No. 22 Issue 02 | September 2017

MESSER
Gases for Life

Gases for Life

The industrial gases magazine

COVER STORY

Putting out fires, preventing fires

PRACTICAL FOCUS

Against solder loss and oxidation

USING GASES

Filling the void

NEWS

Oxygen for more efficient casting

Dear Readers,

Midsummer is the time of year when we get regular reports about extensive forest fires. Italy, Portugal and the South of France have been hit particularly hard this year. On the other side of the Atlantic, major fires have been raging in the west of Canada and the USA.

The awful images transmitted from London in June are all too fresh in our memory: so many people perished in the Grenfell Tower fire.

I would like to take this opportunity to express my respect for firefighters and auxiliary staff. I am deeply impressed by these people, who risk their own lives to save others. Their role in, and contribution to, our society cannot be overestimated.

The work of fire brigades is also the subject of our cover story. In particular, it looks at the role that our Gases for Life can play in preventing and extinguishing fires and saving lives.

In the knowledge that we can always rely on the professionalism of our emergency services, I sincerely hope that you will never need them.

Best wishes

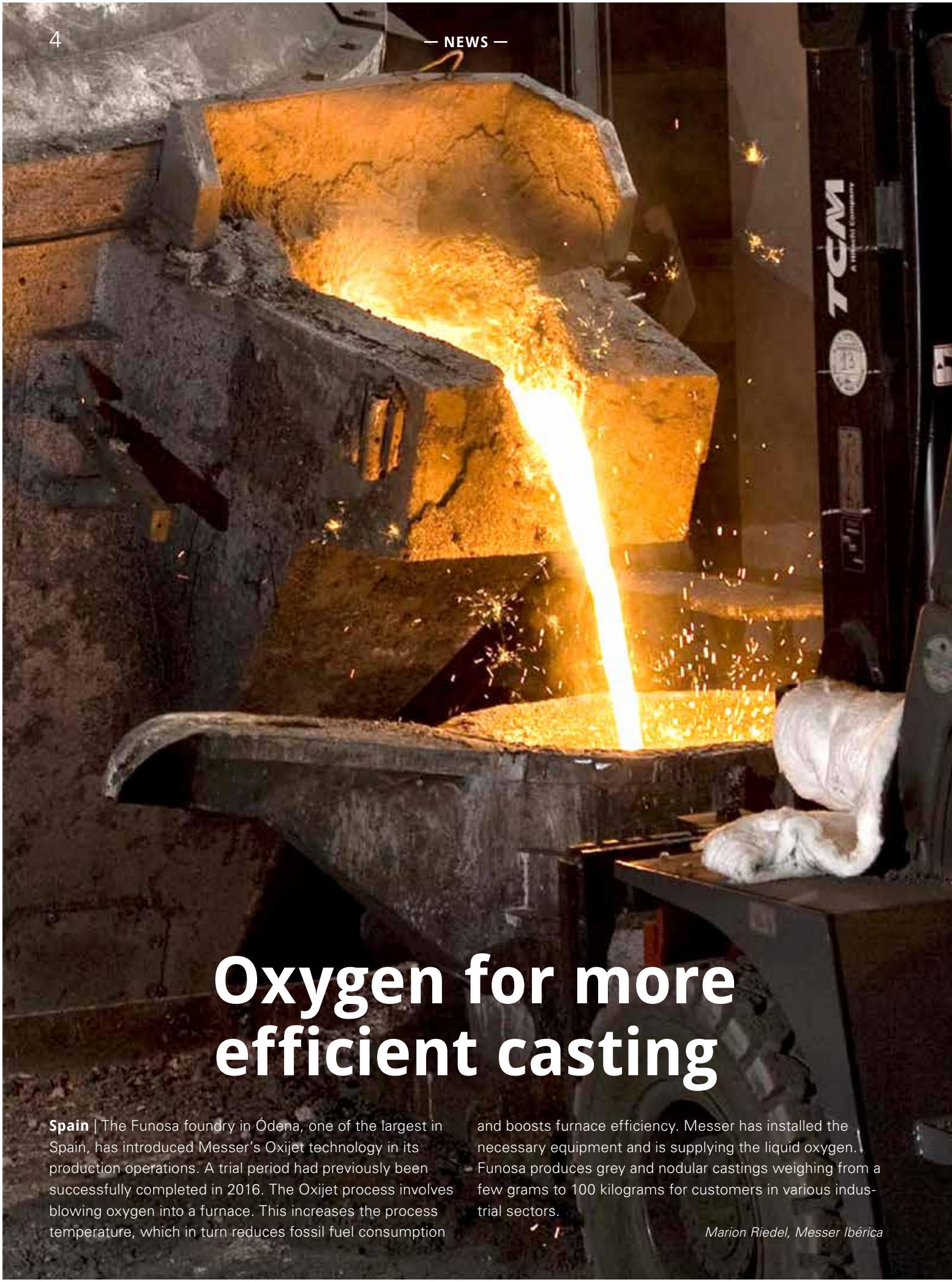
Stefan Messer
CEO and owner of Messer

The cover photo shows
In addition to being Editor-in-Chief of Gases for Life, Angela Bockstegers also serves as Deputy Fire Chief of the voluntary fire brigade in Alpen, a municipality in North Rhine-Westphalia, Germany.

Collecting "Gases for Life"
For long-term storage of our magazine, request the free "Gases for Life" slipcase: angela.bockstegers@messergroup.com

"Gases for Life" is printed three times a year in German, English, Hungarian, Slovakian, Spanish and Czech. Go to www.messergroup.com for comprehensive information about "Gases for Life".

Good for you and the environment "Gases for Life" is printed on 100% recycled paper. We would kindly ask you to dispose of any magazines that you have finished reading as waste paper. If you want to stop reading "Gases for Life" please cancel your subscription rather than simply throwing the magazines away. We will gladly send you additional copies and are always happy to get new readers. In both cases, all that is required is a quick e-mail to angela.bockstegers@messergroup.com.



