



UV-C Tunnel

UV-C Disinfection

UV-C Tunnel / UV-C Cover

- The Dinies UV-C tunnels were specially developed for surface disinfection of packaging and food
- The possible areas of application are very diverse and range from production channels in high-care areas to the disinfection of transport boxes
- Germs and bacteria are eliminated by the UV-C light without the use of chemicals

Product features

UV-C Tunnel / UV-C Cover

Exact adaptation to product and process requirements possible

Fast treatment time → short UV-C exposure time

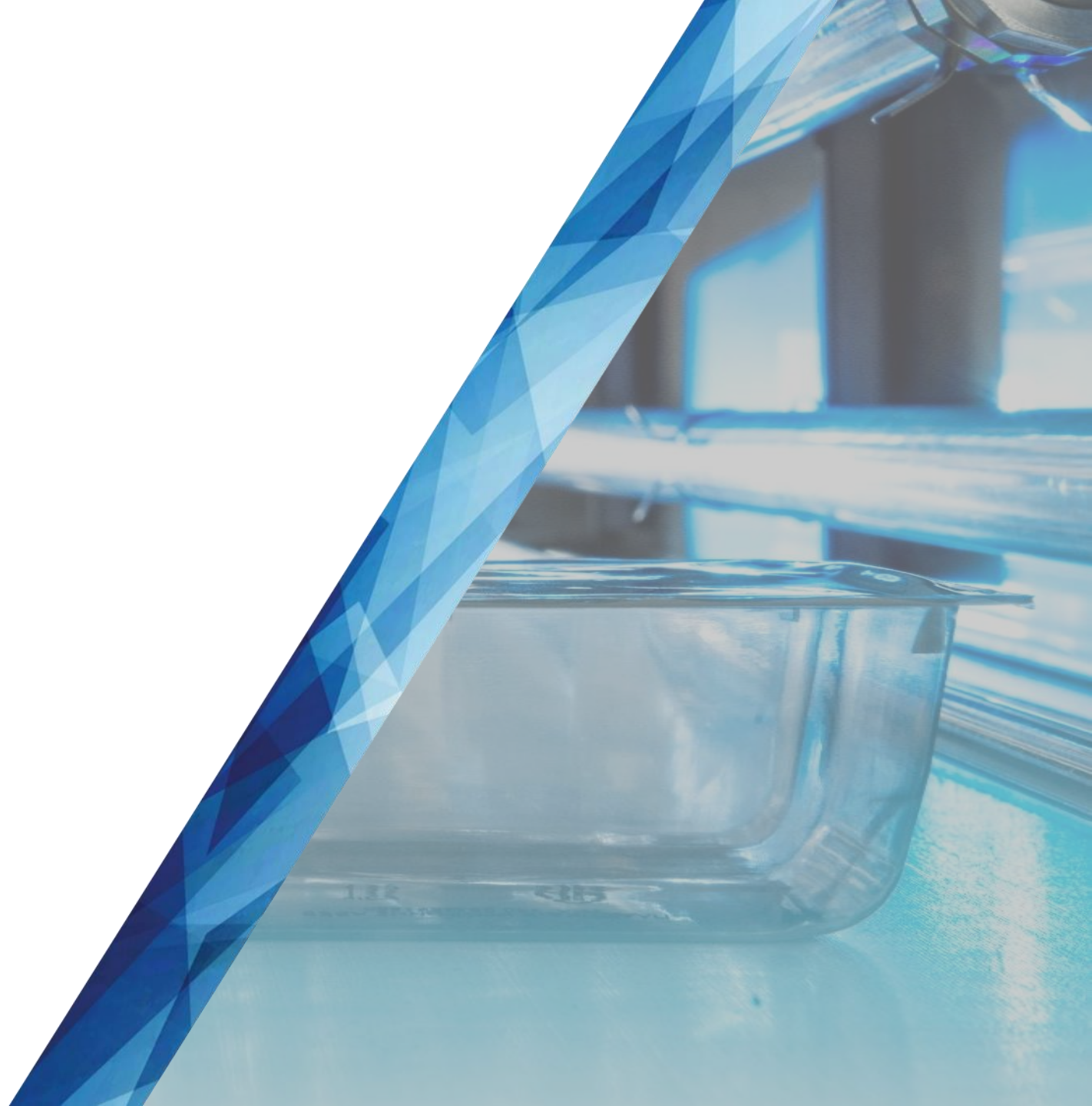
Treatment of products with low heat tolerance possible

