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Certificate of Analysis

Shieer Group Bio-Clean

Our ref.:
390178-6.AO1/LPL

Date:
21 januari 1999

Project number : 6426751
Sample : stamp samples
Packed in : Petri dishes
Received d.d. : 18 januari 1999 researched by: L. Pel; ca. 11.00 a.m.
Mark : Location of research: Instructie bad
Kimswerderweg 43
8862 TR Harlingen

Research places
1 : changing room big
2 : changing room small
3 : changing room toilet
4 : shower
5 : platform at the front of swimming pool
6 : platform at the back of swimming pool

1. Results:

Our ref.		1	2	3	4	5	6
Enterobacteriaceae	Kve/25 cm ² :	3	<1	<1	<1	<1	<1
Yeasts	Kve/25 cm ² :	25	3	12	2	4	<1
Fungi	Kve/25 cm ² :	7	5	4	<1	40	11
St. aureus	Kve/25 cm ² :	3	1	<1	<1	<1	<1
Conclusion*		good	good	good	good	moderate	moderate

*) The conclusion is based on the average evaluation for the different micro-organisms (so micro-organisms can individually be evaluated better or worse).

2. Conclusion:

The research took place at ca. 11.00 a.m. on monday 18 januari 1999. The last cleaning took place on Wednesday 13th according to information of Mr. Faber.
This period between cleaning and research is very substantial. A frequency of cleaning of once a day is usual for the floors. Despite this low frequency of cleaning are the results of the research positive.

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Amersfoort, d.d. 30 september 1998

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Certificate of Analysis

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Our ref.:
391993-17.AO2/LPL

Date:
28 may 1999

Project number : 6428657
Sample : stamp samples
Packed in : Petri dishes
Received d.d. : 11 mei 1999 researched by : L. van Leengoed
Mark : Location swimming pool Kikkerfort Breukelen
Research 11 mei '99 ca. 7.00 a.m. before opening.
1 : central shower
2: platform halfway through deep pool
3: men's changing room
4: way from changing rooms to shower
5: floor near sauna cabin
6: men's toilet
7: bridge near shallow pool
8: women's changing room

Location swimming pool Kikkerfort Breukelen
Research 11 mei '99 ca. 22.00 p.m.p after closing.
11: central shower
12: way from changing rooms to shower
13: men's changing room
14: platform halfway through deep pool
15: floor near sauna cabin
16: men's toilet
17: bridge near shallow pool
18: women's changing room
19: platform near stairs across sauna



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1. Introduction:

In order of the firm Shieer, the effects of the use of Bio-Clean as a cleaning product in a swimming pool have been researched. This research has been done by determining the hygienic situation of floor surfaces on a research location where the product Bio-Clean is being used.

On the research location, Bio-Clean is being used as a general cleaning product for the floors since 1 mei '99. A hygienic inspection of the floor surfaces has been done on 11 mei '99, as follows :

- The hygienic situation (after cleaning) has been determined before opening on the day of research ;
- On the same day after closing, the hygienic situation (before cleaning) has been measured again on comparable surfaces.

The purpose of the research is to determine to what extent the condition of the surfaces has been changed during the day of the research.

The firm Shieer indicates that the cleaning product Bio-Clean realizes some "aftereffect". If this is the case, it should be seen in the results of the research.

2. Results:

Sample research of floor surfaces has been done on may 11th at the research location Kikkerfort in Breukelen.

Cleaning usually takes place at this location in the evening after closing for the public. The product Bio-Clean is being used with a fixed concentration of 1 volume part on 225 volume parts of water.

Sample research has been done in the morning before opening for the public (ca. 7.00 a.m.) and in the evening after closing (ca. 22.00 a.m.). The number of visitors on this day was 640 persons.

Control of surfaces before opening for public (morning : "clean" situation:

Our ref.		1	2	3	4	5	6	7	8
Enterobacteriaceae	Kve/25 cm ² :	1	0	0	0	0	0	0	0
Yeasts	Kve/25 cm ² :	200	0	0	73	60	21	0	3
Fungi	Kve/25 cm ² :	3	7	2	1	100	2	3	6
St. aureus	Kve/25 cm ² :	0	0	0	0	0	0	0	0
Conclusion*		Good	Good	Good	Good	Moderate	Good	Good	Good



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Control of surfaces after closing / before cleaning

Onze ref.		11	12	13	14	15	16	17	18	19
Enterobacteriaceae	Kve/25 cm ² :	0	1	1	0	0	3	0	0	2
Gisten	Kve/25 cm ² :	300	100	37	1	4	111	19	174	6
Schimmels	Kve/25 cm ² :	5	5	7	3	35	1	18	38	4
St. aureus	Kve/25 cm ² :	0	0	2	0	0	0	0	0	0
Conclusie*		Good	Good	Good	Good	Good	Good	Good	Moderate	Good

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*) The conclusion is based on the average evaluation for the different micro-organisms (so micro-organisms can individually be evaluated better or worse); see further explanation under. § 4.