Oxygen for more efficient casting

Spain | The Funosa foundry in Ódena, one of the largest in Spain, has introduced Messer's Oxijet technology in its production operations. A trial period had previously been successfully completed in 2016. The Oxijet process involves blowing oxygen into a furnace. This increases the process temperature, which in turn reduces fossil fuel consumption and boosts furnace efficiency. Messer has installed the necessary equipment and is supplying the liquid oxygen. Funosa produces grey and nodular castings weighing from a few grams to 100 kilograms for customers in various industrial sectors.

Marion Riedel, Messer Ibérica

Cryogenic zinc deburring

Czech Republic | Last December, the Beneš a Lát foundry became the first company in the Czech Republic to use a cryogenic process to deburr zinc pressure die castings. Messer is supplying the foundry with the liquid nitrogen required for the process. The products are mainly intended for the automotive and electronics industries.

David Bek, Messer Technogas

Nitric oxide therapy

Germany I Messer has teamed up with SALVIA medical, a company specialising in the manufacture and servicing of respirators, to offer a service package for therapy involving the use of inhalative nitric oxide (NO) as a medicinal product. NO therapy is used in intensive care in connection with clinical ventilation. This involves the use of special metering and monitoring equipment.

Katrin Hohneck, Messer Group

Nitrogen averts risk of explosion at ethylene plant

Slovakia | Messer supplied oil company Slovnaft with nitrogen last autumn while the latter was carrying out maintenance work on its ethylene plant at the Bratislava refinery. Considerable quantities of the gas were fed in during shutdown and recommissioning to eliminate any risk of explosion. The job had to be done quickly too: 640,100 cubic metres were required in the space of five days for the shutdown while almost 1.5 million cubic metres were needed in twelve days for the start-up. Hourly consumption was up to 6,000 cubic metres. The Messer tankers drove up at two-and-a-half-hour intervals to ensure an uninterrupted supply of gas. In addition, joint venture Messer Slovnaft's million-litre-capacity nitrogen tank was used as a buffer. The nitrogen was delivered in a cryogenic liquid state and heated with an electric heating element at a temperature of 120 to 200 degrees Celsius to facilitate sufficiently rapid evaporation.

Michael Holy, Messer Tatragas

Two-fold nitrogen supply for household appliances

Peru | A household appliance manufacturer with worldwide operations, modernised its production of hobs and fridges last year, installing a new laser cutting machine in the process. Messer is supplying high-purity nitrogen in the form of Nitrocut for the machine's operation. The customer gets the gas as a liquid in dewars to ensure quick delivery and a space-saving solution. In addition, Messer is going to install a pressure tank for gaseous nitrogen at the customers site this year. The gas will be used for blanketing the foaming process preventing fires in flammable liquid storage tanks by controlling the formation of explosive vapour/air mixtures.

Juan Bedoya, Messer Gases del Peru

Sarah, the daughter of editor Marlen Schäfer, and her friend Lea like to relax by cooking – and by feasting afterwards.

— PRACTICAL FOCUS —

Against solder loss and oxidation

Modern electronics manufacturing involves the use of wave, reflow and selective soldering machines rather than working with soldering irons. Nitrogen helps to ensure the quality of the soldered connections and to reduce costs.

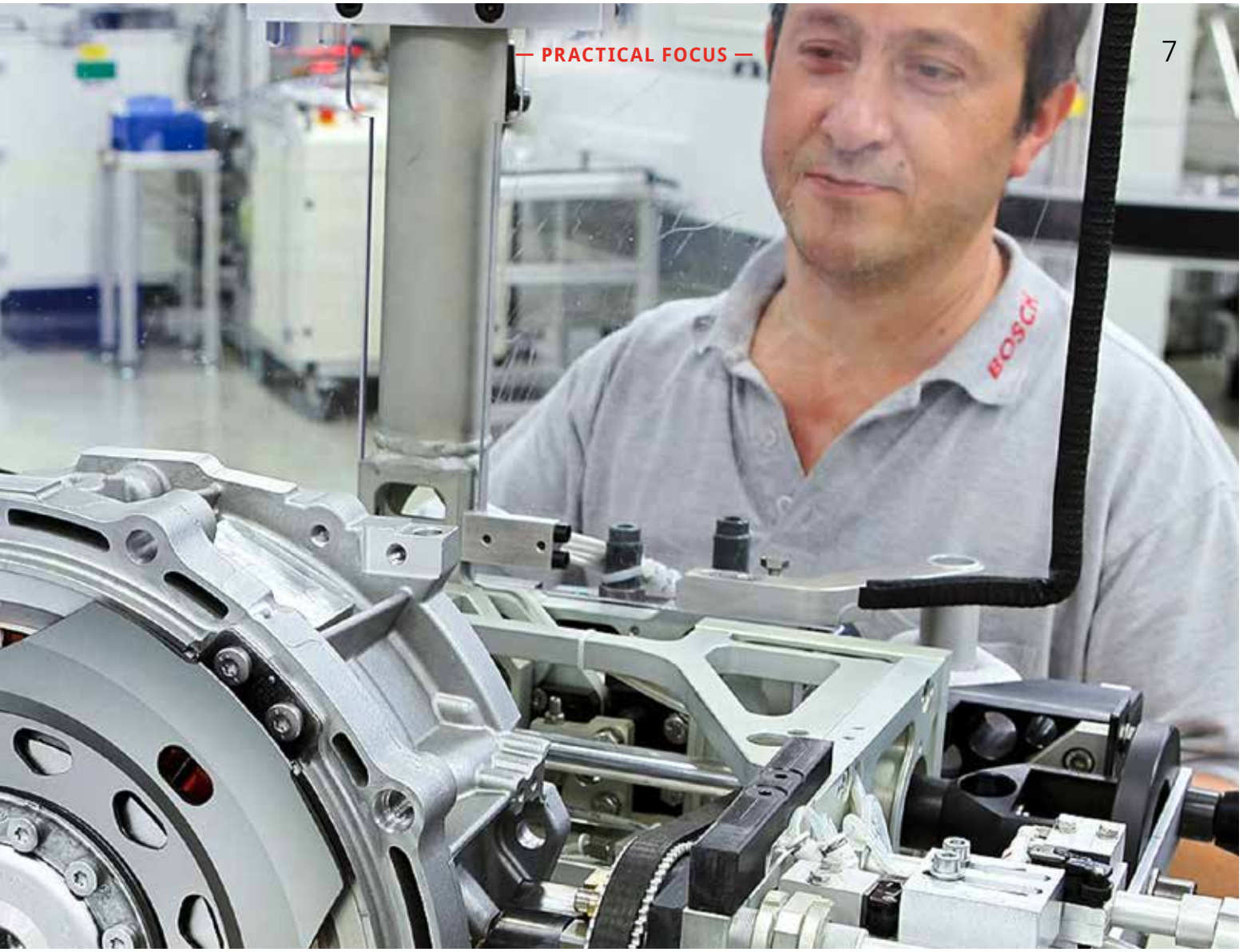
One can describe electronics as the very foundation of our technological civilisation. These days, smartphones and computers, cars and machinery, even kitchen and household appliances, all only work with electronic control signals. Printed circuit boards – produced by the million nowadays – are the hardware that sends these signals. "The connector pins on the smallest components in the fine pitch range are spaced less than 0.25 millimetres apart," says Jens Tauchmann, application expert for soldering technologies at Messer. "These extremely small dimensions require precisely defined, flawless soldered connections. A nitrogen atmosphere can play an important role in preventing soldering defects."

