OPERATING INSTRUCTIONS

SLK 12

LABORATORY HOTPLATE

SI Analytics

a xylem brand

Wichtige Hinweise: Die Gebrauchsanleitung vor der ersten Inbetriebnahme des Laborkochers bitte sorgfältig lesen und beachten. Aus Sicherheitsgründen darf der Laborkocher mit Glaskeramik - Heizfläche ausschließlich für die in dieser Gebrauchsanleitung beschriebenen Zwecke eingesetzt werden.

Alle in dieser Gebrauchsanleitung enthaltenen Angaben sind zum Zeitpunkt der Drucklegung gültige Daten. Es können jedoch von SI Analytics sowohl aus technischen und kaufmännischen Gründen, als auch aus der Notwendigkeit heraus, gesetzliche Bestimmungen verschiedener Länder zu berücksichtigen, Ergänzungen am Laborkocher mit Glaskeramik - Heizfläche vorgenommen werden, ohne dass die beschriebenen Eigenschaften beeinflusst werden.

Important notes: Before of the laboratory hot plate is first put into operation, please carefully read and observe the operating instructions. For reasons of safety, the laboratory hot plate with glass-ceramic material may only be used for the purposes described in these operating instructions.

All the information provided in this instruction manual is applicable at the time of printing. However, for technical or commercial reasons or in order to comply with national legislation in the various countries, SI Analytics may need to make additions and/or changes to the laboratory hot plate with glass-ceramic material, without this having any impact on the properties described.

Remarques importantes: Veuillez lire le mode d'emploi avant la première mise en marche des plaques chauffantes de laboratoire et le respecter scrupuleusement. Pour des raisons de sécurité, utiliser la plaque chauffante de laboratoire à surface de chauffe en vitrocéramique seulement pour les usages décrits dans le présent mode d'emploi.

Toutes les indications contenues dans ce mode d’emploi sont des informations valables au moment de l'impression. Pour des raisons techniques et commerciales ainsi qu'en raison des dispositions légales devant être respectées dans les différents pays, SI Analytics se réserve le droit d’apporter à la plaque chauffante de laboratoire à surface de chauffe en vitrocéramique des modifications sans influence sur les caractéristiques décrites.

Instrucciones importantes: Primeramente, lean y observen atentamente el manual de instrucciones antes de la primera puesta en marcha de la Placa calefactora vitrocerámica. Por razones de seguridad, la Placa calefactora vitrocerámica sólo debe ser empleada para los objetivos descritos en este manual de instrucciones.

Todos los datos contenidos en este manual de instrucciones son datos orientativos que están en vigor en el momento de la impresión. Por motivos técnicos y / o comerciales, así como por la necesidad de respetar normas legales existentes en los diferentes países, SI Analytics puede efectuar modificaciones concernientes a la Placa calefactora vitrocerámica sin cambiar las características descritas.

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Notes on the operating instructions

This manual is intended to facilitate the proper and safe use of a laboratory hotplate

For maximum safety, always observe the safety instructions and warnings. The pictogram has the following meanings:

Warning of general danger to personnel and material.
Failure to comply can injure people or destroy material.

Status at time of printing
Advanced technology and the high quality of our products are guaranteed by continuous development. This
may result in deviations between this operating manual and your product. We cannot completely rule out errors. Please therefore understand that no legal claims can be derived from the information, illustrations and descriptions.

Note
A possibly more current version of these operating instructions can be found on our website at www.sianalytics.com.

1 Properties

General information

Heating aqueous solutions without any combustible components in glass vessels is the main area of the laboratory hotplate with a glass ceramic heating surface. Since the laboratory hotplate become hot inside and on the glass-ceramic heating surface, all other applications require careful consideration, whether this can create a dangerous situation.

The glass ceramic of the laboratory hotplate by SI Analytics has special thermal qualities. The glass ceramic heating surface has almost no thermal expansion properties and has a thermal shock resistance of **-** 200 °C to + 700 °C.

In addition to the thermal properties, the glass ceramic has the chemical stability and surface quality of lenses. Due to the high infrared - permeability of the glass ceramic, heat energy is transferred quickly and at a low loss. After being switched off, the existing residual heat can be used to save energy by preheating another vessel.

The glass ceramic surfaces remain flat, are nonporous and do not have a limiting frame or dirt traps. The laboratory hotplate by SI Analytics is therefore easy to clean.

