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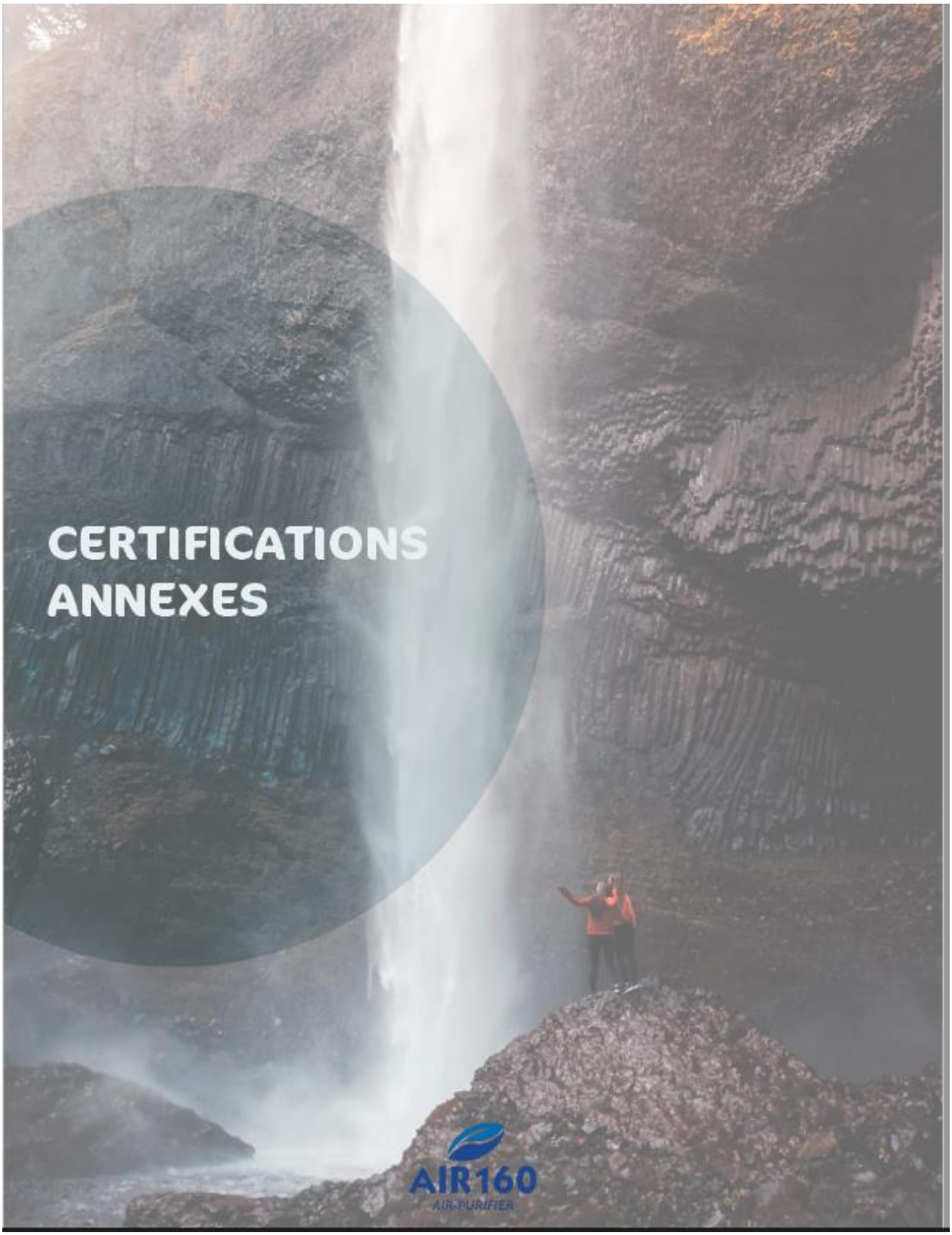
Retrouvez nous sur ..... societe-dentea.fr



OZONING EQUIPMENT

Ozone-generating equipment has several disadvantages in comparison to units based on UVC-light:
- Ozone generating equipment is more expensive
- Overdosing is possible and thus damaging
- Generates residual materials which have to be removed (by ventilation)

We do not use ozone equipment. The little ozone generated by ionization is minim and well below the permitted level of 0.005 mg/m3 - please view test report (page 5) in the enclosure 1832020-Air160 test report.pdf.

ÉQUIPEMENT D'OZONISATION

Les équipements générateurs d'ozone présentent plusieurs inconvénients par rapport aux unités basées sur la lumière UVC :
- Les équipements de production d'ozone sont plus chers
- Le surdosage est possible et donc préjudiciable
- Génère des matières résiduelles qui doivent être éliminées (par ventilation)

Nous n'utilisons pas d'équipement pour l'ozone. Le peu d'ozone généré par l'ionisation est minime et bien en dessous du niveau autorisé de 0,005 mg/m3 - veuillez consulter le rapport de test (page 5) dans l'annexe 1832020-Air160 test report.pdf (Page 25)

NICK MOLLEN'S EMAIL

Dear Véronique

I enclose several documents on the issue of the radiation safety. Also some data on DOSE required to eliminate COVID 0,6 Milli-Joule/cm2 (599-611 Micro-Joule/cm2) in comparison to the DOSE generated in the units at between 4,23 and 8,46 Milli-Joule/cm2 - depending on fan-speed at 25 or 50m3/hour.