Components such as transformers, larger resistors and capacitors are mounted on the top of the circuit board; their contact wires are located in through-holes and are connected on the bottom using wave soldering. This involves the bottom of the board being passed over a wave of liquid solder, with the metal adhering to the contacts. "In a normal air atmosphere, the solder is constantly oxidised," Jens Tauchmann explains. "The oxides – the technical term for which is dross, or skimmings – need to be replaced by fresh solder material." With selective soldering, only part of the circuit board is exposed to the solder wave.

Circuit board with processors

The expert cites the example of a major Asian electronics manufacturer, where his colleagues carried out a thorough analysis of a wave soldering machine and worked out how to optimise it through the use of nitrogen. By converting to an inert atmosphere, solder consumption was reduced significantly, as was the amount of maintenance and reworking required – and consequently the costs. The expenditure on nitrogen therefore pays off in any case. What is more, the customer also achieves substantial cost savings.

With wave soldering, nitrogen is primarily a money saver, whereas in the reflow process (remelting soldering), it



Bosch in Hungary uses high-purity nitrogen from Messer in its soldering operations.

is the gas's quality improvement role that is to the fore.

Reflow is used for smaller, smart components such as microchips. Their fine contacts are soldered to the equally fine connections on the surface of the circuit board. In this process, the solder is applied to the board as a paste – a mixture of microscopically small metal spheres and flux. The components are pressed into this sticky mass by robots. The printed board is then heated in a reflow furnace until the metal content of the solder paste melts and the flux evaporates.

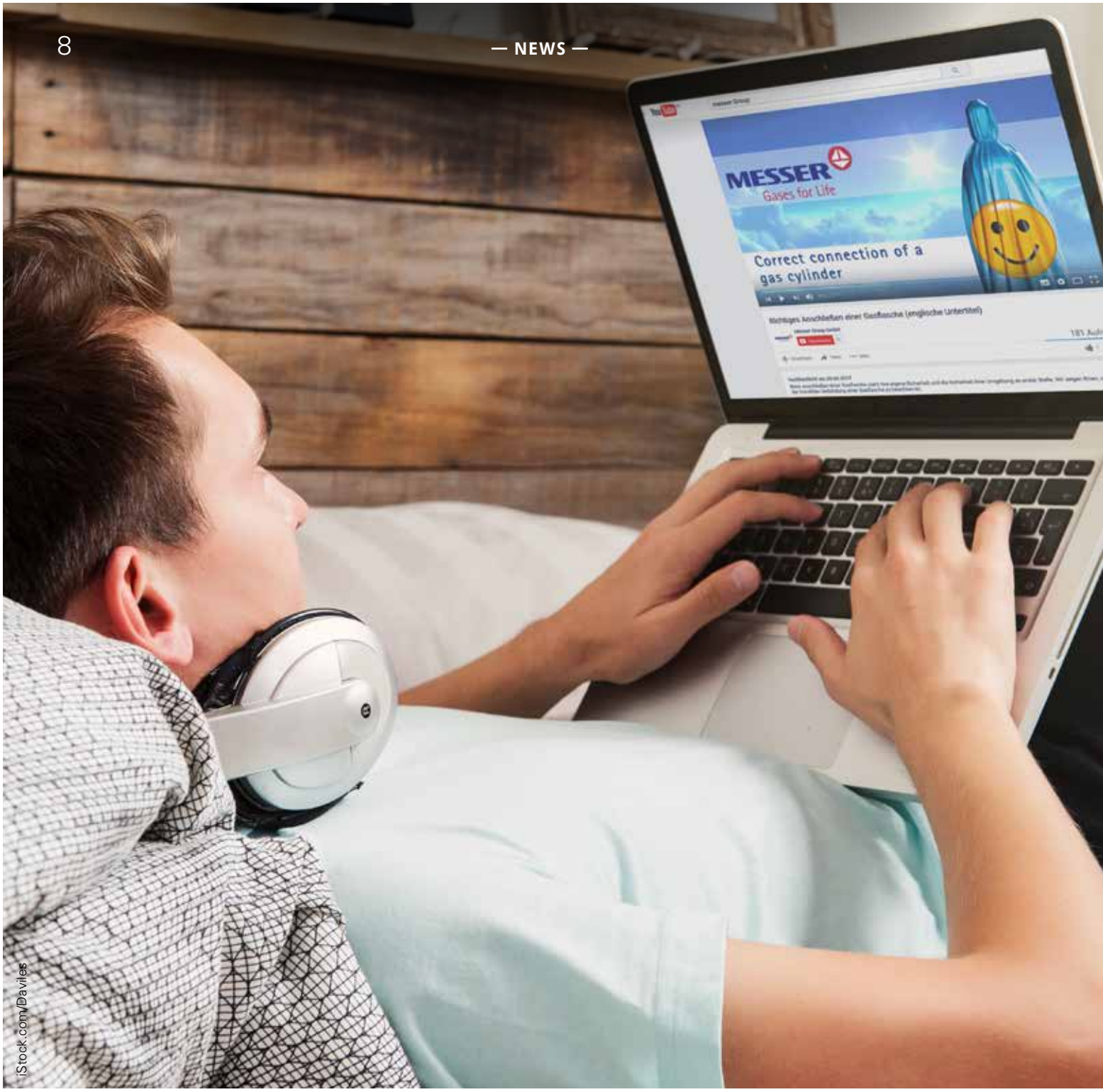
"Using nitrogen has a number of advantages that have a positive effect on the quality of the reflow solder joints," Jens Tauchmann explains. "The inert atmosphere prevents oxidation and dispenses with the need for aggressive acids, which would otherwise be required. In addition, nitrogen reduces the surface tension of the solder, improving its flow characteristics. This facilitates consistently high-quality solder joints and a very low defect rate: in the automotive industry, for example, this must not exceed 20 dpmo (defects per million opportunities). The higher the standards that the electronics assembly has to fulfil, the clearer the benefits of an inert atmosphere."