3 Conclusion

The sample research took place on Tuesday may 11th.

At the sample research in the morning, 7 out of 8 samples were evaluated as good and 1 sample as moderate. After a normal working day (number of visitors 640) another sample research took place and 8 out of 9 samples were evaluated as good and 1 sample as moderate.

No major difference has been found between the results of the sample research in the morning and in the evening. Not a single sample has been evaluated as bad after a normal working day.

4 Comments regarding the research method

Because disinfection products do not always work equally effective on all sorts of micro-organisms, it was recommended to involve different sorts of micro-organisms in this research. The following micro-organisms are useful:

- Enterobacteriaceae (group "Gram" negative bacteria);
- Staphylococcus aureus (belonging to the "Gram positive" bacteria);
- Fungi;
- Yeasts.

After a well done disinfection will all of the named organisms be killed in a sufficiently extent. Immediately after a disinfection it can be supposed that the evaluation is "good" for all categories of the micro-organisms.



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Evaluation contact prints

Micro organisme	Good	Moderate / insufficient	Bad	Very bad
	Kve/25cm ²			
Enterobacteriaceae	≤5	>5-≤10	>10-≤25	>25
Yeasts	≤15	>15-≤50	>50-≤150	>150
Fungi	≤15	>15-≤50	>50-≤150	>150
Saureus	≤2	>2-≤5	>5-≤10	>10

Some time after the disinfection, a certain extent of re-infection can be tolerated. Enterobacteriaceae will especially maintain themselves easily on wet surfaces, or even reproduce themselves. On dry surfaces on the other hand, Enterobacteriaceae will die because of dehydration. Fungi and Staphylococcus have a higher resistance against dehydration. Fungi and yeasts often have a higher resistance against the usual disinfection products.

If the classification at a research is evaluated as insufficient or bad, the following matters must be considered critically :

- The way of cleaning (if dirt remains behind after cleaning, a following disinfectant is problematic);
- The way of disinfection (dilution of the disinfection product and the influence time of the product);
- The frequency of cleaning and disinfection. The scheme in the supplement can be used as a guide for this frequency.

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Our ref.:
391758-1.AO2/LPL

Date:
14 juli 1999



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Project number : 6428657
Sample : Bioclean
Packed in : synthetic material
Received d.d. : 3 mei 1999 from: cliënt
Mark : 1: shieer Bioclean

Introduction:

A cleaning product called Bioclean is offered to evaluate its capacity to prevent lime sediment.

Performance:

The research is done by a semi practice experiment. For this purpose, ceramic floor tiles have been treated with the cleaning product in the recommended concentration. Subsequently, water with a specific hardness was put on the tiles. After drying up of the water the surface of the tiles was evaluated visually. All the time the drying up took place at a raised temperature (40°C).

Composition test solution (1):	Calcium	90	mg
	Bicarbonate	120	mg
	Acid degree	8,9	pH
	Conduction capacity	1560	µS/cm
	Demiwater	1000	ml

Composition cleaning product (2) : 0,5 ml product in 100 ml water

Test surfaces : tiles 20 cm x 20 cm.

Results:

Preliminary treatment:

Tiles with product: 5 ml. of the cleaning product (2) was put on the tile (the liquid diffuses over the whole surface like a thin film)
Tiles without product: 5 ml. of the test solution (1) was put on the tile (the liquid remains on a part of the surface).



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After treatment: 5 ml. of the test solution (1) was put daily on all tiles during 7 working days.

During the running time of the test, the surface of the tiles was visually evaluated daily. The results of this evaluation have been summarized in the chart below :

Sample description:		
Exposition period	Tile treatment	Tile with product
1 day	White rounded sediment	No visible change
2 days	White rounded sediment	No visible change
3 days	White rounded sediment	No visible change
4 days	White rounded sediment	No visible change
5 days	White rounded sediment	No visible change
6 days	White rounded sediment	No visible change
7 days	White rounded sediment	Residue sediment

Discussion:

When the test solution is put on a treated tile, the solution diffuses over almost the whole surface. It is expectable that this effect appears because of the lowering of the surface pressure by the product Bioclean.

Lime sediments mostly reveal themselves in border sediments at the border of water pools. Because of the strong diffusion of the water over the whole surface when Bioclean is applied, it is possible that dry residues of lime can not be observed well. After 7 days, a little residue of sediment appears on the treated tiles.

On the untreated tiles, visible sediment expands when exposition is increased. After 7 days, the visible sediment on the tiles with the product can easily be removed, (hardly no adhesion, parts can easily be removed). The sediment on the tiles without the product can be removed but is a little bit more attached, the difference with the treated tile is hard to quantificate.



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