On the Test Report page 5 you may appreciate the low level of ozone generated

Saludos cordiales / With kind regards

E-MAIL DE NICK MOLLEN

Je joins plusieurs documents sur la question de la radioprotection. Egalement quelques données sur le DOSE nécessaire pour éliminer le COVID 0,6 Milli-Joule/cm2 (599-611 Micro-Joule/cm2) par rapport au DOSE généré dans les unités entre 4,23 et 8,46 Milli-Joule/cm2 - selon la vitesse du ventilateur à 25 ou 50m3/h.

Sur la page 5 du rapport de test, vous pouvez apprécier le faible niveau d'ozone généré

Inspection Report

Guangzhou Zhongke Testing Technology Service Co., Ltd.

Inspection report number:	*JKK20020121*
Sample name:	*AIR 160 disinfection and sterilization purifier*
Submission unit:	*Alcochem Trading Co., Ltd. Beijing*

March 4, 2020

Description

1. This inspection report is only responsible for the samples submitted for inspection.

2. If there is any objection to this inspection report, an application for review may be submitted within 30 days from the date of receipt of the report.
   Requests for changes outside this period will not be accepted.

3. This inspection report and the name of the inspection unit shall not be used for product labeling, advertising, evaluation and product promotion.

4. This inspection report is in triplicate, two copies are submitted to the inspection unit, and one is filed by the inspection agency.

Address:	*368 Xingke Road, Tianhe District, Guangzhou*
Zip Code:	*510650*
Phone:	*020-85231325*

AIR160
AIR-PURIFIER

Sample acceptance number: JKK20020121

Sample name	AIR 160	Disinfection sterilizer Purifier	1
Lot number	/	Sample properties	Production unit
Model Specifications	AIR 160	Trademark	ALCOCHEM HYGIENE
Inspection unit	BO Trading Co., Ltd.	Delivery date	2020-02-25
Production unit	Alcochem Hygiene B.V.	Inspection date	2020-03-02

Test based on:

GB 28235-2011 "Safety and Hygienic Standard for Ultraviolet Air Disinfectors" 9.12.1;
GB / T 18202-2000 "Ozone Hygiene in Indoor Air Standards", "Disinfection Technical Specifications" (2002) 2.1.3, 2.1.5.4.

Evaluation basis:

GB 28235-2011 "Safety and Hygienic Standard for Ultraviolet Air Disinfectors";
GB / T 18202-2000 "Sanitary Standard for Ozone in Indoor Air"; "Disinfection Technical Specifications" (2002).

Test results:

1. Ultraviolet radiation illuminance: The radiation of the ultraviolet lamp for the prototype "AIR 160 disinfection and sterilization purifier", 1m below the vertical center Illumination value is 113 μW/cm², corresponding to the nominal power in GB 28235-2011 "Safety and Hygienic Standard for Ultraviolet Air Disinfectors".
   The requirement of ultraviolet radiation illumination is not less than 9.3%.
2. Ultraviolet light leakage: Radiation exposure of the prototype "AIR 160 disinfection and sterilization purifier" at a diagonal distance of 30 cm left, middle, and right. The degree value is 1 μW/cm², which conforms to GB 28235-2011 "Safety and Hygienic Standard for Ultraviolet Air Disinfectors" μW/cm² requirements.
3. Ozone leakage: The prototype "AIR 160 disinfection and sterilization purifier" was started for disinfection under the "maximum wind speed" and "ultraviolet" for 60 minutes, The average ozone concentration in the indoor air environment is 0.005 mg/m³, and the amount of ozone leakage conforms to GB/T 18202-2000 " Odor in indoor air Oxygen Hygiene Standard.
4. The air simulation field test shows that the prototype "AIR 160 disinfection and sterilization purifier" starts to consume at "highest wind speed" and "ultraviolet" The toxic effect was 120 minutes, and the killing rate of Staphylococcus aureus was 3 times. The test results were all ≥ 99.90 %. Technical Specifications (2002).
5. Field test of air shows that the prototype "AIR 160 disinfection and sterilization purifier" is started at "highest wind speed" and "ultraviolet" for disinfection. In 120 minutes, the extinction rate of natural bacteria in the air of an unoccupied room with a volume of about 30 m³ was 3 times. The results were ≥ 90.00 %. Disinfection is qualified and meets the requirements of the Disinfection Technical Specification (2002).

Digitally signed

Edit: Review: Approve:

AIR160
AIR-PURIFIER

Sample acceptance number: JKK20020121

Sample name	AIR 160 disinfection sterilizer purifier	Delivery date	2020-02-25
Inspection item	Ultraviolet radiation illumination	Inspection date	2020-03-02

Equipment

1. ST-512 UV radiance meter (sensitivity: 1μW/cm²).
2. Disinfection equipment: AIR 160 UV lamp for disinfection and sterilization purifier (model: AIR 160).

