Recommendations for Cleaning and Disinfecting the Dräger portable gas detector family Pac® and X-am® and the products X-pid® 8500/9000/9500, X-dock® series, X-act® 5000, accuro® and CMS

Dräger mobile gas detection products are used worldwide. They are easy to use and cover a wide range of different gases. They are designed robust and easy to clean. For standard purposes Dräger recommends cleaning with clear, cold water and sponge.

Content of this document are test results for disinfection of Dräger gas detector families Pac® and X-am® (X-am 2500, X-am 5100, X-am 5000, X-am 5600, X-am 7000, X-am 3500, X-am 8000), Dräger X-pid® 8500/9000/9500.
These results can also be applied to the following Dräger products: Dräger X-dock® series, Dräger accuro® (hand pump for Dräger-Tubes®) Dräger X-act® 5000 (automatic pump for Dräger-Tubes®) and Dräger CMS. For these products, the statements on surface disinfection apply.
These products do not contain gas sensors.

Background

The need for disinfection may raises in the daily operation from different reasons and applications:

- Disinfection of devices of the Pac family (carbon monoxide) in rescue service operations, as all equipment is typically disinfected in the rescue service.
- Disinfection of (personal) gas measuring devices during a flu epidemic (influenza)
- Disinfection for diseases caused by bacteria or viruses
- Disinfection of gas detection devices before maintenance
- Disinfection of multi-gas detectors, due to contamination with biological substances, e.g. sewer systems or wastewater treatment plant

In general: It is to determine that disinfectants have influence on the water tightness of the sensor membranes of gas detectors and possibly on the sensors themselves.

By the frequent and heavy use and in high dosage of disinfecting and/or cleaning agents, the Ingress Protection (IP) membranes (sensor) will lose their property of water impermeability and as a result - the IP 68 (Pac family) or rather IP 67 (X-am family) rating of the gas detectors will be gone. Hence, the sensors or the device itself may be damaged. Detergents and disinfectants can also damage selected sensors or influence the measurement signal.

Due to inquiries from customers, disinfection tests were carried out at Dräger with the mentioned devices.

Results of disinfections tests

Preconditions of disinfection of gas detectors:

1.
For quick disinfection with a disinfection wipe, the device must be switched off. If the user has previously cleaned/disinfected his hands, he should first wait some time to allow the agents used to evaporate (> 10 min).

2.
Observe the warning and application instructions supplied with the disinfectant wipe, especially the comments for the residence time against viruses/bacteria.

3.
It is recommended that the disinfection is carried out under an extractor hood if the work takes place indoors.

4.
After the application with the disinfectant wipe, some sensors (due to the ingredients of the wipe) can display a signal, especially CatEx sensors and Organic Vapor (OV) sensors.

5.
Before using the devices again, plan a sufficient decay time (> 10 min). As soon as the devices are switched on in fresh air and the devices show the normal values for fresh air, the effect of the disinfectant wipe is gone. (O2: 20.9 % by vol., other sensors „0“, exceptions: CO2 and O3).

6.
We recommend, proceed the disinfection before charging (X-am family, X-act 5000). Use the charging process to recover the sensors. After the charging time, the normal procedure of e.g. bump testing and /or calibration can be performed. The information in the operating instructions on regular maintenance must be observed.

7.
Chemical contaminants can be washed up with cold water. A sponge can be used if necessary. Dry the device with e.g. a towel.

8.
Rough cleaning implements (brushes, etc.), cleaning agents and solvents can destroy the dust and water filter (membranes).

9.
Examine the instrument after cleaning for mechanical damage and damage caused by chemicals. Exchange components if necessary (e.g. front housing).

Disinfectant wipes:

INCIDIN™ Alcohol Wipe (manufacturer ECOLAB*)

Dräger part numbers:
- 3706155: Incidin Wipes 600 pieces - DE, AT, CH, GB, IE
- 3706156: Incidin Wipes 300 pieces - DE, AT, CH, GB, IE

Active substance(s):
Propane-2-ol, CAS No. 67-63-0 (35 % concentration)
Propane-1-ol, CAS No. 71-23-8 (25 % concentration)

Suma™ Alcohol Wipe (manufacturer: DIVERSEY)

- Dräger part numbers: 3706284, 3706285, 3706286, 3706287, 3706288, 3706289 (different package sizes)

Cleaning pads: Allegro alcohol-free (for US market only), from manufacturer Allegro® Industries

Dräger part number: 40 53 845: cleaning pads (100 pcs.)

Active substance(s):
Benzalkonium Chloride, CAS No. 8001-54-5

Not all disinfectants mentioned are available in all countries of the world. Dräger continuously checks the extension of this recommendation with further disinfection wipes.
Please contact Dräger for questions.

Summary:

Due to internal tests, **20 times wipe disinfection** with INCIDIN™ or Suma™ Alcohol Wipe or rather Allegro pads can be classified as safe for the Dräger portable gas detectors. Test results with more wipe disinfections are not available, but further application of the procedure is possible. Damage to the housing and membranes is not to be expected, but prefilters of individual sensors (e.g. XXS CO LC, XXS OV(-A), XXS H2) may become saturated with alcohol. The readiness for use of the unit must be checked with a bump test before use (see instructions for use). If sensors are affected after continuous use of the method, the sensors must be replaced.

Notes on UV disinfection:

Mobile gas detectors from Dräger were tested for the use of UV-C disinfection: A disinfection system from Sterilsystems (Austria) was used: DS 410. After 100 disinfections with a duration of 10 min each, no functional or mechanical influence of the tested gas detectors were detected. After 100 disinfections, Dräger recommends replacing the front housing. Please observe the instructions for use of the disinfection device. Please also note that cleaning does not take place in the unit, but disinfection does. Cleaning must be carried out in an upfront process step. The efficiency of the disinfection has not been investigated by Dräger, shadowing during disinfection must be considered. If necessary, the unit must be inserted in two different positions. In general: A permanent application of UV-C disinfection (above the tested scope) can have unknown effects on the device and especially on the housing material.

* The listed products from Ecolab may also be available in selected other countries. For requests please contact the local Ecolab office directly.

CORPORATE HEADQUARTERS
Drägerwerk AG & Co. KGaA
Moislinger Allee 53–55
23560 Lübeck, Germany

www.draeger.com