LIFE SCIENCES

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KlerReveal

Operator Training Kit

Instructions for Use

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Background

Operation and maintenance should only be performed by suitably qualified and trained personnel. In order to prevent accidents or ill health all operators and maintenance personnel must read carefully, fully understand and follow all the precautions and warnings contained in this manual **BEFORE** operation or maintenance for the first time. If you have any questions regarding the instructions or warnings please telephone 02920 854 390.

This manual should always be readily available to all operators and maintenance personnel. It should be prominently located in the area of usage.

It **MUST NOT** be used for any other purpose without first consulting Ecolab Life Sciences.

Disclaimer – Ecolab Life Sciences cannot accept responsibility for damages resulting from improper use or use for any purpose other than those intended.

Product Description

- The KlerReveal Operator Training Kit is suitable for use in conjunction with the KlerReveal UV Glow Cream, to teach best practice hand washing for improved infection control.
- It is designed for table top operation and requires a 230V/50Hz power supply.

Contents of the KlerReveal Operator Training Kit

- UV LED Light Box
- KlerReveal Hand Held 4W UV Torch
- KlerReveal Red UV Glow Powder
- KlerReveal UV Glow Hand Cream
- 1 brush
- Bag for carrying light box

Health & Safety Hazards

UV Light Exposure

Safety Classification in accordance with BS EN 62471:2008

Risk Group 1

Notice – UV emitted from this product

Low level exposure to certain wavelengths of UV light can provide some health benefits, for example synthesis of vitamin D3, which improves the body's absorption of calcium, particularly into the bones. On the other hand, over exposure to UV light can cause adverse health effects, such as erythema (sunburn), photoconjunctivitis and photokeratitis (arc eye) in the short term (acute effects) and can be attributed to premature skin ageing, skin cancer and cataracts as a result of repeated exposure in the long term (chronic effects).

The key is to avoid over exposure by implementation of control measures.

Occupational UV light exposure in Great Britain is subject to the Control of Artificial Optical Radiation at Work Regulations 2010, which brought into law on 27th April 2010, the European Physical Agents (Artificial Optical Radiation 2006/25/EC) Directive (AORD 2006/25/EC). This incorporates statutory UV light exposure limit values (ELV's) which are based on those defined by the International Commission on Non-Ionising Radiation Protection (ICNIRP).

In cases of persons subjected to UV light emissions from artificial sources, it is necessary to assess the level of risk for adverse health effects by determining personal UV light exposure levels and comparing with the exposure limit values.

Where personal UV light exposure levels comply with the exposure limit values, the risk can be considered low for the majority of the population and adequately controlled so far as is reasonably practicable.

Where personal UV light exposure exceeds the exposure limit values, then additional control measures must be implemented which decrease exposure to below the exposure limit values.

Control measures

The objective is to ensure that the UV light exposure limit values for the unprotected skin and eye are not exceeded by any person. This can be achieved by a combination of the following control methods: administrative and personal protective equipment.

Emphasis should be placed on administrative control measures to minimise the need for personal protective equipment.

Administrative control measures

a) Hazard awareness

All persons who could be exposed to levels of UV light exceeding the exposure limit values or significant personal exposure must be provided with sufficient information, instruction and training to understand the associated risks to their health and the precautions which should be taken to adequately manage the risk.

Any person who notices any unusual or adverse reaction thought to be due to UV light exposure should not be further exposed until after consulting with a suitably qualified person.

b) Compliance with the UV light exposure limit values for the unprotected skin and eye in accordance with the Control of Artificial Optical Radiation at Work Regulations 2010.

The UV light exposure limit values are set below threshold levels of UV light exposure where observable adverse health effects would occur and incorporate significant safety margins.

They define a level of UV light exposure, below which it is believed that nearly all individuals may be repeatedly exposed without adverse health effects.

Some people may be unusually photosensitive, exposed to photosensitising agents, aphakic (had an eye lens removed and not replaced by an artificial lens) or pseudophakic (had an eye lens replaced with a non UV light absorbing artificial intraocular lens) in which case these exposure limits may not provide adequate protection. **These individuals should seek medical advice with respect to additional protective measures which may be required before any exposure to UV light.**

It is necessary for duty holders to limit personal UV light exposure time at the specified positions in the Table below, to ensure that the maximum permissible exposure values for the unprotected skin and eye are **NOT EXCEEDED** within an 8 hour period per day.