Detection method

1. Test basis: "Technical Specifications for Disinfection" (2002 edition) 2.1.5.4.
2. Test environment: temperature: 25.1 °C, relative humidity: 54% RH.
3. Test method: Fix the ultraviolet lamp to be measured on the measuring rack, adjust the distance so that the lamp is placed at the vertical center of the lamp below it 1m, connect the voltage stabilizer (220 V), and turn on the UV lamp for 5 minutes, then measure the irradiance value with an illuminance meter, and repeat the test 3 times.

Results

After 3 repeated tests, the UV lamp has an illuminance value of 113 μW/cm² measured at 1 m perpendicular to its center *(see Table 1)*.

Table 1 Ultraviolet radiation illuminance detection data

Test items	Test results		
	Unit	Test number	Radiation value
UV radiation illumination	μW/cm²	1	113
		2	113
		3	114
		Average value	113

Conclusion

Ultraviolet radiation illuminance: the irradiance of the UV lamp for the prototype "AIR 160 disinfection and sterilization purifier", 1 m below the vertical center. The value is 113 μW/cm², which meets the UV radiation corresponding to the nominal power in GB 28235-2011 "Safety and Hygienic Standard for Ultraviolet Air Sterilizers". The irradiance is not less than 93 %.

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Edit: Review: Approve:

AIR160
AIR-PURIFIER

Sample acceptance number: JKK20020121

Sample name	AIR 160 disinfection sterilizer purifier	Delivery date	2020-02-25
Inspection item	UV leakage inspection	Inspection date	2020-03-02

Equipment

1. ST-512 UV radiance meter (sensitivity: 1 μW/cm²).
2. Disinfection equipment: AIR 160 disinfection and sterilization purifier.

Detection method

1. Test basis: GB 28235-2011 "Safety and Hygienic Standard for Ultraviolet Air Sterilizer".
2. Test environment: temperature: 25.0 °C, relative humidity: 58% RH.
3. Machine running state: Turn on the "maximum wind speed" and "ultraviolet" during the test.
4. Test method: The machine is turned on to the rated working state, and the radiometer is placed on the diagonal of the periphery of the machine to the left, middle, and right. At a distance of 30 cm, use a radiometer to measure the irradiance of ultraviolet rays. *The test is repeated 3 times.*

Results

After 3 repeated tests, the radiation around the diagonal of the prototype "AIR 160 disinfection and sterilization purifier" left, middle, and right 30 cm vertical radiation. *The degree value is 1 μW/cm² (see Table 2).*

Table 2 UV leak detection data

Test items	Test results			
	Test location	Unit	Test number	Irradiance value
UV Leakage	Left	μW/cm²	1	1
			2	1
			3	1
			Average value	1
	Middle	μW/cm²	1	<1
			2	<1
			3	<1
			Average value	<1
	Right	μW/cm²	1	<1
			2	<1
			3	<1
			Average value	<1

Conclusion

The irradiance value of the prototype "AIR 160 disinfection and sterilization purifier" around the diagonal left, middle and right vertical distance of 30 cm is 1 μW/cm².
In accordance with GB 28235-2011 "Safety and Hygienic Standard for Ultraviolet Air Sterilizers", the amount of ultraviolet leakage should be ≤ 5 μW/cm².

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Edit: 李淑燕 Review: 钟瑜 Approve:

AIR160
AIR-PURIFIER

Sample acceptance number: JKK20020121

Sample name	AIR 160 disinfection sterilizer purifier	Delivery date	2020-02-25
Inspection item	Ozone Leakage inspection	Inspection date	2020-03-02

Equipment

1. Test chamber: 30 m³, ozone analyzer (106-MH).
2. Disinfection equipment: AIR 160 disinfection and sterilization purifier.

Detection method

1. Detection environment: temperature: 24.8 °C; humidity: 55% RH.
2. Machine running status: "Highest wind speed" and "UV" are turned on during the test.
3. Test basis: GB / T 18202-2000 "Sanitary Standard for Ozone in Indoor Air".
4. Testing method: The prototype "AIR 160 disinfection and sterilization purifier" is placed in a 30 m³ test chamber according to the requirements of use, and the ozone is separated. The sampling port of the analyzer is fixed at a height of 1.5 m in the center of the test chamber, and the prototype is opened to the rated position. The test time is 1h, and the reading is performed at a certain interval. Take 12 data to average. The ozone concentration measured in the test minus the ozone concentration in the air before the test is the prototype "AIR 160 disinfection Purifier "ozone leakage.

Results

The prototype "AIR 160 disinfection and sterilization purifier" was run for 60 minutes under the "maximum wind speed" and "ultraviolet". *The average ozone concentration is 0.005 mg/m³ (see Table 3).*

Table 3 Ozone leak detection data

Time (min)	Ozone leakage (mg/m³)	Mean (mg/m³)
5	0.004	
10	0.003	
15	0.006	
20	0.003	
25	0.005	
30	0.004	0.005
35	0.004	
40	0.004	
45	0.009	
50	0.008	
55	0.003	
60	0.006	

Conclusion

The prototype "AIR 160 disinfection and sterilization purifier" was operated for 60 min under the "maximum wind speed" and "ultraviolet", and the average indoor air. The ozone concentration is 0.005 mg/m³, and the ozone leakage amount meets the requirements of GB / T 18202-2000 "Ozone Hygienic Standard for Indoor Air".