The functions of the laboratory hotplate is controlled by a continuously variable energy regulator.

Limitations in the application are described in Chapter "Warning and Safety Instructions".

Warranty statement

We assume the warranty against manufacturing defects that are discovered within two years from the date of purchase for the described units. The warranty claim extends to restoring the operational readiness, but not to any further rights to assert claims for damages.
The warranty will be void in the event of improper handling or unauthorized opening of the unit. Excluded from the warranty are wear parts such as heater reflectors. Similarly, the breakage of the glass ceramic plate and corrosion damage due to improper use in aggressive environments is excluded from the warranty.
To ascertain the warranty liability, we ask you to send us the unit and proof of purchase showing the date of purchase, freight prepaid or postage paid.

Physical properties of the glass ceramic

Heat expansion coefficient α:	20; 300 °C:	- 0.41 10^{-6}/K
	300; 700 °C:	+ 0.13 10^{-6}/K
Density ρ:	2.58 g / cm^3	
Elasticity module E:	92 kN / mm^2	
Knoop-hardness at 1N load:	> 575 HK (Test according to ISO 9385)	
maximum temperature rating: T_{max} permanently:	700 °C; short-term (max. 1 min.): ≤ 850 °C	
static load: Surface load:	0.1 kp / cm^2 (approx. 1 N / cm^2**)**	

Chemical properties of the glass ceramic

Water resistance	DIN ISO 719:	hydrolytic class 1
alkali resistance	DIN 52 322 / ISO 685:	class 2
acid resistance	DIN 12 116:	class 3

Specifications

Laboratory hotplate SLK 12

Status 01 May 2012

CE code: CE — EMC - Compatibility Directive 2004/108/EC by the Council, Low Voltage Directive in accordance with Directive 2006/95/EC by the Council

Country of origin: Germany

Display: 1 indicator light for the control display - Display, Ø 6 mm, front left next to the energy regulator on the front of the unit.
1 indicator light for the residual heat display - Display, Ø 6 mm, left, on the top of the glass ceramic

Power connection: Power cable with grounded plug, 230 Volt.
Power cable with U.S. plug, 115 Volts.

Protective measure: Unit of protection class I, built and tested according to protective measures for electrical equipment, not for use in hazardous explosive environments.

Power supply: Power supply system: 230 V~, 50 / 60 Hz
Power supply system: 115 V~, 50 / 60 Hz

Housing material: Stainless steel frame, steel floor plate

Climate: Ambient temperature: + 10 ... + 40 °C for the operation and storage
Humidity: according to EN 61 010, part 1:
maximum relative humidity 80 % for temperatures up to 31 °C,
linear declining up to 50 % of relative humidity at a temperature of 40 °C

The laboratory hotplates by SI Analytics at a glance:

Specifications	**SLK 12, 230 Volt**	**SLK 12, 115 Volt**
Dimensions approx. W x H x D [mm]	330 x 73 x 300	330 x 73 x 300
Floor area, glass ceramic approx. W x D [mm]	330 x 300	330 x 300
Heating surface of glass ceramic approx. [mm]	Ø 110, Ø 180	Ø 180
Heater type	Infra-red	Infra-red
Heater capacity [W]	700, 1700	1 600
Weight, approx. [kg]	4.5	4.5

The laboratory hotplate **SLK 12** with its radiant heater is suitable for quickly heating liquids. The maximum heating stage << **9** >> in the 230 Volt unit at a connected heating circuit 1 corresponds with a heating capacity of 0.7 kW or a heating capacity of 1.7 kW at an additionally connected heating circuit 2.
The maximum heating stage << **9** >> in the 115 Volt unit corresponds with a heating capacity of 1.6 kW.

A thermal protection prevents the laboratory hotplate from overheating.

2 Warning and Safety Instructions

The laboratory hotplate may only be generally opened by authorized persons for safety and functional reasons, work on electrical equipment may therefore only be performed by trained professionals. Unauthorized interference with laboratory hotplates, and negligent or intentional damages will void the warranty.

The laboratory hotplate falls under protection class I. It is designed according to DIN VDE 0411, part 1 (EN 61 010, part 1) and DIN VDE 0411, Part 2-010 (EN 61 010, Part 2-010), protective measures for electric heaters, built and tested. It has left the factory in perfect condition. In order to maintain this condition and ensure a safe operation, the user must follow the instructions and warnings contained in this manual.

