". The normal process will be automatically continued after a power resumption for at least four hours and the paraffin is surely melted.

The re-melt timer is a protection device against mechanical damage of the transportation/lift device. The re-melt timer may be reset to enable immediate access to the cassettes, as soon as the user assures himself of the fact that the paraffin is in liquid condition and mechanical blockages are avoided.

Depending on the software version two individual buttons have to be pushed at the same time. The actual software of your device is indicated for 4 seconds every time the unit is turned on. Valid for all software versions: By pushing the button **DOWN** the display must show the actual paraffin temperatures. This display is shown only for about 3 seconds. Only when the paraffin temperature display is active you may reset the remelt timer by pushing the two buttons (Button 1 and Button 2) at the same time according following list.

<b>WAITING FOR PARAFFIN</b>		
<b>P 01</b>	<b>C 10</b>	<b>TR=00:00</b>

Version	Release date	Button 1	Button 2
V. 1.3	Sept. 01 <sup>st</sup> , 2001	ALARM	X2
V. 1.41	Dec. 12 <sup>th</sup> , 2001	ALARM	SHAKE
V. 1.41	June 06 <sup>th</sup> , 2002	TIMER	ENTER
V. 1.43	Sept. 25 <sup>th</sup> , 2003	TIMER	ENTER
V. 2.0	Nov. 06 <sup>th</sup> , 2003	TIMER	↑↓

A beep sound indicates the reset of the remelt timer. Lifting or lowering the basket via button ↑↓ is possible now to enable access to the cassettes.

## Emergency Movements

If it is necessary to raise the basket holder or move the carousel during a power failure, turn the key switch located above the input plug of the power supply cable:

- Give it a quarter turn in a clockwise direction,
- Hold the key in this position for two seconds,
- Return it to the vertical position.

The green pilot light beside the POWER indicator will flash to indicate that the unit (except the paraffin baths) is being operated by the emergency battery power supply.

Under these circumstances it is possible to move the basket holder with the ↑↓ and ← keys to extract it should it be necessary to abort the process.

Once the specimen holder basket is removed, the carousel should be lowered again with the ↑↓ key to close the reagent vessels. Press the **STOP** key to cancel the process that has been aborted. After a certain period of time without any key being pressed, the machine will turn itself off.



**Remember that if the switch at the rear of the unit has not been turned off, when the power supply is restored the carousel will start automatically (with the program aborted) and immediately begin heating the paraffin baths.**

## Chapter 6 - Maintenance

### Lubrication:

Every six months, raise the cover of the carousel using the ↑↓ key to its uppermost position and lubricate it **exclusively with the grease** supplied by the manufacturer.

### Changing the filter:

Refer to instructions on changing the filter

### Inspection:

The STP 120 should be serviced by a manufacturer authorised technician at least once a year.

## Cleaning

The STP 120 should be cleaned every day just like any other piece of laboratory equipment. Any spilt reagent should be eliminated immediately as prolonged contact with the surfaces of the unit could cause damage or stains.



**Before cleaning the processor, raise the cover using the ↑↓ key and then turn off the power supply at the Main ON/OFF switch.**



**When performing any maintenance or cleaning operations always bear in mind that the reagents used may be highly inflammable and that the paraffin baths may reach extremely high temperatures.**

- Do not use reagents that contain acetone or xylol or any abrasive powders.
- Always clean the unit with domestic detergents without any abrasive additives.
- Use a plastic spatula to remove any remains of solid paraffin. Do not use sharp objects that could scratch the surface.
- The paraffin baths may be disconnected from their bases for easier cleaning.



**When replacing the paraffin baths, make sure that each one is connected to the corresponding power plug.**

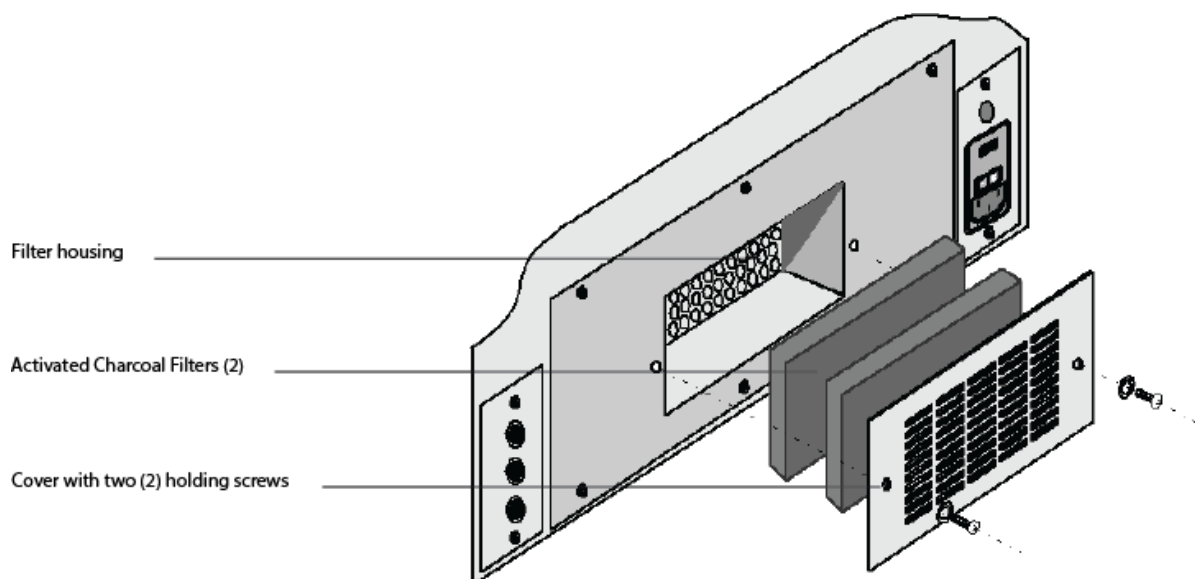
- During cleaning, make sure that no detergent liquid enters the electrical connections and power plugs.
- When cleaning the carousel cover, use extreme care not to force it in any way.