If the maximum permissible exposure values are exceeded then the UV light irradiance must be reduced by appropriate control measures. These could include moving further away from the UV light source, reducing exposure time, or as a last resort provision of personal protective equipment (PPE).

The distance at which the maximum permissible UV light exposure time is equal to 8 hours is known as the Hazard Distance (HD). At this distance and beyond, the applicable exposure limit value cannot be exceeded within an 8 hour period per day.

Hazard Values and Hazard Distances UV LED Cabinet		
Distance from clear plastic cover (mm)	**Maximum permissible UV light exposure time within an 8 hour period per day**	
	unprotected skin	**unprotected eye**
100	**38 minutes**	**4.5 minutes**
250	**4.5 hours**	**26.5 minutes**
500	**8 hours (HD) with eye protection**	**1.5 hours**
750		**4 hours**
1000		**7 hours**
1250		**8 hours (HD) without eye protection**
This data is only applicable to a UV LED cabinet, supplied by Ecolab Life Sciences		

Maximum permissible UV light exposure times, at various distances within the beam of the UV LED strip units, for the unprotected skin and eye in an 8 hour period per day in compliance with the Control of Artificial Optical Radiation at Work Regulations 2010.

Using the UV LED cabinet as described in the Procedure for Hand Washing Training on Page 10 results in sufficiently low exposure that most individuals do not need to limit their use. However, young children and people who are unusually photosensitive or exposed to photosensitising agents should limit their use of the cabinet to a ten minute period in any eight hours – this refers to the time the hands are inside the cabinet and exposed to the UV light.

Fire

Never operate in areas where there is a flammable atmosphere hazard.

Explosion

Never operate in areas where there is an explosive atmosphere hazard.

Electrical

Electrical equipment is potentially dangerous and may cause death or injury if sufficient precautions are not taken before operation or maintenance.

Never operate if any visible damage to UV cabinet, cable or plug.

Before maintenance always disconnect the mains supply.

Assembly

Handle with care to avoid damage.

Ensure all packaging material is removed and visually inspect the cabinet for any damage.

Operation

The cabinet should be used on a flat surface and positioned so that no person can look directly at the UV LEDs inside the cabinet.

Before switching on, always check the following. If in any doubt whatsoever do not switch on.

NEVER operate

a) Without the clear plastic cover in front of the UV LEDs correctly fitted in position.

b) If there is any visible damage to the UV cabinet, cable or plug.

c) Without the necessary control measures in place for protection against exceeding the UV light exposure limit values.

To switch on, plug into a standard mains socket outlet and turn on the rocker switch on the side of the UV LED lamp. The UV LEDs will light and reach optimum output almost immediately.

Procedure for Hand Washing Training

a) 

Apply 1-2 pumps of KlerReveal UV Glow Cream to hands and spread evenly over the palms, back of hands and fingers.

b) 

Place hands into cabinet to check for even coverage. Both hands should glow uniformly. Spread cream over any areas which are not glowing.

c) Allow cream to dry, then wash hands thoroughly and re-inspect in the cabinet. Any glowing areas remaining on the hands after washing highlight areas not washed properly.

d) Teach best practise hand washing procedure shown on Page 10.

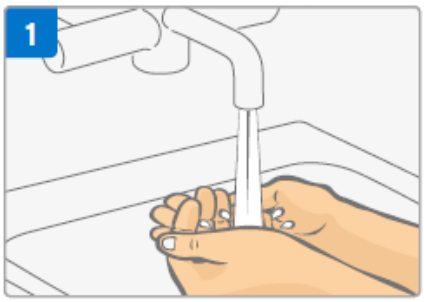
e) Repeat and look for improvements.

This dramatically demonstrates the effectiveness of personal hand washing and creates awareness of the need to learn how to wash hands properly.