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Edit: 香张荣 Review: 钟翰 Approve:

AIR160
AIR-PURIFIER

Sample acceptance number: JKK20020121

Sample name	AIR 160 disinfection sterilizer purifier	Delivery date	2020-02-25
Inspection item	Air simulation	Inspection date	2020-03-02
	field disinfection test (Staphylococcus albicans)		

Equipment

1. Test chamber: 20 m³.
2. Test strain: Staphylococcus aureus 8032, culture medium: common nutrient agar medium, sampler: six-stage air sampler.
3. Disinfection equipment: AIR 160 disinfection and sterilization purifier.

Method

1. Test basis: "Technical Specifications for Disinfection" (2002 edition) 2.1.3.
2. Testing environment: temperature: (20 ~ 25) °C, relative humidity: (50 ~ 70)% RH.
3. Machine running state: Turn on the "maximum wind speed" and "ultraviolet" during the test.
4. Disinfection method: Place the sample to be tested in the test chamber during the test. Open the sample to the rated position and sterilize it for 120 minutes. Repeat 3 times.
5. Sampling method: Set a sampling point 1.0 m above the ground in the center of the test chamber, and sample with a six-stage screen air impact sampler.
   The sample flow rate was 28.3 L/min. Sampling was performed at the disinfection time of 0 min and 120 min.
   The sampling time of the control group was 20 sec and 20 sec, respectively.
   The sampling time of the test group was 20 sec and 6 min.

Results

The test temperature was (20 ~ 25) °C and the relative humidity was (50 ~ 70)% RH. The sample "AIR 160 disinfection and sterilization purifier" "Speed gear", "Ultraviolet" start-up disinfection for 120 min, the killing rate of Staphylococcus albicans three times, the results were 99.93%, 99.91%, 99.94% *(see Table 4)*.

Table 4 Experimental data of air disinfection effect identification test

Test Strain Strain	Action Time (min)	Test Number	Control group: The number of colonies before the test (cfu/m³)	Control group: Colony number after test (cfu/m³)	Control group: Natural Extinction Rate (%)	Test group: The number of colonies before the test (cfu/m³)	Test group: Colony number after test (cfu/m³)	Kill rate (%)
Staphylococcus albicans	120	1	1.21×10^5	9.12×10^4	24.63	1.05×10^5	59	99.93
		2	1.15×10^5	8.87×10^4	22.87	1.24×10^5	88	99.91
		3	9.48×10^4	7.37×10^4	22.26	1.01×10^5	47	99.94

Conclusion

The sample "AIR 160 disinfection and sterilization purifier" was sterilized for 120 minutes under the condition of "maximum wind speed" and "ultraviolet", and it was effective for white grapes.
The three test results of cocci were all ≥ 99.90%. They are qualified for disinfection and meet the requirements of the "Disinfection Technical Specification" (2002 edition).

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AIR160
AIR-PURIFIER

Sample acceptance number: JKK20020121

Sample name	AIR 160 disinfection sterilizer purifier	Delivery date	2020-02-25
Inspection item	Air on-site disinfection test	Inspection date	2020-03-02

Equipment

1. Test site: about 30 m³ unoccupied room.
2. Culture medium: common nutrient agar medium, sampler: six-stage air sampler.
3. Disinfection equipment: AIR 160 disinfection and sterilization purifier.

Method

1. Test basis: "Technical Specifications for Disinfection" (2002 edition) 2.1.3.
2. Test environment: temperature: (23 ~ 25) ℃, relative humidity: (55 ~ 65)% RH.
3. Machine running state: Turn on the "maximum wind speed" and "ultraviolet" during the test.
4. Disinfection method: During the test, place the sample to be tested in an unmanned closed room, open the sample to the rated position and sterilize it for 120 minutes, then take a sample.
   The test was repeated 3 times.
5. Sampling method: Set a sampling point on the diagonal of an unoccupied room of about 30 m³, and collect it with a six-stage screen air impact sampler.
   The sampling flow rate is 28.3 L/min; the sampling time is 5 minutes before disinfection, 10 minutes after disinfection, and the sampling point is 1.0 m from the ground.

Results

The test site is an airtight room of about 30 m3, the ambient temperature is (23 ~ 25) ℃, the relative humidity is (55 ~ 65)% RH, and the sample "AIR160 disinfection and sterilization purifier" in the "maximum wind speed", "ultraviolet"start-up disinfection for 120 minutes, the death rate of natural air bacteria
The test results were 91.99%, 92.41%, and 90.23%, respectively (see Table 5).

