

ABTT Seminar Chat: The UV-C Light at the end of the Tunnel

00:17:41 Elysia Moore: Welcome everyone! How are you all today? It's great to have you all joining us this afternoon. We are just waiting for you to all get into the room before we start the session. Do let us know where you are joining us from.

00:18:31 Terry Lee Dickson: Terry Lee Dickson signing in from east Kent

00:18:55 Matt Bancroft: Hi all. Matt from the Brewhouse in Burton on Trent here.

00:19:03 Jason Wescombe: Hello from The Almeida Theatre

00:19:27 Jennifer Taillefer: Hello from the Unicorn Theatre in London!

00:19:29 Phil Speck: Hi all - Phil, Uni. of Birmingham.

00:19:37 David Duffy: Polka Theatre, Wimbledon!

00:20:04 abigail mcmillan: hi! thanks for the session. here form Scottish drama training network in Glasgow :-)

00:20:51 Elysia Moore:

The chair for this session is Mig Burgess. Mig is currently the lighting tutor at the Guildford School of Acting. She prides herself on being current and up to date and remaining an active freelance designer, production electrician and lighting technician.

Mig will be assisting with the Q&A section of this event and helping you get your questions answered!

00:20:51 Elysia Moore:

For this seminar will be looking at the topic of UV-C lighting which has the power to disinfect air, surfaces and objects. We will investigate the nature and specification of the Ultraviolet spectrum and how it may be harnessed for disinfection purposes.

00:21:53 Elysia Moore:

Combining the expertise of two industry leaders, the speaker for today's seminar will be Nathanael Dannenberg, National Sales Manager for Signify, (formerly Philips lighting and the parent company of Vari-Lite/Strand).

As 'the originators of modern entertainment lighting' Vari-Lite/Strand have strong expertise in theatrical and event lighting applications and understand the needs of those venues and customers. Signify is 'the world leader in lighting for professionals, consumers and lighting for the Internet of Things' and UV-C has been part of their portfolio for over 35 years.

<https://www.lighting.philips.co.uk/products/uv-c>

00:22:27 Elysia Moore:

What is UV technology?

Ultra-Violet (UV) light is invisible to the human eye and is divided into UV-A, UV-B and UV-C.

UV-C is found within 100-280 nm range. In the graph can be seen that germicidal action is maximized at 265 nm with reductions on either side. Philips Low pressure UV-C lamps have their main emission at 254 nm where the action on DNA is 85% of the peak value and 80% on the IES curve.

As a result, germicidal lamps are extremely effective in breaking down the DNA of micro-organisms. This means that they cannot replicate and cause disease

Micro-organisms effective resistance to UV light varies considerably.

Moreover, the environment of the particular micro-organism greatly influences the radiation dose needed for its destruction.

00:25:35 Elysia Moore:

The below video helps to show how we can fight germs with UV-C light:
https://www.youtube.com/watch?v=6jIMcvBS3Gw&feature=emb_logo

00:33:31 Elysia Moore:

The below video helps to show how you can use UV-C disinfection for air and surfaces:
https://www.youtube.com/watch?v=M4Mn6Y_6l1Q&feature=emb_rel_pause

00:34:35 Elysia Moore:

If anyone has a question on this topic. Please can your chat message say: QUESTION (all in caps) and go on to ask your question. Thank you.

00:34:40 Callum Howie: QUESTION: A lot of guidance talks about "open air", "outdoors" or "suitable ventilation". Is there a measure for number of air disinfection exchanges, would be equivalent to "open air"?

00:36:56 Darren Smith: We can't compare to outdoors Callum, but this slide talks about we could compare the upper air systems to traditional air ventilation via HVAC systems.

00:39:02 David Duffy: QUESTION: What are the visible light implications in a dark space like a theatre?

00:41:48 Darren Smith: Hi David. Whilst UV-C lighting would not be adding a distracting level of illuminance, ie Lux level, it will generate a blue hue when they are in operation.

00:42:56 Jennifer Taillefer: QUESTION: I can see how this helps with aerosols, but what about droplets we hear about, which fall to earth faster? Would there still potentially be contaminated surfaces in a room with upper air luminaries?

00:43:12 Claire Hartley: QUESTION: How effective is it on soft surfaces such as soft furnishings, seat covers, costume etc.?