Editorial Team

Further information:
JENS TAUCHMANN
Manager Application Technology Industry
Messer Group GmbH
Phone: +49 2151 7811-228
jens.tauchmann@messergroup.com

Nitrogen for motor-vehicle electronics

The Robert Bosch Elektronika plant in the Hungarian town of Hatvan produces a substantial proportion of the electronic vehicle systems supplied by the Bosch Group to the car industry. The plant's various soldering processes involve the use of high-purity nitrogen (N 5.0) to improve process quality. Bosch also uses the gas to store moisture-sensitive components in a dry, inert nitrogen atmosphere.



iStock.com/Davilles

Safety information in paper form and online

More service and safety for users of cylinder gases: four new pocket guides on the safe handling and transportation of gases to fit in any shirt pocket. They are now also available as new online tutorial videos in German and English on Messer's YouTube channel. Watch and learn!
Youtube.com/messergroup

Diana Buss, Messer Group

ASCO is expanding

Africa and Europe | Messer subsidiary ASCO CARBON DIOXIDE has gained a service partner in South African company Kryo Africa for repair and maintenance work in Africa's English-speaking countries. Thanks to the firm's service network, the provision of customer support is now also guaranteed on the African continent. However, ASCO is also expanding in Europe: its new central warehouse in Bad Hönningen significantly reduces distances for the delivery of products and services in Germany. Customers benefit from closer proximity, a greater range of services and better availability. Technical support, a help desk, inspection and maintenance, on-site servicing, a spare parts service as well as consultancy and training on every aspect of ASCO's CO_2 portfolio are also being strengthened as part of the expansion.

Simone Hirt, ASCO CARBON DIOXIDE

ASCO's new central warehouse in Bad Hönningen

Multiple use of energy

Slovenia | Carbon dioxide from Messer is helping Celje hospital save energy. A combined heat and power trigeneration system is in operation there. In addition, the surplus heat generated in the summer months is used to operate an absorption refrigerating unit. This unit uses water as a coolant. The water is continuously enriched with carbon dioxide to keep its pH value in the desired range.

Izidor Gostinčar, Messer Slovenija

Sonja Merkel

Sonja Merkel began her Messer career in 2010 in accounting. In 2014, she followed her husband to Singapore. A year later, Messer opened an office in Singapore and she was back on board. She lives west of the city centre with her husband and two children.

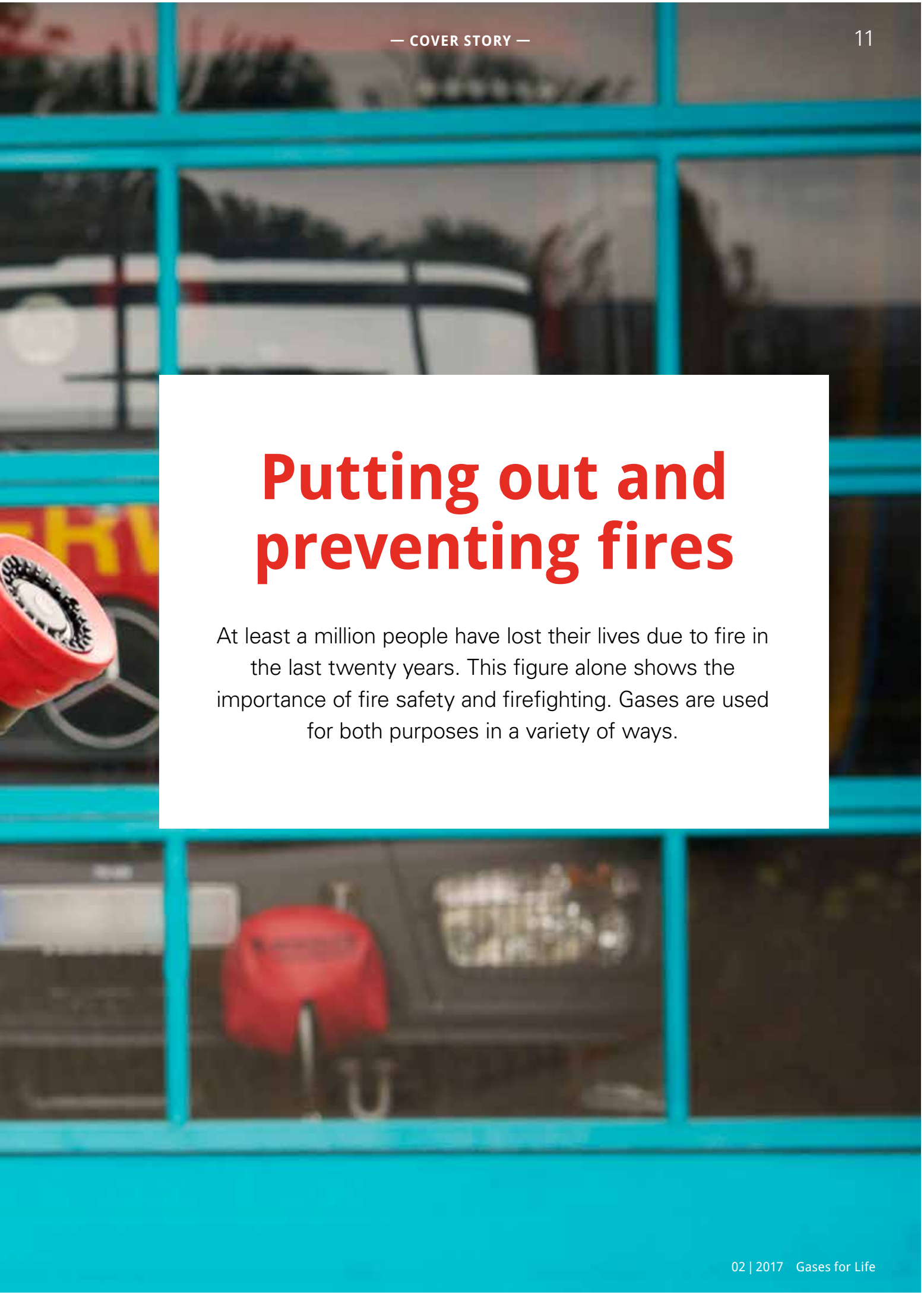
1. What has been your nicest "gases experience"?
The surprise call letting me know that Messer was opening an office in Singapore and wanted me on the team.