Table 5 Experimental data of air disinfection effect identification test (natural air bacteria)

Test bacteria	Action time (min)	Test number	The number of colonies before the test (cfu/m³)	Colony number after test (cfu/m³)	Natural Extinction Rate (%)
Air Natural Bacteria	120	1	1.94×10^3	1.55×10^2	91.99
		2	2.28×10^3	1.73×10^2	92.41
		3	1.70×10^3	1.66×10^2	90.23

Conclusion

The sample "AIR 160 disinfection and sterilization purifier" was sterilized for 120 minutes under the "highest wind speed" and "ultraviolet", and the effect was about 30 m³.
The extinction rate of natural bacteria in the air in an unoccupied room was ≥ 90.00% in three tests.

Digitally signed

Edit: 李跃泉 Review: 钟瑜 Approve:

Declaration related to the Artificial Optical Radiation Directive

To: Whom it may concern:

The Artificial Optical Radiation (AOR) directive was written by the health protection agency for its EU members.

It has in view to guarantee safety to users of those products that emit any form of radiation.

The AOR directive is only meant for products that emit any form of radiation that falls outside of the product and as such can create undesired side effects and / or health & safety risks to persons, who are exposed to this radiation source.

Onto the Aetaire range: the Air 160 unit

The UV-C light disinfection process in these units takes place in the closed metal disinfection chamber. As no light can come out of this chamber, the Aetaire range does not fall under the AOR directive.
And as such this product group it is not mentioned or listed in the product list of the European AOR Directive.

Made up by Alcochem Hygiene

Mr Ronald van Lierop
Director Alcochem Hygiene

Alcochem Hygiene BV
Van Dijklaan 17M
5581 WG Waalre
The Netherlands

Déclaration relative à la directive sur les rayonnements optiques artificiels

La directive sur les rayonnements optiques artificiels (AOR) a été rédigée par l'agence de protection de la santé pour ses membres de l'UE.
Elle vise à garantir la sécurité des utilisateurs de produits qui émettent des radiations sous quelque forme que ce soit.
La directive AOR est uniquement destinée aux produits qui émettent des radiations de toute forme qui ne font pas partie du produit et qui, en tant que telles, peuvent créer des effets secondaires indésirables et/ou des risques pour la santé et la sécurité des personnes qui sont exposées à cette source de radiations.
Sur la gamme Aetaire : l'appareil Air 160
Le processus de désinfection à la lumière UV-C dans ces unités a lieu dans la chambre fermée de désinfection des métaux.
Comme aucune lumière ne peut sortir de cette chambre, la gamme Aetaire ne relève pas de la directive AOR.
Et en tant que tel, ce groupe de produits n'est pas mentionné ni répertorié dans la liste des produits de la directive européenne AOR.

Ecrit par Alcochem Hygiene

M. Ronald van Lierop

Directeur Alcochem Hygiene

ALCOCHEM HYGIENE

1. Solar radiation

The existence of life on earth depends fundamentally on the solar radiation and in particular on the quantity of ultraviolet (UV) radiation that impacts on living species. The solar light emission spectrum corresponds to an ample range of wavelengths which we can also describe by their energetic equivalents, the short wavelength radiation being the most powerful. The sun emits ultraviolet radiation at ~100-400nm, visible light at ~400-700nm, close infrared at ~700-1000nm and distant infrared at 1000-10000nm.

2. Ultraviolet radiation

Ultraviolet radiation can be divided into three types according to their wavelengths and the distinct roles that they perform on the photochemical processes and on the human health.

UV-A

It is the closest to visible light and the least energetic of UV-light - nevertheless it can cause significant damage on the long term, such as the aging of the skin. Its wavelength varies between 400-320nm.

UV-B

Reaches the earth debilitated by the ozone layer and is sensitive to climate conditions. It is also called biological UV - its wavelength varies between 320-280nm and it is harmful to living species. On human health it has short- and long-term negative effects. On short term it causes reddening and burning of the skin. On long term UVB causes skin cancer, damage to the eyes and impacts negatively on our immune system. UVB represents only 5% of the UV and 0.25% of all the solar radiation that reaches the surface of the earth.

UV-C

UVC between 220-280nm is the most dangerous to life but fortunately it is completely absorbed by the ozone layer (O3) thus it causes no harm on earth. UVC radiation is used in water and air purification processes …

3. Ultraviolet radiation index

Ultraviolet radiation is measured and reflected in mW/cm2 (corresponding to 0,000001 Watts power per each cm2). **The Dose** or application is measured and shown in Joules/cm2 corresponding to the power (mW) per space (cm2) per exposure time (s).

RESUMING

Ultraviolet radiation is measured and shown in mW/cm2 (corresponding to 0,000001 Watts power per each cm2).
The Ultraviolet Dose (mJ/cm2) is the result of the radiation (mW/cm2) in relation to the exposure time (s).

UVC AIR PURIFYING EQUIPMENT – AETAIRE AIR 160 - AND ITS OPERATIONAL PARAMETERS

To purify the air the AETAIRE AIR 160-unit incorporates a ventilator to generate a certain air circulation towards and through the chamber or so-called reactor. The air is conducted through a HAFE/HEPA filter along the length of a UVC-lamp inside the chamber passing the ionizer at the top/exit part of the unit.

