PHARMACEUTICAL INDUSTRY

OUR PORTFOLIO

The pharmaceutical industry is pushing the bounds of science. Whether through new drug developments or ground-breaking treatment methods, you help people stay healthier and stronger. Our mission is to support you in making these processes safe and protecting the employees involved.

D-8145-2018

Dräger. Technology for Life®

INNOVATIVE DRUGS. SAFE PROCESSES. HEALTHY EMPLOYEES.

The challenge

As the pharmaceutical industry continues its move toward innovation, solutions will be needed to ensure a safe approach to the manufacturing of drugs.

As the pharmaceutical industry continues to expand the supply of medical products across globalized and competitive markets, the risk of biological contamination in the production process is growing, too. Meanwhile, there is an increasing pressure to ensure that products are free from contamination of any kind. Failure to maintain good manufacturing practices (GMP) has proven to have devastating consequences on business performance, product processes and poses risks to human health. The most effective way for pharmaceutical companies to keep that risk under control is to invest in safety processes. Whether a company focuses on basic research, drug development, and bulk production, or only on a specific step of the supply chain, a safe production process ensures for the health of employees and patients.

Safe manufacturing environments require effective cleaning, sterilization and disinfection programmes to prevent microbial contamination. Bio-decontamination plays an important role here: it involves the process of removing harmful contaminants, such as microorganisms, hazardous materials and chemicals, thus protecting against infectious diseases.

The risks

Whether it is the production of pharmaceuticals, sterilization or decontamination, every process has its own particular set of pitfalls when it comes to employee health and plant safety.

$Log\ 10^{-12}$

is the factor by which microorganisms have to be reduced to after sterilization.

Out of the three methods of biological inactivation, sterilization is the most critical. Protection against high temperatures and toxic substances is important for all three methods.

The overall goal of the risk analysis is to identify, evaluate and minimise manufacturing and process-specific risks. During drug formulation and operating processes like coating, granulating and drying, potentially harmful substances can emerge. Hazardous liquids, dangerous dusts and gases have the potential to affect the workers` health.

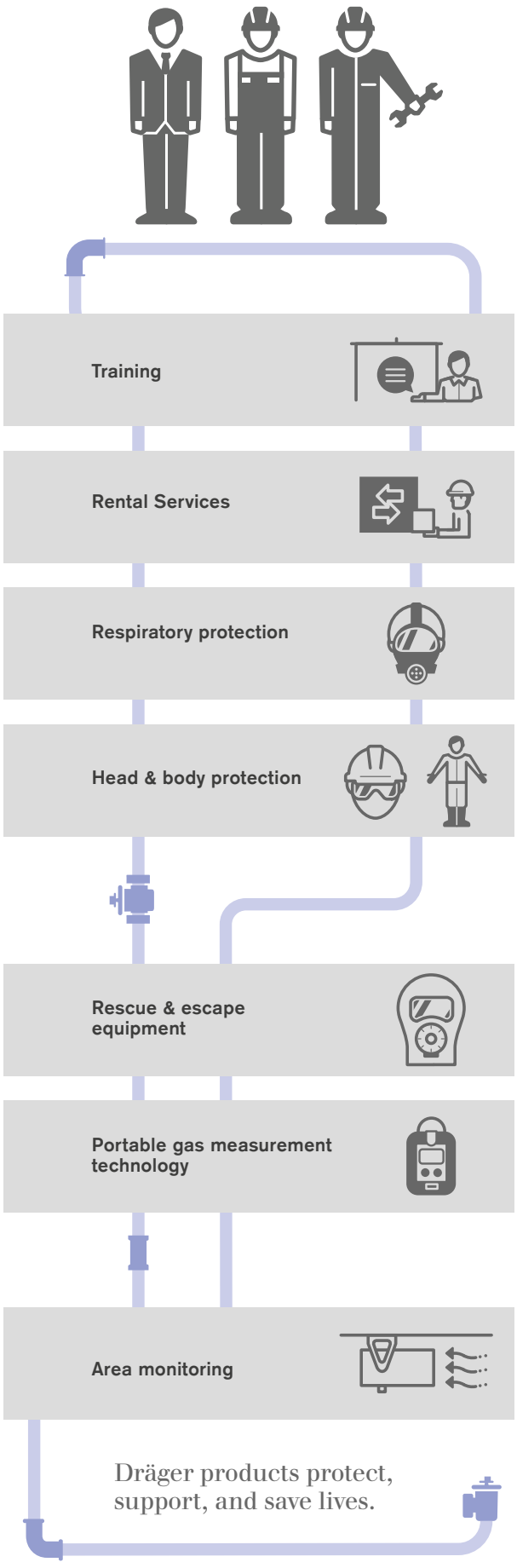
Nevertheless, producing state-of-the art drugs can be an extremely complex process involving numerous steps and hazardous substances. For example, potentially harmful chemicals such as hydrogen peroxide (H_2O_2), chlorine dioxide (ClO_2), ethylene oxide or formaldehyde are used in the process of bio-decontamination or stabilization.