2. What would you say is a must-see for anyone visiting Singapore?
Marina Bay, of course, with its famous Marina Bay Sands hotel. But actually, as far as I'm concerned, what makes Singapore special is its diversity and cultural mix. The ultra-modern skyline, luxury everywhere (automatically flushing toilets!) – right next to rows of old Colonial-style houses, overflowing little shops and food courts where you can have a filling meal for three dollars.

3. What three things would you miss least?
Sweating in the tropical climate and then freezing in the air-conditioned buildings, the masses of seafood on offer – I'm simply not a fan of seafood – and the mosquitoes.

4. Which famous person would you like to spend an evening with?
Leonardo Di Caprio – I admire his work and choice of films.

5. What else would you like to learn or study?
Mandarin and parking are currently top of my list.



Putting out and preventing fires

At least a million people have lost their lives due to fire in the last twenty years. This figure alone shows the importance of fire safety and firefighting. Gases are used for both purposes in a variety of ways.

The operational requirements for members of the voluntary fire brigade are identical with those for professional firefighters – their training is therefore comparable. The Freiwillige Feuerwehr Alpen (FFA) is a voluntary fire service consisting of three units with a fleet of 14 vehicles that meet high technical standards. In the first half of 2017, the 103 members of the FFA were called out to 77 incidents.

The available data only shows part of the picture, for the statistics published by the International Association of Fire and Rescue Services (CTIF) are incomplete. In the more than two decades of its existence, the organisation, which was founded in 1995, has only had the figures from 27 to 57 countries at its disposal, with some fluctuations in terms of participation and comparability. It is safe to say that the million deaths it recorded only represent part of the actual total. The same applies to other figures provided in the CTIF tables. Nonetheless, they are very instructive: on average, there are 2.5 firefighting operations a year per population of 1,000; there are 1.9 fatalities per population of 100,000; only around half of all fires occur in buildings (as well as the "transport sector", which is not given a more detailed definition), but that is where 90 to 95 per cent of fatalities occur, rather than in forest or refuse fires. When buildings are on fire, the fire brigade is needed as a matter of urgency.

"On average, there are 2.5 firefighting operations a year per 1,000 population"

Versatile compressed air

In firefighting operations, cylinders with compressed air are part of the basic equipment, as Angela Bockstegers explains. In addition to being Editor-in-Chief of Gases for Life, she also serves as Deputy Fire Chief of the voluntary fire brigade in Alpen, a municipality on the Lower Rhine: "Nowadays, we use plasma cutters to clear away any metal obstacles such as girders, railings or partitions during an operation. They have replaced acetylene flame cutters in the inventory of most fire brigades." A plasma cutter separates

the structural elements with the aid of a plasma arc and compressed air. While the arc serves as an energy source, the compressed air comes out of the nozzle under high pressure and cuts through the metal.

Cylinders also supply the air for rescue air cushions, which offer people trapped on the upper floors of a building an escape route. Such cushions can be inflated in just 30 seconds thanks to the high pressure in the cylinders. Meanwhile, the firefighters who enter the burning building carry their own compressed air cylinders with pure breathing air on their backs. There is enough to last about half an hour, during which they can carry out their rescue work even if the building is filled with smoke and toxic fumes.

Warning devices and extinguishing gases

The firefighters carry gas detectors with them to detect respiratory poisons. They usually detect methane, which is the main component of natural gas, and carbon dioxide, hydrogen sulphide and carbon monoxide, as well as determining the oxygen content in the ambient air. "The detectors are checked every four months," says Angela Bockstegers. "Each check involves adjusting the measurement range with calibration gases. These high-purity gases therefore provide the reference values for the precise measurements that we rely on during an operation."

However, there are also gases that can be used directly to extinguish or prevent fires. Fire extinguishers filled with carbon dioxide (CO_2) are a particularly widespread example. Instead of an extinguishing powder or a foaming liquid, the typical red pressure cylinders contain this largely inert gas. It is heavier than air and displaces oxygen from the source of the blaze. The same effect can be achieved with the noble gas argon, which is completely inert but significantly more expensive. Extinguishing fires with gases has the enormous

advantage that there is no water damage. Consequently, they are often the extinguishing agent of choice when particularly sensitive or valuable goods are involved, such as museum or library storage facilities or server rooms. Some of these kinds of facilities also have permanently installed extinguishing systems based on the activation of gas nozzles rather than water sprinklers. In the event of fire, the nozzles release CO_2, nitrogen or an inert gas mixture into the rooms affected.