Easy assembly, handling and cleaning

Low maintenance and inexpensive



Area of application



Most common use

Disinfection channel

- The most common use of the UV-C Tunnel is in front of a clean room
- By using a UV-C Tunnel as a disinfection channel, products, packaging, materials and tools are disinfected and brought into the clean room
- UV-C disinfection channels are used in many industrial areas during production

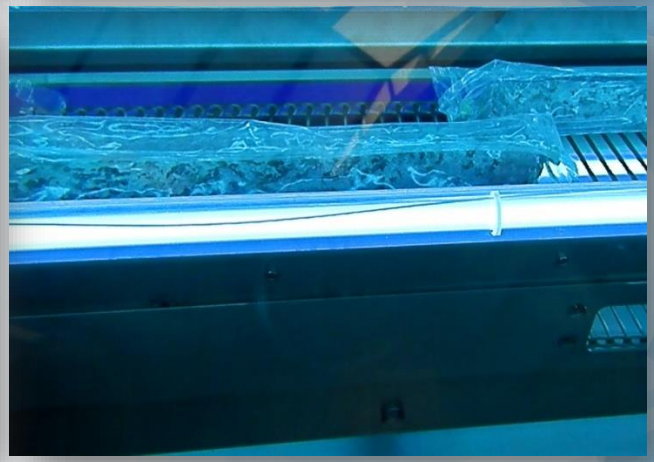
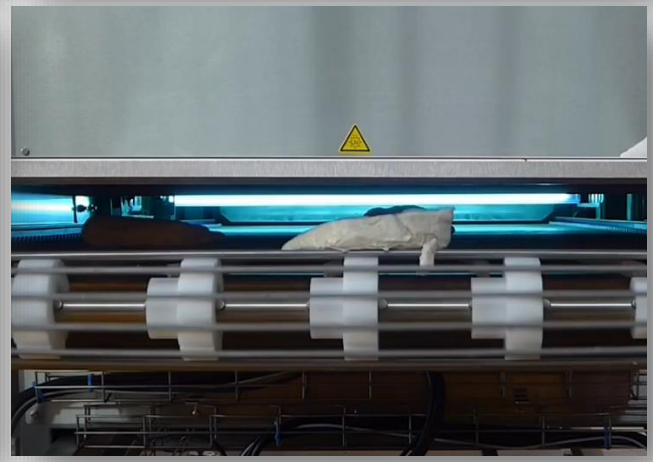
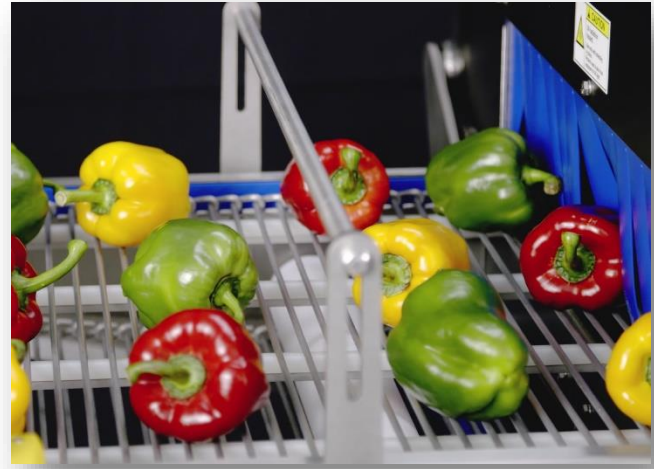


Examples of applications

Area of application

- UV-C channel in high care areas & clean rooms
- Disinfection of
 - *medical instruments*
 - *products*
 - *packaging*
 - *food*
 - *crates and transport baskets*
 - *luggage at the airport*