Before switching on the unit, make sure that the voltage on the nameplate of the laboratory hotplate correspond with the specified voltage and mains voltage.

In order to completely disconnect the laboratory hotplate from the power supply, always pull the power plug. The energy regulator does not act as a network disconnection point.

It is important to ensure that the powercable does not come in contact with the hot plate or other hot objects. With defective power cable, the device must be disconnected from the mains immediately and be send in for repair.

The laboratory hotplate must not be surrounded by combustible materials; a minimum distance from any combustible objects of 0.5 m must be maintained. A minimum distance of 0.3 meters to all other objects must be maintained.

The decor marks the centre of the heating surface. The surface is hot even outside of the decoration.

Do not let hard objects drop onto the glass ceramic surface. Punctiform shock loads can result in breakages of the glass ceramic surface.

In case of cracks, fractures or fractures of the ceramic surface and when it is assumed that a safe operation is not possible, shut down the laboratory hotplate (remove the power cable) and secure to prevent accidental startups.

The heating surface temperature can reach max. 555 °C. Therefore:

⚠ CAUTION: Deflagration, explosion and fire hazard when heating combustible liquids of a flashpoint below 580 °C! Only heat liquids of a flashpoint above 580 °C! ⚠

Observe increased flammability of heated fluids!

Prevent contact of heated fluids with the heating surface (e.g., from spills, leaking gas or when boiling over) by covering the vessel!

The laboratory hotplate by SI Analytics must be installed and connected so that maximum safety is guaranteed for personnel and material.

⚠ The surface of the heating and cooking appliances will be hot during the operation, therefore use caution when working with the laboratory hotplate.

⚠ The use of aluminium foil or plastic containers on the hot cooking zones is not permitted! These substances melt, and bond and can cause cracks or fractures in the glass ceramic surface when cooling.

Prevent repeated burning of contaminants and overcooking. Lime scale deposits damage the ceramic surface.

Should the heating surfaces cannot be switched off due to a defect of the energy regulator, immediately disconnect the laboratory hotplate by pulling the plug from the power supply.

Do not use the laboratory hotplate as a shelf or work surface.

The laboratory hotplate **may never be immersed in water**.

Risk of overheating!	The laboratory hotplate may **not** be placed in a furniture niche during the operation, keep at least a distance of 0.3 m.
Risk of explosions!	Do not use the laboratory hotplate in an environment subject to explosions!
Risk of electric shock!	Never use the laboratory hotplate in wet areas.
Fire hazard!	A safe distance of at least 0.5 m to flammable materials and 0.3 m to all other objects must be adhered to!
Risk of tripping!	Do not route connecting cables in traffic areas!

Select a location with a firm, horizontal surface. The substrate may not be flammable!

Select a flat, clean, dry and non-slip location.

The laboratory hotplate can only be used for the purposes described in this manual for safety purposes.

⚠ **When working with hazardous and corrosive media:**

Risk of poisoning / burns! Risk of equipment damage caused by corrosive gases/vapours.
Only use the laboratory hotplate under an exhaust hood!
The use under a convection-vent may accelerate the occurrence of equipment damage!

⚠ **Risks may develop from the laboratory hotplates when ignoring the following: electrical accidents by persons or fire hazard. Unauthorized interference with laboratory hotplate, and negligent or intentional damages will void the warranty.** ⚠

Laboratory Hotplate SLK 12

3 Setup and startup

If you have any externally visible damage, contact the carrier or delivery person.

Set up the hotplate on a horizontal, flat and non-slip floor surface. The installation site should not be surrounded by flammable materials and other items. An all-round distance of at least 0.3 meters is required.

Prior to connecting to the power supply, please compare if the data on the nameplate corresponds with the power supply voltage!. The nameplate is located on the bottom plate of the unit. Plug the power plug into the provided socket. The power supply socket used must always be easily accessible.

General, proper use

The decor marks the centre of the heating surface. The surface is hot even outside of the decoration. The cooking process can be stopped quickly by simply moving the vessel from the hot zone to colder adjacent areas.