## Changing the Filter

As an optional extra, the unit may be supplied with a double activated charcoal filter to help neutralise any fumes given off by the reagents used. The system controls the life of the filter in hours. When starting the unit the following message is displayed: The value displayed (in the example 400 hours) is the time remaining for the filter to complete its service life. The filter should be changed when this counter displays 0000 HOURS.

**CHANGE FILTER**  
**0400 HOURS**

Change the filter by removing the rear cover and proceeding as shown in the figure below.



After changing the filter the working life counter should be reset to the original value. Access option 4.3 of the Setup Menu FILTER RESET and press **ENTER** to reset the counter.

## Replacing the Battery

Under normal operating conditions the battery has a very long service life.

If the alarm message "Check Battery" appears repeatedly, (for example after a long period of inactivity) the STP 120 should be connected to the power supply for several hours to allow the battery to charge itself.

If the battery does not recharge and the alarm message does not disappear, contact your local EpreDia representative immediately.

## Alarms

Should any instrument failure occur, the STP120 displays an alarm message on the screen and the pilot light of the **ALARM** key begins flashing.

There are two types of alarm:

- Alarms that can be resolved by the user
- Alarms that must be resolved by an authorised service technician

### Alarms that can be resolved by the user:

Alarm	Cause	Solution
SOLID PARAFFIN	The unit is attempting a vertical movement over a paraffin bath where the paraffin has not melted	Wait until the paraffin has melted.
POWER FAILURE	The power supply to the unit has failed and therefore the basket may have been at one station for longer than programmed and finalisation of the program may be delayed	Determine whether the whole process should be repeated
PROBE FAILURE 10 1112	The unit has lost contact with the probe that measures the temperature of the indicated station.	Make sure that the paraffin bath is connected to the correct connector. Refer to 'connecting paraffin baths'
CHANGE FILTER	The working life of the filter has expired	Refer to 'Changing the filter'.
SAMPLES OUT	An attempt is being made to program a delayed start with the carousel not lowered.	Place the carousel in the start position (basket submerged in reagent vessel 1)
	In Take Sample the time limit for the samples out of the liquid has been exceeded	Lower the carousel to submerge the basket in the reagent vessel.
CHECK BATTERY	Low battery level has been detected on starting the unit	Connect the STP 120 to the power supply for several hours to allow the battery to charge itself.

Acknowledge an alarm by pressing the **ALARM** key. If the alarm does not disappear or reproduces itself frequently, notify a service technician.



If the following alarms are activated contact your Eprexia representative immediately.

HOLDER LOWERED  
HOLDER IN CENTRE  
HOLDER RAISED  
VERTICAL FAILURE  
HORIZONTAL FAILURE  
HORIZONTAL MOTOR ON  
REGULATOR FAILURE  
HOLDER OUT OF RANGE  
UNIT FAILURE

## Resetting the Unit

Proceed as described below to delete all the programs and restore the unit with the factory settings:

- Turn off the unit using the main ON/OFF switch
- Hold down the **ALARM** key and turn the unit on using the main switch, hold the key down for two seconds.
- Release the **ALARM** key.

### NOTE

*This operation deletes all the programs in the unit and restores the default factory settings.*

After this operation the basket holder must be moved using the  $\uparrow\downarrow$  keys and the carousel moved to position 1 using the  $\leftarrow$  key.

Refer to section Entering the program, to create new processing programs.

# Appendices

## Appendix A - Reagents

The STP 120 may be used with the reagents that are shown in the list below.

Fixing	Formalin, buffered or unbuffered
	Trinitrophenol
Dehydration	Industrial alcohol
	Ethyl alcohol
	Isopropyl alcohol
	Butyl alcohol
	Methanol
Purification	Xylene and substitutes
	Trichlorethane
	Benzene
	Toluene
	Acetone
Infiltration	Paraffin

The use of other reagents not indicated in the list is not recommended.

## Appendix B - Program Record Sheet

**STP 120**

### Program Record Sheet

<b>Program number (01 to 10):</b>		<b>Comments:</b>
<b>Written by:</b>		
<b>Date:</b>		

<b>Reagent vessel</b>	<b>Reagent</b>	<b>Time (HH:MM)</b>	<b>Stirring (0/1/2)</b>	<b>Notes</b>
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11	Paraffin			
12	Paraffin			

**Comments:**



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## Revision Control For This Document

Date	Revision number	Changes made
February 2022	16	IVDR compliance requirements added, including this revision record table.



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