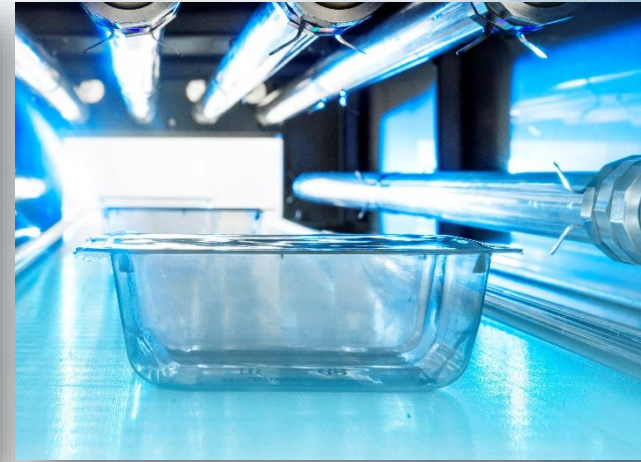
Food industry



Logistics



Pharmaceutical industry & medical technology





Disinfection process



Disinfection process

UV-C disinfection

- The products are transported through the UV-C tunnel on a conveyor belt at a suitable speed
- The tunnel contains highly efficient UV-C tubes, which disinfect the products with a wavelength of 254nm
- This wavelength changes the DNA of microorganisms in such a way that reproduction is no longer possible and the bacteria and viruses on the product surface are killed
- The products leave the UV-C tunnel in a microbiologically perfect condition

Degree of radiation

360° or 270°

- UV-C Tunnel: 360° UV-C disinfection
 - *During a disinfection with the UV-C tunnel, 360° disinfection is guaranteed*
 - *Highly effective UV-C tubes are used on all sides to disinfect the product over the entire surface*
 - *Existing microorganisms are destroyed within a very short time*

- UV-C Cover: UV-C disinfection from above
 - *In many cases 360° disinfection is not necessary*
 - *The UV-C Cover was developed for these applications*
 - *The products passing through are irradiated from the front, back and above with the highly effective UV-C tubes*

Integration into the existing system

UV-C Cover

- The UV-C Cover can be supplied as a complete UV-C disinfection system with a conveyor belt
- But it is also possible to attach the UV-C Cover to an already existing conveyor belt
- The system can thus be installed on an existing conveyor system
- This means that the UV-C Cover can be optimally integrated into an existing production process

Adaptation to the product

UV-C Tunnel / UV-C Cover

Thanks to the modular structure, the UV-C Tunnels can be precisely adapted to your product and process requirements

Adaptation to customer requirements

- *Disinfection requirements*
- *Process speed*
- *Bandwidth*
- *Passage height*
- *Power*