The solution

Hazardous gases occur in different parts of manufacturing and development processes. Permanent monitoring of the potential dangers in plants or laboratories is crucial.

As an experienced safety manufacturer, we are able to develop plant-specific occupational safety concept. This includes all necessary safety products and facilitates your key tasks, particularly the identification, isolation and synthesis of chemical compounds. Furthermore, we support pre-clinical and clinical phases by providing safety related solutions for laboratories and pilot plants during drug development as well as the manufacturing process of active pharmaceutical ingredients. We also provide you with the right safety solutions during further processes such as packaging, quality testing, refilling and HAZMAT transport procedures. Continuous monitoring of chemical compounds such as H_2O_2, ClO_2, ethylene oxide or formaldehyde during the decontamination or sterilization phase complements our offer. This enables you to control the processes and prevent unexpected dangerous effects in laboratories and production sites.

Did you know that our H_2O_2 sensor is one of the best-performing devices for stationary hydrogen peroxide detection worldwide? In addition to our extensive product range, which includes protection and detection devices, we offer trainings and services such as calibration.



EFFECTIVE DECONTAMINATION IS NECESSARY,
BUT NOT AT THE EXPENSE OF PERSONNEL HEALTH.

Bio-decontamination

Vaporized hydrogen peroxide (VHP) has become the preferred substance for decontamination due to its bioactive effect of killing bacteria. But it is not without hazards. Combining our comprehensive safety procedures with VHP can prove to be an efficient decontamination technology.

VHP is generated by actively vaporizing an aqueous H_2O_2 solution and injecting it into a room. Achieving a high bio-decontamination rate of microorganisms requires a defined high concentration and exposure time. During fumigation, it is mandatory to protect staff outside the room or facility from accidental contact with H_2O_2 vapor. At the end of a sterilization cycle, the room or volume must be rinsed with fresh air. An air analysis is necessary before staff are permitted to enter the room safely or bring in new, sensitive material for a production stage. At the end of this cycle, the concentration of H_2O_2 must be reduced through ventilation to non-hazardous levels, usually less than 1 ppm.

We offer the appropriate fixed and portable detection solutions.

Gas detection devices and personal protective equipment protect workers in the pharmaceutical industry from harmful concentrations of hazardous substances.

Stationary gas detection systems

Dräger Polytron® 7000

The Dräger Polytron® 7000 is a stationary gas detector that can satisfy all the requirements of toxic and oxygen gas measurement applications on a single platform. It meets industry-standard requirements as well as the high specification requirements of customized solutions.

DrägerSensor® H_2O_2

The DrägerSensor® LC for low, and DrägerSensor® HC for high H_2O_2 concentrations are electrochemical diffusion sensors for stationary Dräger transmitters that permanently monitor the concentration of hydrogen peroxide in ambient air. The sensors measure H_2O_2 vapor as a volume concentration (ppm).

H_2O_2 Sensor Calibration Service

Our sensors must be calibrated every year. They can be removed from the transmitter and sent to a Dräger Service station for recalibration. Sensors are supplied with a calibration certificate, which documents the measurement values before and after calibration.