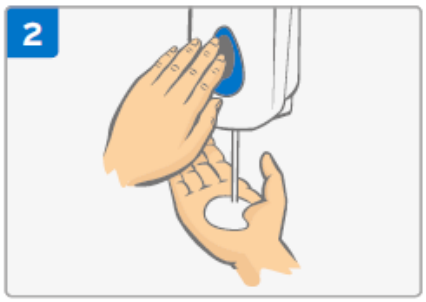
Best practice hand washing procedure with soap and water

The procedure below conforms with World Health Organisation guidelines on how to wash your hands properly for good hand hygiene in health care.

The procedure should take 40-60 seconds.

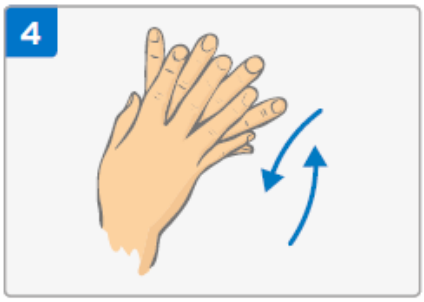


Wet hands with water

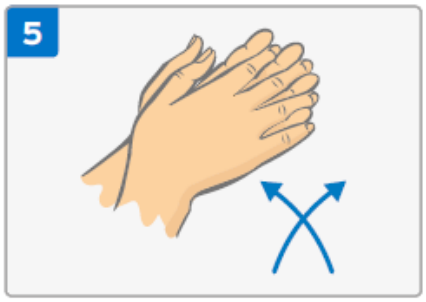


Apply 1-2 pumps of hand wash to the palm of one hand

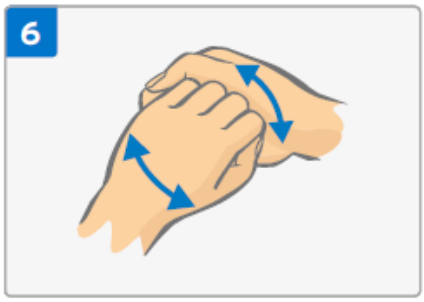
Rub hands palm to palm to build lather



Right palm over back of left hand with interwoven fingers and vice versa.



Rub palm to palm with fingers interlaced



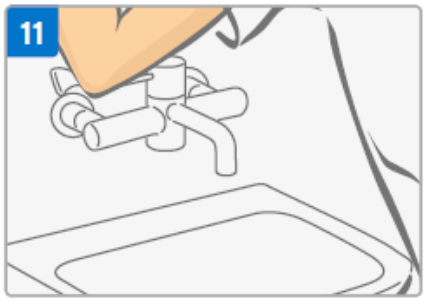
Grip the fingers on each hand and rub in a sideways back and forth movement

Clasp each thumb in the opposite hand and rotate

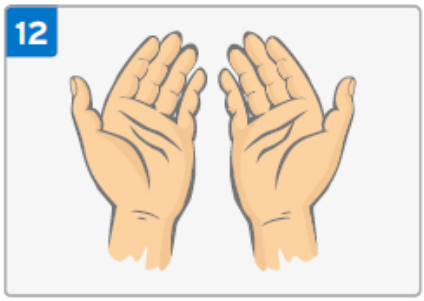
Press fingers into palm of each hand and rotate

Rinse hands thoroughly under running water

Dry thoroughly with a clean disposable towel



Use towel or elbow to turn off tap



Your hands are now safe

Directions for Use

Before using the KlerReveal Operator Training Kit, read the following advice in order to get the best results:

1. Darken your demonstration area

Generally, the darker the area used for your demonstration, the better your demonstration will be.

2. Hand washing

For demonstrating hand washing procedures, hands should be inserted into the view box. The view box, which creates its own dark area, can be used in normal room conditions. Ensure the view section is placed firmly onto the rim of the base, with the narrow opening face up.

3. Handling the products

KlerReveal UV Glow Powder

The powder is dispersed very easily from the bottle by tipping it upside down. It is therefore necessary to simply sprinkle the powder delicately onto the surface to be tested. A fine layer of powder, “like dust”, is advised.

Maintenance

Maintenance of any kind must only be performed by suitably qualified and trained personnel.

Only use replacement parts supplied by Ecolab Life Sciences.