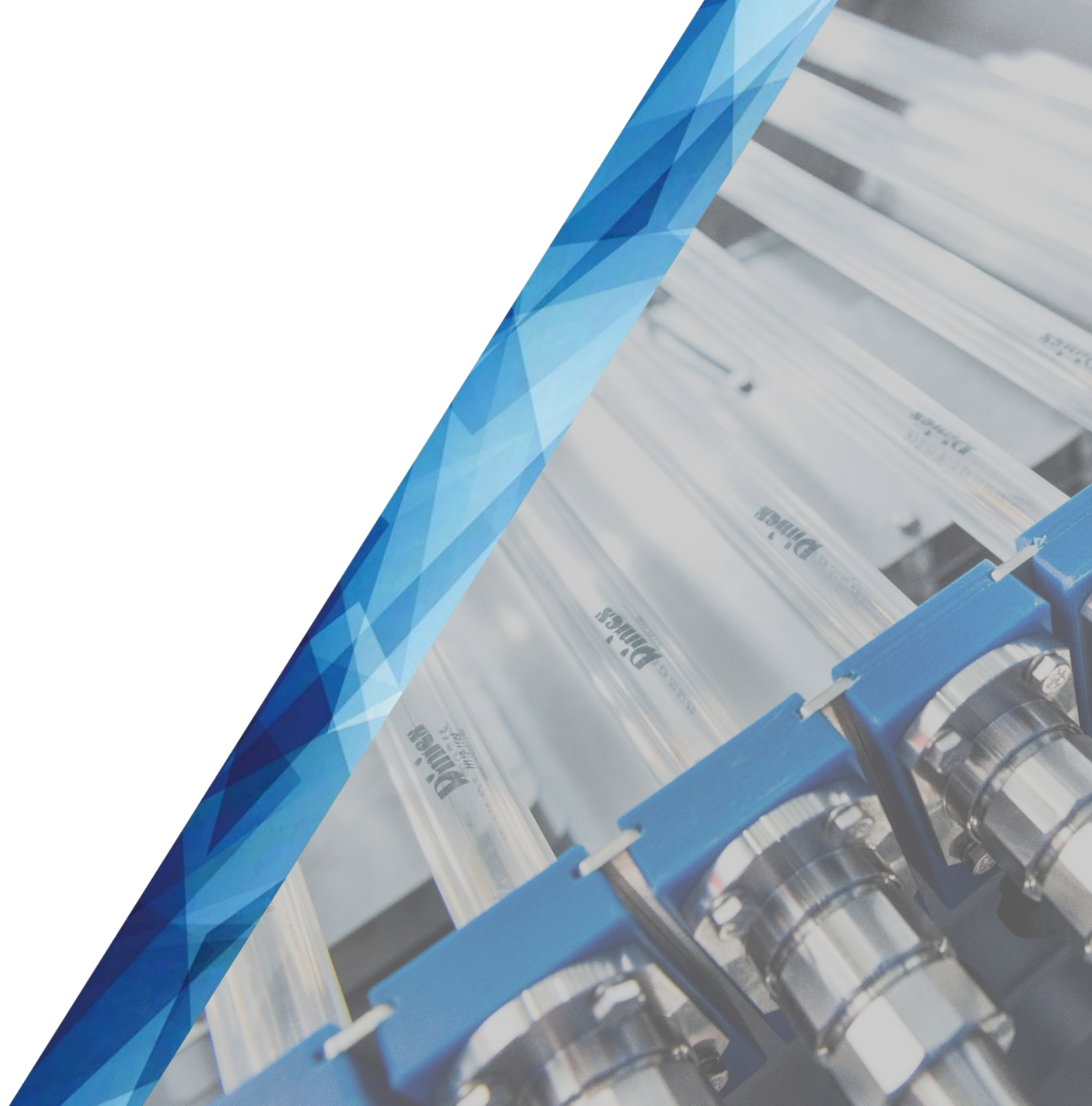
Advantages

- *Device is perfectly adapted to the product*
- *UV-C performance optimally used*
- *High efficiency*
- *Most effective UV-C disinfection*
- *Best possible UV-C performance on the product surface*



UV-C light

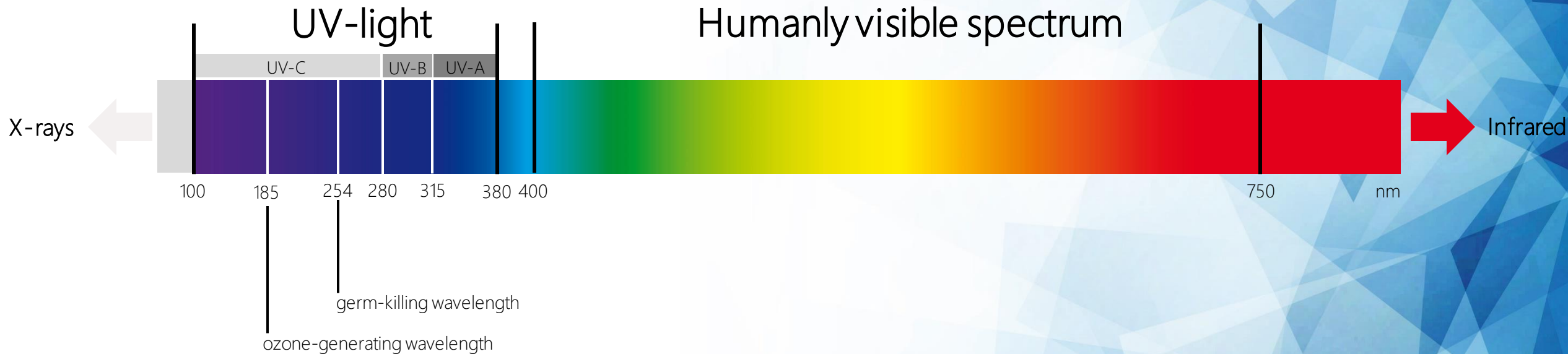
- [More Information](#)



What is UV light?

How does it work?

UV light is invisible to the human eye, but it can be used to eliminate microorganisms



4 Factors for UV-C disinfection

What is important?



1.



2.



3.

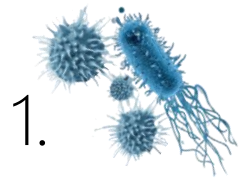


4.