00:44:06 Terry Lee Dickson: QUESTION: what is the 'distracting level of illuminance' referred to...are you aware that any additional light in a theatre is unacceptable

00:44:01 Elysia Moore: You can find more information on Ultraviolet purification application information here:

<https://www.assets.signify.com/is/content/PhilipsLighting/Assets/philips-lighting/global/20200504-philips-uv-purification-application-information.pdf>

00:45:09 Elysia Moore:

Thank you for your questions so far. We are collating these and we will cover them in the Q&A after the presentation. If anyone has a question on this topic. Please can your chat message say: QUESTION (all in caps) and go on to ask your question. Thank you.

00:45:35 Travis Hiner: QUESTION: would the UVc light only disinfect areas directly exposed or would it work with reflective light as well?

00:46:47 Nick Slater: QUESTION: Would a UV-C Trolley be effective in a small space (i.e. immersive theatre rooms) where there are soft furnishings, bookcases, lots of intricate pieces? Or would shadows prohibit a lot of the use?

00:47:08 martin: QUESTION: How effective would it be on seating with tilt seat squabs

00:47:48 Terry Lee Dickson: QUESTION... am sure I am not the only one here who was hoping to hear about UVC systems inside hvac ducts... can we have some news on that please

00:48:17 SpotOn Events: Question, I've seen portable hand held UV-C lamps, am I correct that these are unsafe and should not be used

00:49:55 Tom Albu: QUESTION Is there any info on the degradation of fabrics - particularly concerned about the effects on rigging equipment (slings / harnesses etc). And in particular for my industry, on aerial silks etc.

00:49:57 erickmejia: QUESTION: Hi my name is Erick from Guatemala City my question is are you developing the general table or software to calculate how many fixtures will need to use either on disinfection tunnels or and ventilation equipment

00:52:52 Adam Pearson: QUESTION: will there be a luminaire the combines LED White White (daylight) and UV-C to allow retrofitting in offices/communal area?

00:54:47 Anton Holmes: QUESTION: Do you have any data on how the use of UV-C would degrade Rigging Strops and/or webbing on Working at Height harnesses?

00:56:39 Chris Boyle: QUESTION: Would a cabinet be suitable for the cleaning of fragile radio mics and transmitters, without causing any damage to them?

00:58:56 Anton Holmes: QUESTION: Is the trolley battery-operated or will it require powering via cable during use?

01:00:39 Nick Slater: QUESTION: You mentioned that glass stops the UV-C. Is this any glass? Would a room with the glass windows be safe if viewed from outside whilst the units were on?

01:03:23 **Koen Deveux:** QUESTION: If UV-C is a solution, why are the government and experts not advising to use this solution more?

01:04:28 **Fridthjofur "Fiffi" Thorsteinsson:** QUESTION: Sorry if this has already been covered and I missed, but what is the longevity of the system? Do lamps need changing or do they lose their efficiency (similar to LEDs) throughout time, before the lamp actually fully goes? Does the unit self need changing or cleaning between lamp changes?

01:06:29 **Jason Wescombe:** QUESTION: How effective are the easily available and relatively cheap "micro-wave" style cabinets designed for sterilising the tools of such professions as hair-dressers, pet groomers etc.?

01:07:09 **Fridthjofur "Fiffi" Thorsteinsson:** QUESTION: What is the power consumption of the system?

01:10:28 **Nick Anton:** QUESTION:- In terms of the auditorium is there really any benefit to this over thorough cleaning? If the seats all need to be down and shadowed areas are an issue the quantity of battens in any house would be massive and prohibitively expensive surely?? I can see that it may benefit dressing rooms and props to an extent

01:12:47 **Travis Hiner:** QUESTION: It sounds that this is based on Florescent based technology, would that mean that the old tubes would need to be disposed of in the same way i.e. special waste for mercury vapour?

01:13:14 **Nick Anton:** Especially given the lack of reflective surfaces in the house

01:16:15 **Koen Deveux:** QUESTION: If we don't know the degradation generated By UV-C is, is it safe to use it with plastic based slings and harnesses?

01:16:35 **martin:** QUESTION Do your systems monitor the luminaires / lamps since it is not desirable to check visually.