ST-2448-2003

D-10219-2011


ST-18857-2007

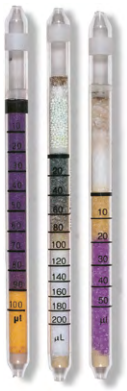
Portable gas detection and personal protective equipment

Dräger Tubes

Dräger Tubes are a portable way of measuring H_2O_2 in a short time. They have proven to be a very cost-effective and reliable method for the spot measurement of gases. The Dräger Tube H_2O_2 for low concentrations is a pre-calibrated tube for a one-time spot check.

Dräger X-plore® 6300

The Dräger X-plore® 6300 single-filter full-face mask is useful in areas with high hazardous concentrations of hydrogen peroxide. With a double-layer face seal and triple sealing edges, it provides a secure and comfortable seal for every type of face.


2-729-92


ST-7497-2005

A RELIABLE GAS DETECTION SYSTEM OFFERS A HIGH SAFETY LEVEL FOR EMPLOYEES AND PLANTS AT PRODUCTION.

Plant Safety Operations

Pharmaceutical plants use a variety of hazardous gases in their production processes. The potential risks are high for hazardous conditions. These substances must be continuously monitored to protect personnel and facilities from accidental releases or leakage.

There are two important reasons to use gas detection systems in a pharmaceutical plant: First, to protect the health of workers and the environment, and second, to monitor gas levels in the production process. This can be done, for instance, through the installation of stationary gas detection systems to monitor potentially weak spots. Additional support in planning, maintenance and training is necessary. Potential hazards to your plant include: the concentration of flammable gas or vapor above the lower explosive limit (LEL), toxic liquids and gases that contaminate breathing air, oxygen deficiency, and hydrocarbon fires. Further risks worth considering are: possible explosions (e.g. caused by sparks), or the risk of serious skin or organ damage due to toxic gases, vapors or liquids.

When you need gas detection systems for both personal protection and plant safety.

Stationary gas detection – Ex and tox transmitters

Dräger PIR 7000

The Dräger PIR 7000 is an explosion-proof, optical infrared gas detector for continuously monitoring flammable gases and vapors. With its SS 316L stainless steel enclosure and drift-free optics, this detector is built to withstand the harshest industrial environments.

Dräger PIR 7200

Carbon dioxide (CO_2) is the most common gas for supercritical fluid extraction in the pharmaceutical industry. The Dräger PIR 7200 is an explosion-proof point infrared gas detector for continuous monitoring of CO_2 The infrared-optical transmitter offers drift-free optics, longer service intervals and avoids false alarms. The device is SIL2-certified.

Dräger PointGard® 2100

The Dräger PointGard 2000 series is a self-contained gas detection system for the continuous area monitoring of toxic or flammable gases in ambient air. PointGard 2000's rugged, water-resistant housing comes complete with a horn and strobes, a built-in power supply, and a reliable DrägerSensor®.

ST-11665-2007

ST-11660-2007

D-7350-2016

Stationary gas detection – Flame detectors and controllers

Dräger Flame 5000

The early fire warning system, Dräger Flame 5000, is a demanding explosion-proof, color imaging based flame detector. Each detector operates standalone and incorporates, within a single unit, an integrated CCTV system; digital signal processing and software algorithms to process live video image and interpret flame characteristics.

Dräger Flame 2500 (IR3)

The Dräger Flame 2500 combines exceptional reliability with tough design and easy handling. Its multi-spectrum setup is based on three IR bands (IR3) and detects fuel and gas fires at long distances. Its high degree of operational flexibility and compatibility with other systems makes it ideal for a large number of applications in the pharmaceutical industry.

Dräger REGARD® 3900

The Dräger REGARD® 3900 is a stand-alone, self-contained control system for the detection of toxic gases, oxygen and ex hazards. The control system is fully configurable between 1 to 16 channels, depending upon the type and quantity of input/output boards installed.