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1. Microorganisms
 2. Distance
 3. UV-C power
 4. Time

Important radiation doses

Lethal doses to kill microorganisms

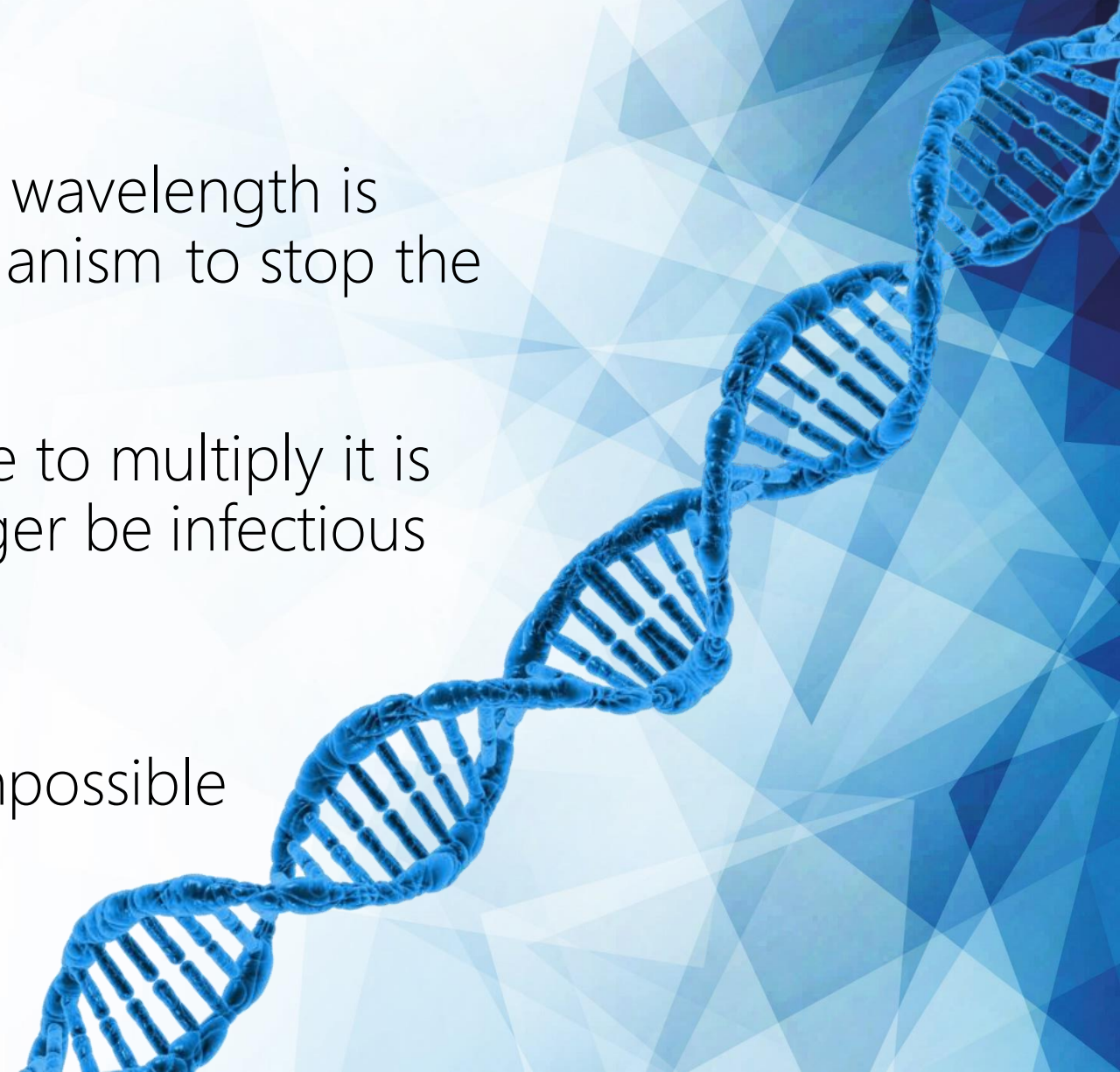


Microorganism	Distance	Radiation dose*	Time
Bacteria			
Escherichia coli	5 cm	9 mWs/cm ²	0,74 sec
Legionella pneumophila	5 cm	2,8 mWs/cm ²	0,23 sec
Mycobacterium tuberculosis	5 cm	30 mWs/cm ²	2,46 sec
Viruses			
Influenza virus	5 cm	10,2 mWs/cm ²	0,84 sec
SARS-CoV-2	5 cm	10,6 mWs/cm ²	0,80 sec
Mold spores			
Aspergillus niger	5 cm	396 mWs/cm ²	32,46 sec

*radiation dose necessary for 90% disinfection / log 1

UV-C disinfection

What is happening?