*The electrostatic filter eliminates all solid air-borne particles such as dust, grease, smoke, pollen or smells etc. It is statically charged by the air passing through it … causing friction.
*The UVC lamp radiates the air passing through the interior of the chamber. The average radiation level of the 60W PL-L UVC Tube is 17-19 mW/cm2.
The AETAIRE is operational on two speeds - at 25 or 50m3/h so the air circulation velocity inside the chamber is at 0.7 m/s (50 m3/h) or 0.35 m/s (a 25 m3/h) - producing radiation levels between 4,4 y 12,8 mJ/cm2 (50 and 25 m3/h respectively).
Documental and public tests on exponential trails on sterilization of virus and bacterial clusters show results on effective exposition dose-values of 2.6 mJ/cm2 for bacteria y adenovirus and 0.6 mJ/cm2 for Coronavirus - view page 4 of the ´estudio radiación-uvc coronavirus´.
Another annexed document ´news release mar2020´ page 2 shows effective results at exposition values of 0.61 mJ/cm2 UVC radiation to eliminate Coronavirus and 1.9 mJ/cm2 on the Flu virus.

RESUMING

The UVC radiation level inside the chamber (reactor) in the AETAIRE AIR 160 unit is at minimum of 4.23 mJ/cm2 (see technical datasheet) clearly surpassing the necessary values to control Coronavirus.

*The Ionizer generates some 8.500.000 negatively charged ions per cm3 which neutralize existing positively charged air-borne atoms - positively charged ions such as dust inhabit pathogenic micro-organisms that are harmful to our health - hanging on to them and pulling them (heavier weight) downwards to the surface below or sucked back into the unit by the ventilator.

1. Le rayonnement solaire

L'existence de la vie sur terre dépend fondamentalement du rayonnement solaire et en particulier de la quantité de rayonnement ultraviolet (UV) qui a un impact sur les espèces vivantes. Le spectre d'émission de la lumière solaire correspond à une large gamme de longueurs d'onde que nous pouvons également décrire par leurs équivalents énergétiques, le rayonnement de courte longueur d'onde étant le plus puissant. Le soleil émet des rayons ultraviolets à ~100-400 nm, de la lumière visible à ~400-700 nm, de l'infrarouge proche à ~700-1000 nm et de l'infrarouge lointain à 1000-10000 nm.

2. Le rayonnement ultraviolet

Les rayons ultraviolets peuvent être divisés en trois types selon leurs longueurs d'onde et les rôles distincts qu'ils jouent sur les processus photochimiques et sur la santé humaine.

UV-A

Elle est la plus proche de la lumière visible et la moins énergétique des rayons UV - néanmoins, elle peut causer des dommages importants sur le long terme, comme le vieillissement de la peau. Sa longueur d'onde varie entre 400 et 320 nm.

UV-B

Atteint la terre débilitée par la couche d'ozone et est sensible aux conditions climatiques. Il est également appelé UV biologique - sa longueur d'onde varie entre 320 et 280 nm et il est nocif pour les espèces vivantes. Il a des effets négatifs à court et à long terme sur la santé humaine. À court terme, il provoque des rougeurs et des brûlures de la peau. À long terme, les UVB provoquent le cancer de la peau, endommagent les yeux et ont un impact négatif sur notre système immunitaire. Les UVB ne représentent que 5 % des UV et 0,25 % de tout le rayonnement solaire qui atteint la surface de la terre.

UV-C

Les UVC entre 220 et 280 nm sont les plus dangereux pour la vie, mais heureusement, ils sont complètement absorbés par la couche d'ozone (O3) et ne causent donc aucun dommage sur terre. Le rayonnement UVC est utilisé dans les processus de purification de l'eau et de l'air ...

3. Indice de rayonnement ultraviolet

Le rayonnement ultraviolet est mesuré et réfléchi en mW/cm2 (correspondant à une puissance de 0,000001 watt par cm2). La dose ou l'application est mesurée et indiquée en Joules/cm2 correspondant à la puissance (mW) par espace (cm2) par temps d'exposition (s).

RESUME

Le rayonnement ultraviolet est mesuré et indiqué en mW/cm2 (correspondant à une puissance de 0,000001 watt par cm2).

La dose d'ultraviolet (mJ/cm2) est le résultat du rayonnement (mW/cm2) par rapport à la durée d'exposition (s).

ÉQUIPEMENT DE PURIFICATION D'AIR UVC – AETAIRE AIR 160 - ET SES PARAMÈTRES DE FONCTIONNEMENT

Pour purifier l'air, l'unité AETAIRE AIR 160 incorpore un ventilateur pour générer une certaine circulation d'air vers et à travers la chambre ou le soi-disant réacteur. L'air est conduit à travers un filtre HAFE/HEPA sur la longueur d'une lampe UVC à l'intérieur de la chambre, en passant par l'ioniseur dans la partie supérieure/sortie de l'unité.

*Le filtre électrostatique élimine toutes les particules solides en suspension dans l'air telles que la poussière, la graisse, la fumée, le pollen ou les odeurs, etc. Il est chargé statiquement par l'air qui le traverse ... ce qui provoque une friction.

*La lampe UVC rayonne l'air qui passe à l'intérieur de la chambre. Le niveau moyen de rayonnement du tube UVC PL-L de 60W est de 17-19 mW/cm2.