01:19:45 **Koen Deveux:** FOLLOW-UP: Some European countries have advised against the use of UV-C outside of medical applications.

01:25:37 **Phil Speck:** QUESTION: Did you say mobile units aren't quite ready yet - or are coming soon?? and I'll stick my neck out - how much are the mobile units and would someone come check on the viability of using the mobile unit in say studio spaces/rehearsal rooms?

01:26:22 **Terry Lee Dickson:** QUESTION... can you point us to any studies comparing UVC and ozone treatment of fabrics such as costumes

01:28:28 **David Evans:** Is anyone else making these?

01:29:04 **Alastair Kerr:** How robust would the cabinet be, suitable for flight casing for touring?

01:29:14 **Elysia Moore:**

You can find out more about the products discussed today here:

<https://www.lighting.philips.co.uk/products/uv-c>

01:30:52 **Nick Anton:** What about cabinet prices?

01:31:14 **Elysia Moore:** You can find out more about Ultraviolet purification application information here:

<https://www.assets.signify.com/is/content/PhilipsLighting/Assets/philips-lighting/global/20200504-philips-uv-purification-application-information.pdf>

01:32:17 **Elysia Moore:** Thank you, Nathanael and Darren, for a really inspiring and fascinating seminar and thank you to everyone who joined us today for this interesting topic! We hope you are taking something away with you.

01:32:28 **Elysia Moore:** This seminar has been recorded and will be available shortly with captioning on the ABTT Website here: https://www.abtt.org.uk/events-and-courses/abtt_seminars/seminars_july/uv-c-light/

01:33:12 **Phil Speck:** absolutely following - it's been great to hear from you both - thank you!

01:33:32 **aeron:** thanks very interesting.

01:33:36 **Steven Wilkins:** Nice presentation, thank you Nathanael and Darren.

01:33:51 **Elysia Moore:** If you are interested the ABTT are collating relevant resources for you our industry here: <https://www.abtt.org.uk/resources-guidance/industry-resources/>

If you are interested in finding out more about joining the ABTT please do take a look on the website here: <https://www.abtt.org.uk/join-abtt/memberships-for-individuals/>

Do remember that the ABTT is a charity as well as a membership organization. If you would like to support us in hosting further seminars and events like this please do donate here: <https://www.abtt.org.uk/get-involved/donate/>

Alternatively, please do just email us on office@abtt.org.uk

01:34:01 **Nick Anton:** Excellent stuff, thanks to signify and ABTT

01:34:11 **abigail mcmillan:** great presentation. very interesting thank you.

01:34:43 **Elysia Moore:** Thanks everyone for your patience this afternoon while we tried to resolve the technical issue we had with our webinar platform.

01:34:44 **Sacha Milroy:** Thank you so much for the presentation - really useful, informative and straight forward - great!

01:34:54 **Alastair Kerr:** Many thanks for the presentation

01:34:58 **Steven Wilkins:** Cheers Mig, Elysia and David.

01:34:58 **Claire Hartley:** Thank you!

01:35:07 **Elfie Courcoul:** Thank you very much!!

01:35:10 **Chris Boyle:** Many thanks

01:35:15 **David Evans:** Thank you

01:35:20 **Matt Bancroft:** Thanks everyone

01:35:25 **Kim Tuplin:** Thank you, very informative and useful information

01:35:25 **Koen Deveux:** Thank you.

01:35:25 **Chris Gaughan:** thanks again ABTT and team 👍

01:35:32 **John Sullivan:** Many thanks to all

01:35:33 **Callum Howie:** Thank you!

01:35:35 **David Evans:** Well done Elysia

01:35:35 **Tom McEvilly:** Thanks very much

01:35:48 **Jonathan Edwards:** Thank you to all

01:35:49 **Elysia Moore:** As mentioned, the seminar and links will be made available here:
https://www.abtt.org.uk/events-and-courses/abtt_seminars/seminars_july/uv-c-light/

Other ABTT Seminars that have been recorded can be found here: https://www.abtt.org.uk/events-and-courses/abtt_seminars/

01:35:57 **Mark Raymer:** Thanks for the info

01:36:18 **Clíona Ni Mhóchain:** Very interesting - thank you all