- The UV-C irradiation with 254nm wavelength is modifying the DNA of a microorganism to stop the reproduction
 - When a virus or bacteria is unable to multiply it is considered dead and can no longer be infectious
 - Very short deactivation time
 - Development of a resistance is impossible
- 

UV-C light

Summary



Disinfection up to 99.9%

Elimination of all microorganisms

Very effective and quick disinfection method

Low maintenance and inexpensive

Chemical free

UV-C light is effective against SARS-CoV-2

Studies

UVC irradiation represents a suitable disinfection method for SARS-CoV-2. High viral loads of 5×10^6 TCID₅₀/ml SARS-CoV-2 can be inactivated in 9 minutes by UVC irradiation

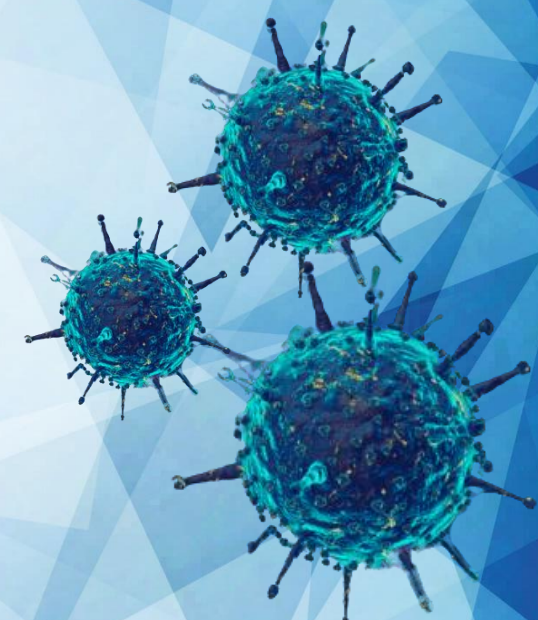
→ Study can be found here [Link](#)

SARS coronavirus is likely to be sensitive to irradiation of UV and it is more likely inactivated up to an undetectable level when exposed to irradiation of UV

→ Study can be found here [Link](#)

Our study demonstrates that THERAFLEX UV-Platelets (UVC) effectively reduce the infectivity of SARS-CoV, CCHFV and NiV in platelet concentrates and plasma, respectively