Flooding with nitrogen

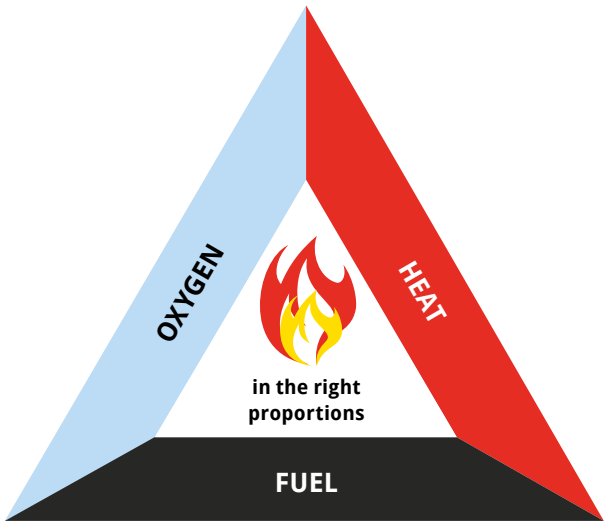
For inert gas to be effective in fighting bigger fires as well, it has to cover the source of the blaze for up to twenty minutes and keep the oxygen away. This may require large quantities of the gas. For enclosed spaces, the most commonly used solution is nitrogen, which is inexpensive since it is available in large quantities in ambient air. This gas is frequently used to fight fires in silos, where water – paradoxically – can literally be a fire hazard, for example, when grain, animal fodder or wood pellets are stored in concrete silos. In damp weather conditions, the dry material can draw water through the silo walls. The moisture triggers a decomposition process, generating heat that can lead to the contents of the silo catching fire. Using water as an extinguishing agent is out of the question in such cases, if only in order not to expose any neighbouring silos to the same danger. Instead, the silo concerned is flooded with nitrogen until the fire has been extinguished and the temperature has dropped to safe levels.

Of course, preventing fire is even better than extinguishing it. For this reason, silos with flammable contents are often provided with a protective atmosphere from the outset by feeding nitrogen into them. This does not even necessitate the complete displacement of air and oxygen. "The normal oxygen content of air is around 21 per cent," Angela Bockstegers explains. "Even at less than 17 per cent, some substances no longer burn. At under 13 per cent, practically any fire is impossible. For the human lung, an oxygen content of around 12 per cent is comparable to being high up in the mountains. Healthy people can temporarily cope with such an atmosphere without any problems."

Fire protection systems such as Messer's LowOx system take advantage of this fact. They provide a continuous supply of nitrogen into the spaces requiring protection, thereby lowering the air's oxygen content to below the critical value. The gas can be supplied in liquid tanks or generated on site, for example with a pressure swing adsorption unit. Valuable stocks or operationally vital computer systems can thus be reliably protected without restricting access in any way. "Gases make life easier and safer, not just for us firefighters," states Angela Bockstegers.

Editorial Team

The Fire Triangle



The fire triangle shows the four factors (oxygen, heat, fuel and the right proportions). If one of them is removed, there can be no fire. Extinguishing a fire with inert gases involves the removal of oxygen.

Further information:
DAVOR SPOLJARIC
Senior Vice President Application Technology, Messer Group GmbH
Phone: +49 2151 7811-441
davor.spoljaric@messergroup.com

A warning signal that saves

Interview with Thibault Fourlegnie, General Manager and Olivier Andrieu, Regional Sales Director EMEA, of Oldham S.A.S

What role does the calibration of gas detectors play?
O. Andrieu: It is only after calibration that we can make sure the measured value is the same as the actual value and warranty an accurate gas detection system.

What would happen if the calibration were not accurate?
T. Fourlegnie: Inaccurate calibration would lead to imprecise measurements, which in turn could prevent the alarm from being triggered and put people at risk.

Which gases do you use?
O. Andrieu: Our devices can detect more than 100 gases. Some of the gases we use the most are methane (CH_4), CO_2, hydrogen sulphide (H_2S), ammonia (NH3) and chlorine (Cl_2).

What do you expect from your gas supplier?
T. Fourlegnie: Besides being proactive and remaining compliant with standards, we expect it to seek continuous improvement in all areas. Messer provides us with high purity gases that meet our requirements. Moreover, we get comprehensive support from the commissioning stage to ensuring gas supply. Messer expertise in industrial gases, especially regarding safety, leak-tightness and purity, is well-known in our market.

Caroline Blauvac, Messer France

Oldham S.A.S.

With its headquarters in Arras, France, Oldham is one of the world's leading companies for fire protection and gas detection. 200 employees manufacture about 37,000 detectors, 9,000 controllers and 1,200 stand alone monitors type BM 25 each year. All this equipment is keeping people and premises safe in more than 90 countries.

Thibault Fourlegnie, General Manager, Natacha Dequéant, Head of Marketing Communication and Olivier Andrieu, Regional Sales Director EMEA.

Helium recycled

Careful use of resources pays environmental and financial dividends. The more comprehensive the approach, the greater the environmental benefit. At Messer, helium is handled in accordance with a rigorous principle of economy.

Based on what we know from science today, protons and neutrons combined to form the first atomic nuclei seconds after the Big Bang. Approximately a quarter of the total primordial mass thus turned into helium, the second most common element in the universe after hydrogen. However, only very small quantities of this element are present on earth. In addition, since the very light atoms of this noble gas diffuse into space from the atmosphere, its earthly reserves are dwindling inexorably.

Super coolant

At the same time, helium is indispensable. It only turns into a liquid at 4.7 Kelvin – about the equivalent of minus 269 degrees Celsius – and does not change to the solid state even at lower temperatures. Wherever extremely low temperatures are required in research and technology, helium is therefore the coolant of choice. It is usually obtained from natural gas, which contains greater or lesser amounts of it depending on the deposit. The process is energy-intensive – another reason, apart from the high price, to use the noble gas as carefully and sparingly as possible.

The zeppelin-shaped helium balloons at Messer's filling centres are symbols of this economy. For example, there is one such balloon floating under the hall roof at the Messer site of its Swiss subsidiary in Lenzburg. The balloon is used to collect all the gaseous helium that is obtained during filling and purification processes. Another important factor to bear in mind is that helium is stored in liquid form at minus 269 degrees Celsius in vacuum-insulated tanks. "These are so well insulated that just 0.5 to 1.5 per cent of the contents evaporate per day," production manager Walter Bossard explains. "We can use this amount directly for gaseous cylinder filling. In liquid form, we also use it to fill vacuum-insulated cryogenic tanks. Since the empty tank is naturally warmer than the cryogenic helium flowing into it, this process involves about 55 per cent of the liquid gas evaporating."

