LEJON KEM

Cleaning and disinfection of breathing masks in washing machines

• Unique process

- Easy to use
- Efficient
- Practical
- Safe
- Environmentally friendly



PRODUCTS

- FPG Wash Liquid detergent for cleaning of breathing masks
- FPG Washing bags Protective micro fiber bags for breathing masks

- Cleanox Surface disinfectant
- Washing program For cleaning and disinfection of breathing masks

Washing and disinfection process for breathing masks in washing machines

- Lejon Kemi Washing program for washing machines for cleaning and disinfection of breathing masks
- Detergent: FPG Wash. Dosage: 0.4 0.6 % depending on water hardness
- Washing temperature: 50 C
- Washing time: 40 minutes
- Disinfectant: Cleanox surface disinfectant. Dosage: 0.2 0,5 % calculated on the water volume and based on water hardness and cleaning temperature
- Disinfection temperature: approx. 40 45 C
- Disinfection time: 15 minutes
- Total number of rinsing cycles: 4
- Total washing time approx. 1 hour 30 minutes

Up to 12 – 14 masks can be washed together (14 – 18 kg washing machine)

FPG Washing bags



Breathing masks before and after machine washing





Analysis of polycyclic aromatic hydrocarbons (PAHs) on new unused breathing masks and before and after machine washing of contaminated breathing masks

Residues in **ng** (nanogram) of 16 analysed health hazardous and carcinogenic substances on new unused breathing masks, on sooty breathing masks and on washed breathing masks.

- 1 4 concern analysis values from samples taken from clean unused breathing masks.
- 5 8 concern analysis values from samples taken from **sooty breathing masks.**
- 9 12 concern analysis values from samples taken from washed breathing masks.

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0	1	2	3	4	5	6	7	8	9	10	11	12
naftalen	100	100	140	100	200	200	190	100	130	100	100	100
acenaftylen	10	10	30	10	65	50	35	15	20	10	10	10
acenaften	25	25	25	65	25	25	25	25	25	25	25	25
fluoren	85	85	85	85	85	85	85	85	85	85	85	85
fenantren	200	200	200	200	400	310	220	200	200	200	200	200
antracen	20	20	20	20	55	50	30	20	20	20	20	20
fluoranten	40	40	50	40	270	270	130	55	40	40	40	40
—— pyren	30	30	50	30	230	220	130	50	30	30	30	30
benso(a)antracen	10	10	10	10	100	130	50	30	10	10	10	10
	10	10	10	10	110	130	50	30	10	10	10	10
benso(b)fluoranten	10	10	10	10	120	110	50	30	10	10	10	10
benso(k)fluoranten	10	10	10	10	67	71	50	30	10	10	10	10
benso(a)pyren	10	10	10	10	140	120	50	30	10	10	10	10
dibenso(ah)antracen	10	10	10	4	30	25	50	30	10	10	10	10
benso(ghi)perylen	10	10	10	10	170	150	60	30	10	10	10	10
indeno(123cd)pyren	10	10	10	10	140	130	50	30	10	10	10	10

PAHs on used, contaminated breathing masks before and after cleaning

Total amounts in mg/dm² of analysed hazardous and carcinogenic PAH from samples taken from old, used, sooty (contaminated) breathing masks before and after cleaning. The total amount of PAHs decreased by at least 96.4 % and the amount of carcinogenic PAH was reduced by at least 92.3 %. The amounts of PAH were significantly higher on old, used breathing masks contaminated with soot compared to new breathing masks that were artificially contaminated in smoke filled training facility for fire fighters.



Reduction of microorganisms after machine washing with Cleanox

<u>Microorganism</u>	<u>Reduction</u>
Enterococcus Faecium	> 10 7
Escherichia Coli	> 10 7
Pseudomonas Aeruginosa	> 10 7
Staphylococcus Aureus	> 10 7
Aspergillus Niger	> 10 7
Candida Albicans	> 10 7
Mycobacterium Terrae	> 10 7

Tests performed with disinfectant in Cleanox in accordance with European Standards

- EN 1040
- EN 1276
- EN Fungicidal activity
- EN 14476
- EN WI 15
- EN 13697
- EN 1656
- EN 1657

Barrier washing machine

Example of barrier washing machine which can be programmed and used for cleaning and disinfection of breathing masks with Lejon Kemi products.



Environmentally friendly products

FPG Wash and Cleanox are based on environmentally friendly substances which are rapidly biodegradable. Surfactants are mainly based on renewable vegetable based raw materials. The active substance in Cleanox is registered on the BPD positive list and it is inherently biodegradable.

FPG Washing bags are made of a microfiber material which is approved by the Nordic Environmental Labeling Agency board (the Nordic Swan Ecolabel), class 2.



LEJON KEM

- Swedish company
- Specialists in surface- and cleaning chemistry
- Over 35 years experience of product development and production
- Over 12 years of experience of development of cleaning products and cleaning methods of breathing apparatus and other PPE used by fire brigades
- Production in Sweden in a factory with good capacity, high flexibility and quality monitoring systems that guarantees high quality and full traceability throughout the whole production line

www.lejonkemi.se