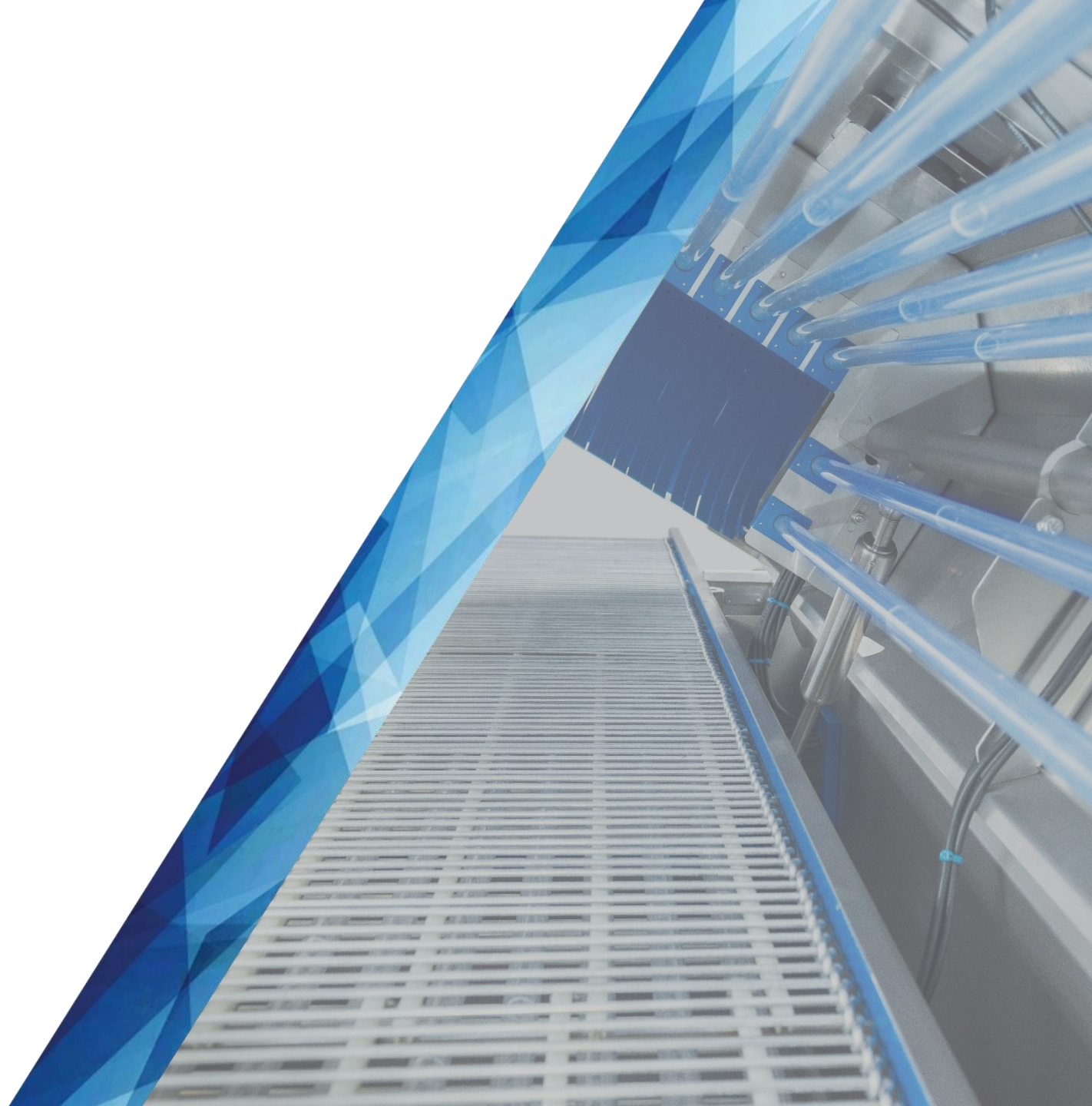
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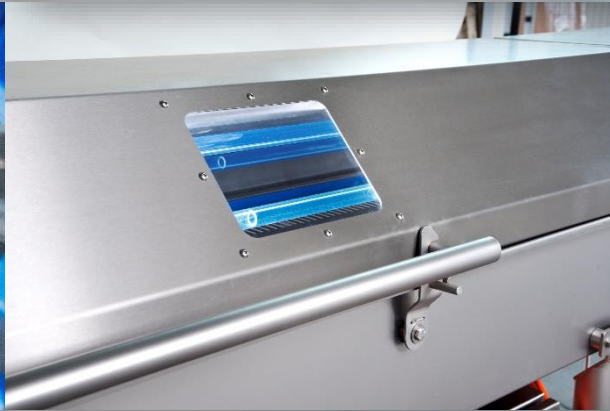
Details