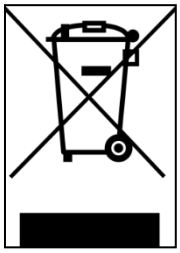
Ecolab Life Sciences cannot accept any responsibility for damages resulting from improper maintenance, repairs or use of replacement parts not supplied by Ecolab Life Sciences.

Cleaning

Keep the inside of the cabinet free from drips or smears of KlerReveal UV Glow Cream, as these can be distracting during the hand inspection process. Wipe the metal cabinet surfaces clean using a damp cloth and a mild detergent.

Disposal of electrical and electronic equipment

The UV LED cabinet cannot be disposed of with normal waste. It should be taken to an appropriate collection point for the recycling of electrical and electronic equipment. This will help to conserve natural resources and prevent potential negative consequences for human health and the environment. For more information about where to drop off electrical and electronic equipment waste, please contact your local waste disposal authority.

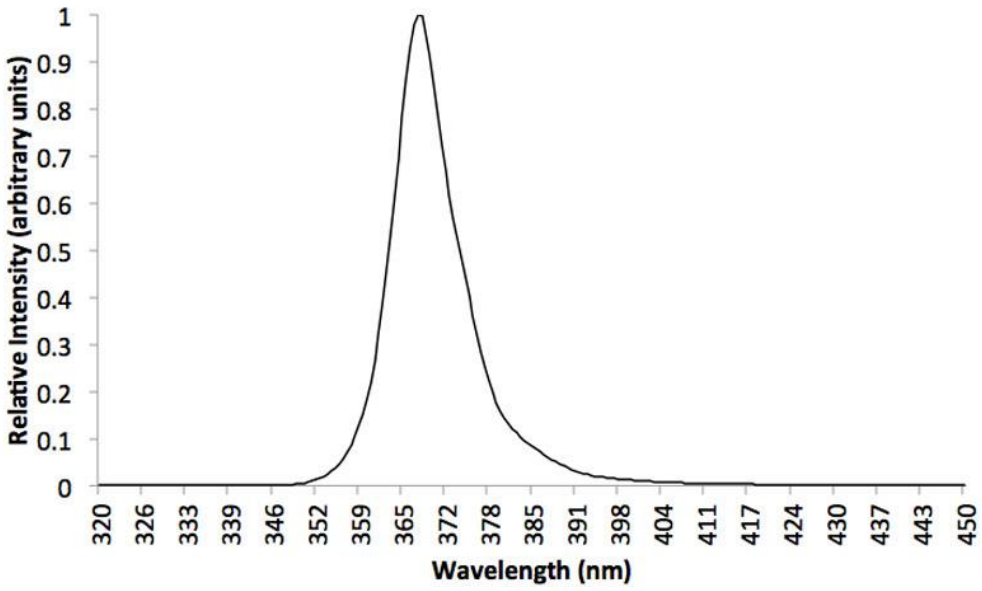


Technical Data

Due to our policy of continuous development, we reserve the right to amend technical data and therefore information may be subject to change without prior notice.

UV LEDs:	365 nm LED chips running at 2W per chip
UV LED lifetime:	60,000 hours (estimated)
UV light wavelength range:	360 nm – 370 nm (peak output 365 nm)
Reflector material:	Anodised aluminium
Construction material (body):	Aluminium

UV - Spectral Output



WEEE Regulations – Company Policy is that customers should return any of our products covered by these Regulations to Ecolab Life Sciences at the end of their working life.

RoHS – products are RoHS compliant.

Validation

Supplied by an EN ISO 9001:2008, EN ISO 13485:2012 and European Medical Device Directive 93/42/EEC accredited company.

MSDSs available on request for the KlerReveal Glow Cream and KlerReveal UV Glow Powders.

Product Codes

Code	Description	Unit of Sale
3056550	KlerReveal Operator Training Kit	Each
3059120	KlerReveal Operator Training Kit (EU Specification)	Each
3056540	KlerReveal Five Colour Powder Training Kit	Each
3056570	KlerReveal Replacement Red UV Glow Powder for use with 3056550 or 3059120	4 x 50 ml
3056580	KlerReveal Replacement UV Glow Cream for use with 3056550 or 3059120	4 x 200 ml
3056590	KlerReveal Hand Held 4W UV Torch	Each