Vapour catcher

All of this helium vapour is captured and conducted into the helium balloon. There are also leftovers with the gaseous filling process: the empty helium cylinders still contain residual amounts of the noble gas. In order to ensure that the defined purity is complied with, these residues are removed from the cylinders prior to refilling and conveyed to the balloon as well. "We collect everything and do not let any helium escape into the atmosphere," Walter Bossard emphasises.

The collected gas thus comes from different sources, which means that it no longer complies with a defined purity level. For instance, it may contain minute quantities of air humidity. Therefore, if taken directly from the zeppelin, it is only used as balloon gas. For all other uses, it must first undergo a purification process. Subsequently readying the gas for filling again through compression involves the use of diaphragm compressors which prevent the gas from coming into contact with any potential impurities. "We are currently installing a refrigerating machine to cool our water-cooled compressors," says Bossard. "The waste heat from the cooling water is conducted into the heating system. This allows us to achieve yet another economic efficiency with environmental benefits."

Editorial Team

Sustainable improvement

Our strategic sustainability process is made clear by both our day-to-day actions and long-term projects. The main focus is on our values: a long-term approach, employee and customer orientation, safety and environmental protection as well as corporate social responsibility. In 2014, we introduced key performance indicators for relevant processes. These make our sustainability transparent. Detailed information is available in our Corporate Responsibility Report:
annualreport.messergroup.com

Safety:
Messer maintains some 7,500 facilities of its own at customer sites. These facilities underwent a total of 8,250 technical tests in 2016. In addition, we carried out 1,300 safety audits and provided 4,370 customers with safety training.

Environmental protection:
In 2016, we introduced new gas-based environmental protection technologies at approximately 190 customer sites. The specific carbon footprint of our own facilities increased slightly. This is due to an increase in the number of our own production facilities. The reduction in specific electrical energy consumption is the biggest factor influencing our CO_2 equivalent. In 2016, this energy coefficient decreased further according to plan.

Diana Buss, Messer Group

Filling the void

PET bottles are the ubiquitous drinking container of our time. Nitrogen plays a key role at various points in their production while carbon dioxide facilitates recycling of the material.

"A pot is useful not for its clay, but for its emptiness." These words were written by Lao-tzu, a Chinese sage, more than 2,000 years ago. He did not know at the time that, under the conditions prevailing on earth, about 80 per cent of this emptiness consists of nitrogen. Unfortunately, we will never know what he would have made of the fact that, as far as PET bottles are concerned, this empty substance is also indispensable for the walls of the container.

PET production

PET is the acronym for polyethylene terephthalate, a versatile type of plastic belonging to the polyester family. Nitrogen first comes into play when melting dimethyl terephthalate (DMT), a preliminary product: the gas protects the hot mass from atmospheric oxygen, for oxidation would render it useless. When the hot DMT and ethylene glycol combine to form PET, the gas is used to prevent explosions. Without nitrogen, the glycol would turn into an explosive vapour/air mixture. It is therefore also necessary to condense the surplus ethylene glycol under a nitrogen atmosphere and draw it off.

Polycondensation, the process by which the PET molecules combine under vacuum to form the desired giant molecules, is stopped by introducing nitrogen. The final stage of solidifying the PET mass also involves the use of a continuous nitrogen countercurrent.

From plastic to bottle

At the end of the production process, it is again advisable to keep atmospheric oxygen away from the PET. The PET granules can trigger dust explosions if exposed to air. They are therefore transported and stored in an inert nitrogen atmosphere.

The molten PET granules are used to injection-mould the preforms, which look like large test tubes. This process does not actually require inert gas. Nevertheless, some manufacturers use nitrogen from a pressure tank – as a pressure reserve in case the compressors fail to build up enough pressure for the injection moulding process. The final stage of bottle production takes place at the bottling plant in order to keep transport volumes down. The preform is placed securely in a metal mould, heated and then inflated to its final bottle size using compressed air.

Filling and recycling

Now the finished PET bottle is filled with a liquid. In the case of large and thin-walled bottles, a drop of food-grade liquid nitrogen is added at the end. The gas vaporises, displacing the considerably warmer air from the headspace of the container. As an inert gas, it thus protects fruit juices, for

example, against oxidation and loss of taste. Since the bottle cap is screwed on immediately after introduction of the drop, the nitrogen also generates sufficient pressure to stabilise the flexible PET material like a firm balloon. This is the only solution that allows thin-walled bottles to be stacked and transported on pallets.

Another important advantage of PET bottles is that they can be recycled. Used bottles can be turned back into PET granulate. This is washed thoroughly after crushing. The resulting alkaline process water is neutralised in an environmentally friendly way with carbon dioxide.

Editorial Team

iStock.com/karandaev

Further information:
DAVOR SPOLJARIC
Senior Vice President Application Technology, Messer Group GmbH
Phone: +49 2151 7811-441
davor.spoljaric@messergroup.com

Classic cars

Romania I The Oldtimer Studio in Moara Vlasiei started out as a workshop where friends would get together to revamp and repair their own classic cars. This shared enjoyment of working with beautiful historic vehicles led to the formation of a highly professional company which soon became well known beyond Romania's borders. The vintage car specialists use gases from Messer in their restoration work, including Ferroline C18, acetylene, oxygen, CO_2 and Argon 4.8. for cutting and welding.

Carmen Baragan, Messer Romania Gaz

Everything for sheet metal

Switzerland I Merki + Hitz AG in Siggenthal processes sheet metal using modern machinery. The firm has its own welding shop as well as an assembly department where, among other things, it makes complete housings and appliances from sheet metal. The second-generation family business run by Thomas Merki uses numerous manual welding processes, but also has spot and stud welding machines, various press brakes as well as laser and waterjet cutting machines. For cutting and welding, Messer supplies Merki + Hitz with welding argon and Ferroline C6 X1 in cylinders, as well as liquid nitrogen and oxygen from a tank.