UV-C Tunnel / UV-C Cover



UV-C Tunnel

Pictures



UV-C Cover

Pictures



Details

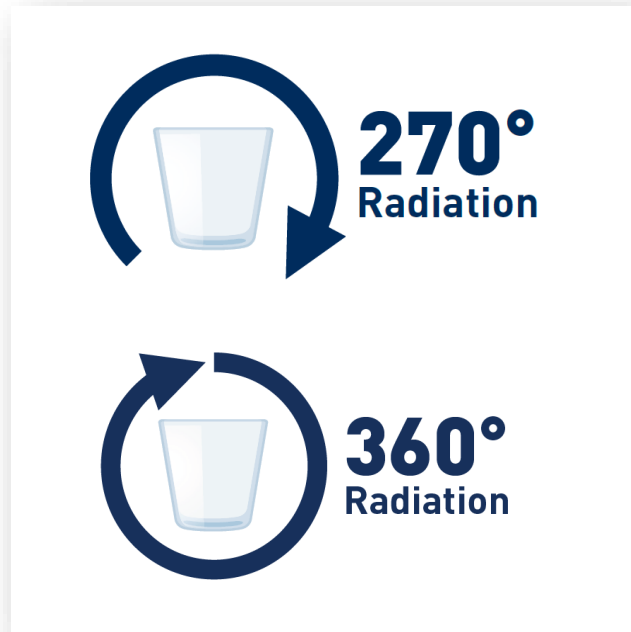
UV-C Tunnel / UV-C Cover



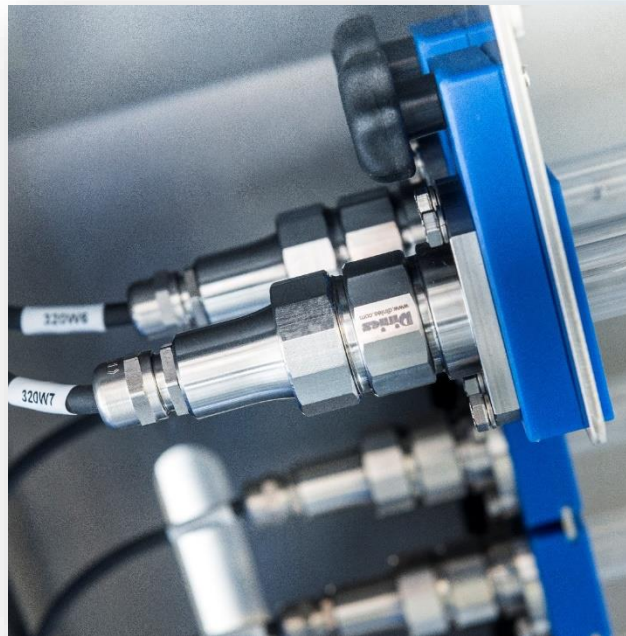
Type designation	UV-C Tunnel	UV-C Cover
Degree of radiation	360°	270°
Material	Stainless steel	Stainless steel
Band width	100-800mm	100-800mm
Rated voltage	400V/50Hz – 3P/N/PE	230-400V/50Hz – 3F/N/PE
Product size	min. 8mm	/
Dimension	variable	variable
Passage height	variable	variable
Type of belt	variable	variable

Details

UV-C Tunnel / UV-C Cover



Cover: 270° Radiation
Tunnel: 360° Radiation



Easy lamp replacement



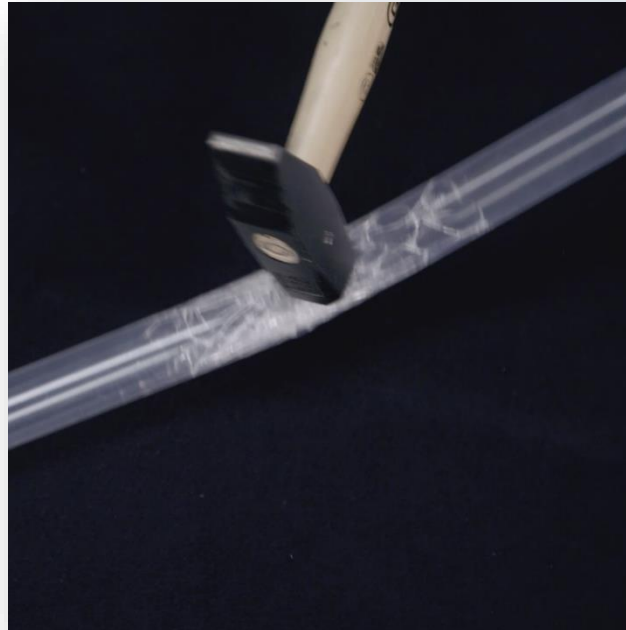
Control system

Details

UV-C Tunnel / UV-C Cover



Air Knife



Splinter protection



Variable dimensions



Advantages



Advantages

For your product

Disinfection up to 99.9%

Extension of the best-before date

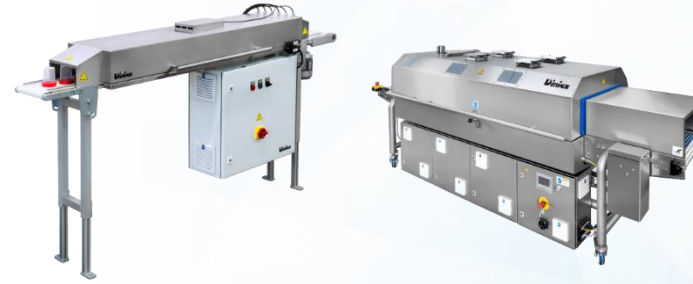
No microorganisms on packaging and products

No negative impact on product quality

The consistency of the product remains unchanged

Advantages

UV-C Tunnel / UV-C Cover



100% ecological without the use of chemicals

Very effective and quick disinfection method

Installation on an existing conveyor belt or as a complete system

Splinter protection according to HACCP requirements

Low maintenance and low operating costs

Thank you for your
attention





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