AIR 160 fonctionne à deux vitesses - à 25 ou 50m3/h, de sorte que la vitesse de circulation de l'air à l'intérieur de la chambre est de 0,7 m/s (50 m3/h) ou 0,35 m/s (25 m3/h) - produisant des niveaux de rayonnement compris entre 4,4 et 12,8 mJ/cm2 (50 et 25 m3/h respectivement).

Des tests documentaires et publics sur des pistes exponentielles de stérilisation de virus et de groupes bactériens montrent des résultats sur des valeurs de dose d'exposition efficace de 2,6 mJ/cm2 pour les bactéries et les adénovirus et de 0,6 mJ/cm2 pour les coronavirus - voir la page 4 de l'"estudio radiación-uvc coronavirus".

Un autre document annexé, le "communiqué de presse mar2020", page 2, montre des résultats efficaces à des valeurs d'exposition de 0,61 mJ/cm2 de rayonnement UVC pour éliminer le coronavirus et de 1,9 mJ/cm2 pour le virus de la grippe.

RESUME Le niveau de rayonnement UVC à l'intérieur de la chambre (réacteur) de l'unité AETAIRE AIR 160 est au minimum de 4,23 mJ/cm2 (voir fiche technique), ce qui dépasse nettement les valeurs nécessaires pour contrôler les Coronavirus.

*L'ionisateur génère quelque 8.500.000 ions chargés négativement par cm3 qui neutralisent les atomes existants chargés positivement en suspension dans l'air - les ions chargés positivement tels que la poussière hébergent des micro-organismes pathogènes qui sont nocifs pour notre santé - en s'y accrochant et en les tirant (poids plus lourd) vers la surface en dessous ou en les aspirant à nouveau dans l'appareil par le ventilateur.

CE declaration of conformity

We, Alcochem Hygiene
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CE

We, Alcochem Hygiene: Declare, under our responsibility, that the product:

Type: **Air treatment with fan, UV disinfection chamber, ionizer and air treatment filter**

Name: **Air 160**

Complies with the following European standards:

Standards and reports:

The Low voltage directive 2006/95/EC and subsequent following EC directives:

- EN 60335-1:2002
- EN 60335-2-55:2003
- EN 60335-2-109:2010
- EN 61000-3-2 and EN 61000-3-3
- EN50014-1/2
- EN 50581:2012 (RoHS directive 2011/65/EU)

Based on the voluntary assessment of the product sample and technical file, we confirm that the above - mentioned product meets the requirements of the EC directive.
The CE mark as show below can be used, under the responsibility of the manufacturer or the importer, after completion of an EC declaration of conformity and compliance with all relevant EC directives.

Place: Waalre, The Netherlands

Date : April 2017

Authorized Person:

Mr. R van Lierop, director Alcochem Hygiene
Signature (electronic)

TNO innovation for life

Alcochem Hygiene
Zeilmaker 4,
Nijkerk, the Netherlands

Case / Report:
Determine the disinfection potential of the Air 160 air treatment system on micro organisms

A) Introduction:
In order of the producer we, TNO - quality of Life / Department microbiology - have investigated the disinfection potential of the Air-160 air treatment unit. To determine this various types of microorganisms have been used.

The Air 160 air treatment system is built up out of various components, knowing:
- A fan
- A filter (3M high air flow)
- A UV-C lamp (60 watt, 254 nm, make: Philips)
- An ioniser

B) The test equipment used to determine the disinfection ability:
- The Air 160 air treatment unit
- 4-jets Collison vaporiser
- Impinger 30 ml Physiological Salt (Fz) solution, 0,85 % NaCL
- Microbial Cascade Sampler
- Pepton Physiologic Salt (PPS) solution; 0,85 % NaCL / 1 % Pepton
- Physiological Salt (PS) solution; 0,85 % NaCL
- PTFE / Norprene antistatic hoses
- TSA-plates (Tryptone Soya Agar)

Indicator organisms:
- Staphylococcus aureus ATCC6538
- Pseudomonas aeruginosa ATCC 15442

C) Working method:
The effect of the Air 160 air treatment system (without chlorine dioxide injection) on the microbial quality / content of the air has been investigated.

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Projectnummer
031.15092/01.01

In the investigation 2 types of indicator organisms:

- Staphylococcus aureus, a gram positive bacteria and:
- Pseudomonas aeruginosa a gram negative bacteria have been used.

The indicator organisms Staphylococcus aureus ATCC6538 and the Pseudomonas aeruginosa ATCC 15442 have been cultivated on an oblique hose (slant TSA). After cultivation the cells on the slant have been washed down with a 9 ml PFZ solution, after this they have been diluted in a 100 ml FZ solution. This FZ suspension has been used to atomize.

The concentration of Staphylococcus aureus in the FZ suspension was $1{,}8 \times 10^7$ colony forming units (CFU) per ml. The concentration of Pseudomonas aeruginosa in the FZ suspension was $1{,}3 \times 10^8$ colony forming units (CFU) per ml.