The laboratory hotplate has an indicator light for a residual heat display that lights up when the temperature has exceeded a certain value of the glass ceramic, and a risk of burns exists. the wall outlet or power failure, the residual heat indicator is inoperative. After the laboratory digester is reconnected to the mains, the residual heat indicator on again. As long as the residual heat indicator lights up, the switched off hotplate is still hot and can be used energy-saving. This residual heat indicator warns of a risk of burns. After sufficient cooling, the residual heat indicator extinguishes.

Please only transport the laboratory hotplate after the laboratory hotplate is sufficiently cooled and the residual heat display is off.

Attention! If you unplug the power plug from the wall outlet or at a power failure, the residual heat indicator is inoperative. After reconnecting the laboratory hotplate to the power supply, the residual heat indicator is illuminated again.

⚠ **Caution:** Risk of burns! ⚠

Always switch off the laboratory hotplate after use.

Observe the cleaning and maintenance instructions.

If sugar, plastic or aluminium foil accidentally get on the hot zones of the heating surfaces, **do not** switch off the laboratory hotplate, but remove these substances **immediately** with a razor blade.

⚠ **Caution:** Risk of burns! ⚠

Slide a razor blade in again after using the scraper blade. Risk of injuries!
Please clean the cooking zones again when in a cold state.

First cleaning and first heating

At the initial heating of a laboratory hotplate or prolonged non-use, small dust particles from burning and by evaporating the water in the insulation create a temporary odour. To remove accessible dust particles on the glass ceramic heating surface, clean the glass ceramic surface with a mild detergent. Then wipe the clean surface dry with a soft cloth.

4 Working with a laboratory hotplate

Control elements of the laboratory hotplate SLK 12

1 2 3 4 5

1 = Symbol for hot surfaces

2 = Display for residual heat

3 = Operating control light.

4 = Energy regulator

5 = Symbol for heating circuit switching (only in the 230 volt version!).

The laboratory hotplate may only be switched on by rotating the energy regulator clockwise. Turning it on in the opposite direction results in the destruction of the energy regulator.
After switching the unit on, the operating control lamp lights up.

Only applies for the 230 Volt version:
Only the inner cooking zone is in operation after switching on the unit and at a switch position of 1 to 9. The heat emission is regulated by turning the energy regulator. Position 1 = low, Position 9 = high.

Briefly turning the energy regulator beyond position 9 to the symbol , the second outer cooking zone is added. Both cooking zones are then again regulated between 1 to 9. The second outer cooking zone can only be switched off by turning the energy regulator to position 0. The laboratory hotplate is then switched off.

Only applies for the 115 Volt version:
The heat emission is regulated by turning the energy regulator after switching on the unit.
Position 1 = low, Position 9 = high.

In order to save energy, it is recommended that the laboratory hotplate is switched off for a few minutes before the end of the heating process, so as to utilize the existing residual heat of the cooking zone.

If the cooking zone is switched off, the operating control lamp is extinguished.

The residual heat indicator extinguishes when the temperature of the cooking zone is cooled.

5 Service, cleaning and maintenance

Service

The laboratory agitator does not require any special care when used as directed.
For ease of cleaning note the following:

- Avoid overboiling!
- Avoid dirt from sticking!
-

Cleaning

The glass ceramic is substantially chemically resistant. The heating surface remains always flat, is non-porous and therefore easy to clean. The slightly soiled heating surface is best cleaned with warm water and a few drops of dishwashing liquid, when the heating surface is warm or cold.

Crusts, lime and water stains, but also dazzling metallic stains must be removed with common household cleaning agents for ovens with glass - ceramic heating surfaces. Please remove any remaining detergent thoroughly with a damp cloth or sponge, as some cleaning agents on the market are caustic at an elevated temperature. If contaminants have already formed crusts, you should use a razor blade scraper. **Plastic objects** and **aluminium foil** as well as **sugar-containing substances**, that come in contact with the hot surface **must be picked up immediately** with the scraper.

⚠ **Caution:** Risk of burns! ⚠

Do not use abrasive cleaning agents! Usually, it is sufficient to clean after each use by using a damp cloth and household detergent. Then wipe dry.

Crusts are best soaked by using a wet cloth first. Then remove the rest with a glass scraper.

Note:
Remove sugar and molten plastic immediately while the hotplate is hot.

⚠ **Caution:** Risk of burns! ⚠

Maintenance

The laboratory hotplate is maintenance-free if used as intended.