D-49077-2012

D-5907-2016

D-27777-2009

EFFECTIVE HAZMAT HANDLING IS A MATTER OF SUITABLE TRAINING AND RELIABLE PROTECTIVE EQUIPMENT – FOR YOUR STAFF AND PLANT.

HAZMAT handling

Your business is HAZMAT handling – and we support you efficiently. Our business is your safety – from gas monitoring and protection equipment to tailored safety solutions.

During drug formulation and operating processes, such as coating, granulating and drying or refilling and loading operations, covers and lids are opened to connect plug-in couplings, hoses or containers. While opening, workers can be exposed for a short period of time to an increased level of contaminants due to escaping substances. The hazardous materials occur in the form of vapors, liquids and particles. In addition, there might be a potential explosion hazard. Toxic liquids and gases such as isopropanol, ethanol, acetone, butadiene and ethylene or particles (e.g. dust and combustible flyings) can enter the human organism via the respiratory tract or through the skin. The plant operator is obliged to carry out risk assessments for all work stations where there is a potential danger due to hazardous substances, and to introduce protective measures where necessary. Reliable portable gas detection devices and personal protective equipment help you to maintain workplace threshold values and avoid contact with harmful substances during an effective HAZMAT handling.

Thanks to innovative features, wearers of our comfortable respiratory protection devices and protection suits can enjoy more operating convenience, safety and flexibility.

Portable gas detection

Dräger Pac® 8000 O_2 & CO

The mobile Dräger Pac® 8000 O_2 & CO single-gas measuring device is easy to use and delivers fast and trustworthy results due to the latest technology. The device is very robust with clear warning signs as well as a language-free display. Unique offer: optional 5-year warranty of the CO and O_2 versions.

Dräger X-am® 2500

The Dräger X-am® 2500 was specially developed for use as personal protection. This 1-to-4 gas detector reliably identifies combustible gases and vapors, as well as O_2, CO, NO_2, SO_2 and H_2S. Accurate and durable sensors provide a high degree of safety with extremely low operating costs.

Dräger X-zone® 5500

Whether you work in a wide area or in confined spaces, gas leaks may occur. With the portable X-zone® 5500, in combination with the X-am® 5000, 5100 or 5600 gas detection instruments, you can monitor up to six gases at any time. The simultaneous control of diverse work areas is possible, because up to 25 Dräger X-zones can be connected in a wireless fence line.

D-4997-2017

D-59024-2012


VX-473708

Personal protective equipment

Dräger X-plore® 8000

The Dräger X-plore® 8000, a powered Air-Purifying Respirator (PAPR), offers a new level of intuitive handling. It comes with intelligent electronics that provide the highest degree of safety, so your workers can focus on the task at hand.


D-118996-2013

EVERY SECOND COUNTS IN AN EMERGENCY SITUATION.

RELIABLE ESCAPE DEVICES SAVE LIVES.

Emergency escape and rescue

Whether during production processes or decontamination and sterilization work, a high concentration of the applied gases can be hazardous or even fatal. In the event of an alarm, employees must first of all ensure their own safety.

Life-threatening situations can arise at practically every workplace during drug development, production processes, packaging, quality testing, refilling, HAZMAT transport and bio-decontamination. Always keeping escape equipment within reach helps the workforce get themselves to safety as soon as possible. The better the staff are prepared for these types of emergencies, the better their reaction times in a real emergency is. And also, important to consider: if there are high levels of, for example hydrogen peroxide or lack of oxygen, saving a life can be a matter of seconds. In order to save the people, the rescue personnel need reliable equipment as well. We provide you with training, escape and rescue strategies, risk management advice and protective equipment.

Personal protective equipment and respiratory protection

Dräger PARAT® 4290 NIOSH

The combined fire and industrial escape hood Dräger PARAT® 4290 was developed with users, placing the focus on the fastest possible escape. Optimized operation and wearing comfort, a robust housing and a NIOSH tested ABEK CO P3 filter ensure protection from toxic industrial and fire-related gases, vapors and particles for at least 15 minutes.