By using the Collison vaporiser up-stream (via a connector part and PTFE hoses connected to the inlet of the Air 160 unit) a pre-defined quantity of the indicator micro-organisms has been atomized in the air stream. Upstream and downstream of the Air 160 unit, the concentration of the indicator organism has been determined with help of the Impinger and Microbial Cascade Sampler. The sampling time is 10 minutes for the Impinger and the Microbial Cascade Sampler.

After sampling the FZ-solution in the Impinger has been analysed on the presence of the indicator mechanism by means of spread plating on the TSA-plates. The TSA plates of the Impinger and the Microbial Cascade Sampler have been incubated at 37 Degrees Celsius for a period of 24-48 Hours. After this period the quantities have been determined.

The measurements have been executed with the UV-C lamp switched off (zero reference measurement) and with the UV lamp switched on (kill rate measurement) Each test has been carried out in 3-fold per indicator micro-organism. (3 reference measurements and 3 kill rate measurements)

By means of measuring the colony forming units (cfu) on the plates with the UV-C lamp switched off and the UV-C lamp switched on, the log reduction could be determined. This log reduction has been used as the variable to determine the kill rate of the indicator micro-organisms.

The air speed of the Air 160 was set at 25 m^3/hr (the low setting)

The results:
At an air speed of 25 m^3/hr we have registered a disinfection rate on the Staphylococcus aureus ATCC6538 and the Pseudomonas aeruginosa ATCC 15442. The results show that there is already a reduction due to the atomizing process used. This has not been taken into further consideration, as this is considered to have only a minor effect. After the UV-C lamp has been switched on we see an additional disinfection, that has taken place. The results of this disinfection level are shown in table 1.

Table 1: Amount of measured colony forming units (cfu) per test and in log reduction level

Sample number	CFU level used	CFU per test	Log reduction level
Staphylococcus aureus			
1. Kill rate measurement	$4{,}9 \times 10^{6}$	< 3 (*)	
1a Zero measurement	$4{,}9 \times 10^{6}$	$4{,}1 \times 10^{4}$	
2 Kill rate measurement	$4{,}9 \times 10^{6}$	< 3	
2a Zero measurement	$4{,}9 \times 10^{6}$	$4{,}6 \times 10^{4}$	
3 Kill rate measurement	$4{,}9 \times 10^{6}$	< 3	
3a Zero measurement	$4{,}9 \times 10^{6}$	$6{,}7 \times 10^{4}$	
Average	$4{,}9 \times 10^{6}$	< 3 and $5{,}1 \times 10^{4}$	> log 4
Pseudomonas aeruginosa			
4 Zero measurement	$3{,}5 \times 10^{7}$	< 3	
4a Kill rate measurement	$3{,}5 \times 10^{7}$	$2{,}2 \times 10^{3}$	
5 Zero measurement	$3{,}5 \times 10^{7}$	< 3	
5a Kill rate measurement	$3{,}5 \times 10^{7}$	$3{,}9 \times 10^{3}$	
6 Zero measurement	$3{,}5 \times 10^{7}$	< 3	
6a Kill rate measurement	$3{,}5 \times 10^{7}$	$5{,}2 \times 10^{3}$	
Average	$3{,}5 \times 10^{7}$	< 3 and $3{,}8 \times 10^{3}$	> log 3

(*) < 3 = Below the detection limit of 3 cfu per test for the Microbial Cascade Sampler. The detection limit of the Microbial Cascade Sampler is determined by the sample volume.

Conclusions:
From the results we can conclude that the micro-organisms: Staphylococcus aureus and the Pseudomonas aeruginosa are killed relatively easy by means of the amount of UV-C light, present in the disinfection chamber of the Air-160 unit.

The DNA of the micro-organism is damaged beyond repair, shortly afterwards the micro-organism dies. The disinfection level is of the height that the colony forming units (cfu) end up below the detection level of the measuring equipment.

The results of these measurements show that the Air-160 air treatment unit is able to achieve a reduction of at least a log 4 on Staphylococcus aureus and a reduction of at least a log 3 on Pseudomonas aeruginosa.

Made up by TNO in NL language and officially translated
Made up by: Mr J Kastelein / TNO Delft Netherlands

Dans l'enquête 2 types d'organismes :

- Staphylococcus aureus, une bactérie à Gram positif et :

- Pseudomonas aeruginosa, une bactérie à Gram négatif, ont été utilisés.

Conclusions :

D'après les résultats, nous pouvons conclure que les micro-organismes : Staphylocoque aureus et le Pseudomonas aeruginosa sont tués relativement facilement grâce à la quantité de lumière UV-C présente dans la chambre de désinfection de l'Air-160

L'ADN du micro-organisme est endommagé de manière irréparable, peu de temps après le micro-organisme meurt. Le niveau de désinfection est élevéeet le CFU se retrouve en dessous du niveau de détection de la mesure de l'équipement.

Les résultats de ces mesures montrent que l'unité de traitement de l'air Air-160 est capable d'obtenir une réduction d'au moins un log 4 sur le Staphylococcus aureus et une réduction d'au moins un log 3 sur Pseudomonas aeruginosa.

Composé par TNO en langue néerlandaise et traduit officiellement

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