- Prior to use, check the power cable for a perfect appearance. Do not operate the laboratory hotplate with a damaged cable!

⚠ **CAUTION! Risk of electric shock!**
Do not operate the laboratory hotplate with damaged cables!

6 Faults, potential errors

Fault/error; cause; remedy

Fault/error	Cause	Remedy
Laboratory hotplate does not start, cooking plate does not heat up.	No power supply	Check the power supply cable with its plug; check the fuse of the socket's electrical circuit, replace if necessary
	Energy regulator is defective. Cooking plate is defective;	Disconnect the laboratory hotplate by pulling the power plug from the power supply; send the laboratory hotplate to be repaired Disconnect the laboratory hotplate by pulling the power plug from the power supply; send the laboratory hotplate to be repaired
No residual heat display	Indicator light is defective.	**Attention - Risk of burns!** Disconnect the laboratory hotplate by pulling the power plug from the power supply; send the laboratory hotplate to be repaired
Operating display is not illuminated;	Indicator light is defective.	Disconnect the laboratory hotplate by pulling the power plug from the power supply; send the laboratory hotplate to be repaired
The cooking plate cannot be switched off	Energy regulator is defective.	Disconnect the laboratory hotplate by pulling the power plug from the power supply; send the laboratory hotplate to be repaired

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EG - KONFORMITÄTSERKLÄRUNG
EC - DECLARATION OF CONFORMITY
CE - DÉCLARATION DE CONFORMITÉ
CEE - DECLARATIÓN DE CONFORMIDAD

Wir erklären in alleiniger Verantwortung, dass das folgende Produkt	We declare under our sole responsibility that the following product	Nous déclarons sous notre seule responsabilité que les produit ci-dessous	Declaramos bajo nuestra única responsabilidad, que los produit listados a continuación
Laborkocher	**Laboratory hot plate**	**Plaques chauffante**	**Placas calefactoras vitrocerámicas**
SLK 12			
auf das sich diese Erklärung bezieht, übereinstimmt mit den folgenden EG Richtlinien.	to which this declaration relates are in conformity with the following EC directives.	auquel se réfère cette déclaration est conforme directives CE soul vantes.	todo lo relative a esta declaración está en conformidad con las directivas CEE siguientes
EMV EG-Richtlinie 2004/108/EG Sicherheit EG Richtlinie 2006/ 95	EMC EC-Directrive 2004/108/EG Safety EC-Directrive 2006/ 95	CEM CE-Directive 2004/108/EG Sécurité CE-Directive 2006/ 95	CEM CEE siguientes 2004/108/EG Seguridad CEE siguientes 2006/ 95
Angewandte harmonisierte Normen oder normative Dokumente	Applied harmonized standards or normative documents	Normes harmonisées ou documents normative appliquées	Estándares armonizados aplicados o documentos normativos
EMV EN 61326-1:2006 Sicherheit EN 61010-1 :2001 EN 61010-2-10	EMC EN 61326-1:2006 Safety EN 61010-1 :2001 EN 61010-2-10	CEM EN 61326-1:2006 Sécurité EN 61010-1 :2001 EN 61010-2-10	CEM EN 61326-1:2006 Seguridad EN 61010-1 :2001 EN 61010-2-10

Mainz den 01.05.2012

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Typ / type / type / tipo **SLK 12**

Bescheinigung des Herstellers

Wir bestätigen, dass das oben genannte Gerät gemäß DIN EN ISO 9001, Absatz 8.2.4 „Überwachung und Messung des Produkts“ geprüft wurde und dass die festgelegten Qualitätsanforderungen an das Produkt erfüllt werden.

Supplier’s Certificate

We certify that the above equipment has been tested in accordance with DIN EN ISO 9001, Part 8.2.4”Monitoring and measurement of product” and that the specified quality requirements for the product have been met.

Certificat du fournisseur

Nous certifions que le produit a été vérifié selon DIN EN ISO 9001, partie 8.2.4 ”Surveillance et mesure du produit” et que les exigences spécifiées pour le produit sont respectées.

Certificado del fabricante

Certificamos que el aparato arriba mencionado ha sido controlado de acuerdo con la norma DIN EN ISO 9001, sección 8.2.4 „Seguimiento y medición del producto“ y que cumple con los requisitos de calidad fijados para el mismo.

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