Dräger Saver CF

The Dräger Saver CF hood escape device provides the wearer with a constant air supply via overpressure. It prevents any penetration of hazardous substances. The breathing air supply activates automatically if the device bag is opened. The hood is also ideal for workers with beards or glasses.

A TIP: REGULAR MAINTENANCE AND EFFICIENT SERVICING WILL KEEP YOUR EQUIPMENT IN TOP CONDITION.

Maintenance and service

The regular maintenance of technical safety products increases their durability and ensures that they function. If a task cannot be corrected in-house, then the Dräger service technicians offer advice and practical solutions.

Precise measuring results depend on the careful calibration of mobile gas detection devices with a suitable test gas. Self-contained breathing apparatus must be cleaned, disinfected, and serviced after each use. Reusable chemical protection suits may only be reused if they have been subjected to proper cleaning, disinfection and testing processes. For all of these processes, Dräger provides the necessary accessories, training, and supporting know-how.

Dräger and Dräger Channel Partner Services – more than you expect

Product Service

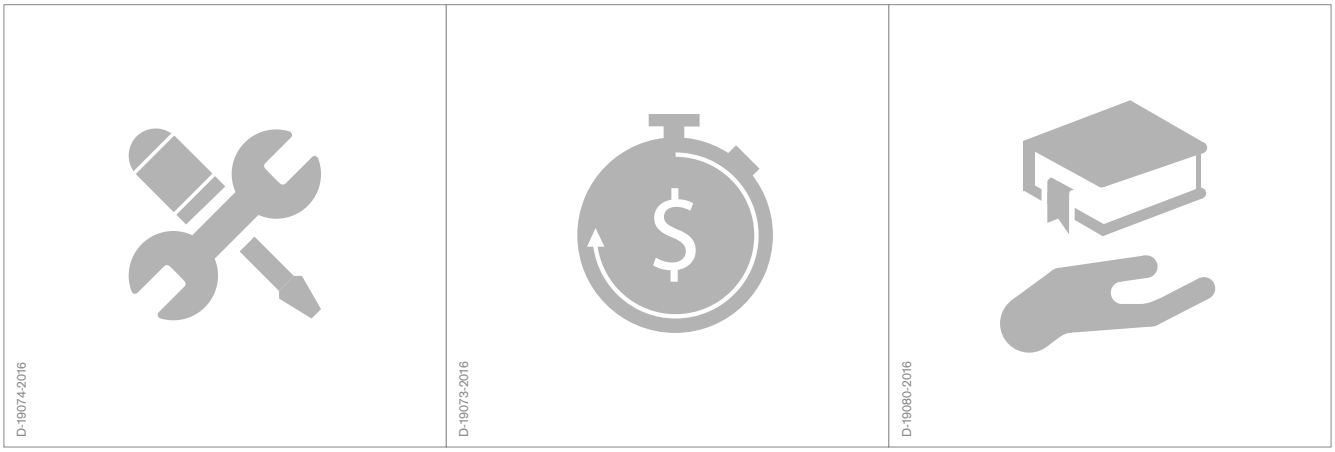
Product service solutions support you with a range of service packages – in our shops or on site in your plant. Care, servicing and maintenance are key factors when it comes to safety. Preventive checks, service procedures and original replacement parts make your investment last longer.

Rental Service

From bridging a temporary shortage of equipment to procuring special equipment for applications involving specific requirements: Rental service solutions with a broad range of rental equipment is an economical alternative to purchasing. Fast, straightforward and with a wide range of additional services available on request.

Training

The global Dräger Academy has imparted well-founded and practical knowledge for over 40 years. With over 110 authorized trainers worldwide and more than 600 available topics, we conduct more than 2,400 training sessions per year. We equip your employees with the knowledge required for real-life situations.



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CORPORATE HEADQUARTERS
Drägerwerk AG & Co. KGaA
Moislinger Allee 53–55
23558 Lübeck, Germany

www.draeger.com

Locate your Regional Sales Representative at:
www.draeger.com/contact

USA
Draeger, Inc.
7256 S. Sam Houston Parkway W., Suite 100
Houston, TX 77085
1 800 4DRAGER
(1 800 437 2437)

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