Candid Eichenberger, Messer Schweiz

Precision welding at Merki + Hitz

Nitrogen protects pesticides

Hungary I Many liquid pesticides react with oxygen. In order to preclude this unwanted reaction, Farmmix uses nitrogen from Messer in the filling process for such pesticides. The agricultural wholesaler operates its own filling plants at several sites in Hungary. Injecting the gas ensures that atmospheric oxygen is displaced from the containers after filling. Once the full container has been sealed, the inert gas fills the headspace, thereby protecting both the contents and the plastic material against adverse chemical reactions. It also prevents pressure loss in the container, which would occur in the event of an oxygen reaction.

Mónika Zimányi-Csere, Messer Hungarogáz

“Successful guinea pig”

Interview with Álmos Sajgó (centre), who founded the Fehér Nyúl microbrewery in Budapest with Péter Meiszner and András Csepregi

What made you decide to get into the beer brewing business?
It started as a hobby in the kitchen. I then trained as a master brewer, and at the same we carried out market research – and we concluded that there was enough demand for specialist beer in Hungary. Finally, I teamed up with two partners to set up our brewery with an annual capacity of 180,000 litres.

How did you come up with the name?
Kisérleti Nyúl means laboratory rabbit – or guinea pig. That’s what we called one of our first beers, and it really was an experiment in the beginning. Then, at the Hungarian Craft Beer Competition 2015, we came first in the India Pale Ale category with this beer. We have since added other beers to our range, and in future the brewery will be called Fehér Nyúl, i.e. White Rabbit. We are launching four types of beer this year but want to add to our range continually later on. The aim is to produce beers not just from barley malt but from other grain varieties as well. We are also planning fruit beers and seasonal beers.

What makes your beer special?
What makes our beers stand out is their hop aroma, which gives them an intense flavour. This is the main quality which sets them apart from the beers produced by the big commercial breweries. Since the hop aroma diminishes with time, our beer should preferably be consumed while fresh. We use a wide range of high-quality raw materials, allowing us to create a variety of aromas and flavours.

You get carbon dioxide from Messer. What do you use it for?
We use it as a propellant to transfer the beer from one tank to another. The tanks to be filled are primed with CO_2, plus we use it for pressure equalisation when transferring the beer. We also purge the empty bottles with the gas to ensure that the beer has as little contact as possible with atmospheric oxygen. Carbon dioxide therefore helps us in our work and protects the flavour of our product.

Mónika Zimányi-Csere, Messer Hungarogáz

CO_2 prevents oxidation and ageing of the beer after fermentation.

Win a delicious prize!

Simply answer our question about this issue of "Gases for Life" and win a food hamper with specialities:

What is the name of Messer's fire protection system, which provides a continuous supply of nitrogen to the spaces requiring protection?

Please send the answer by e-mail with the subject line "Gases for Life competition" to:
angela.bockstegers@messergroup.com
The deadline is 26 September 2017. Please include your name and address. The competition is unfortunately not open to employees of the companies of the Messer Group and their families. In the event of multiple correct entries, a draw will determine the winner. The result of the draw is final and not subject to appeal.

Congratulations!
The winner of the last competition is **Michael Wagner** from Winnenden, Germany. The correct answer was: "Crystal growth"

The "Gases for Life" editorial team

From left to right:
Benjamin Auweiler, Dr. Christoph Erdmann, Katrin Hohneck, Marlen Schäfer, Dr. Joachim Münzel, Michael Holy, Zsolt Pekker, Annette Lippe, Angela Bockstegers, Diana Buss, Marion Riedel, Dr. Bernd Hildebrandt (not pictured: Michael Wolters, Kriszta Lovas, Reiner Knittel, Dr. Milica Jaric, Johanna Mroch, Roberto Talluto, Peter Laux)

PUBLISHED BY

Messer Group GmbH
Corporate Communications
Gahlingspfad 31, 47803 Krefeld, Germany

EDITORIAL TEAM

Diana Buss – Editor-in-chief
Phone: +49 2151 7811-251
diana.buss@messergroup.com
Angela Bockstegers – Editor-in-chief
Phone: +49 2151 7811-331
angela.bockstegers@messergroup.com
Benjamin Auweiler, Corporate Office
benjamin.auweiler@messergroup.com
Dr Christoph Erdmann, Production & Engineering
christoph.erdmann@messergroup.com
Dr Bernd Hildebrandt, Application Technology
bernd.hildebrandt@messergroup.com
Katrin Hohneck, Medical Gases
katrin.hohneck@messergroup.com
Michael Holy, Region Central Europe
michael.holy@messergroup.com
Dr Milica Jaric, Speciality Gases
milica.jaric@messergroup.com
Reiner Knittel, Region Western Europe
reiner.knittel@messergroup.com
Peter Laux, Corporate Office
peter.laux@messergroup.com
Annette Lippe, Production & Engineering
annette.lippe@messergroup.com
Kriszta Lovas, Region South Eastern Europe
krisztina.lovas@messer.hu
Dr Joachim Münzel, Patents & Trademarks
joachim.muenzel@messergroup.com
Johanna Mroch, Anwendungstechnik
johanna.mroch@messergroup.com
Marion Riedel, Region Western Europe
marion.riedel@messergroup.com
Marlen Schäfer, Corporate Office
marlen.schaefer@messergroup.com
Roberto Talluto, Application Technology
roberto.talluto@messergroup.com

CONCEPT AND REALISATION
Brinkmann GmbH
Mevissenstr. 64a, 47803 Krefeld, Germany

TEXT AND EDITING
Klartext: von Pekker!
Römerstr. 15, 79423 Heitersheim, Germany

TRANSLATION
Contextinc GmbH
Elisenstraße 4 - 10, 50667 Cologne, Germany

COVER PHOTO:
Mareike Tocha
Takustraße 7, 50825 Cologne, Germany

www.messergroup.com

Once upon a time ...

... in a land of mountains, not far from the big river, a pretty girl and her brother were eating ice cream when they both suddenly got a toothache.

You'll have to visit the dentist, said their mother, and their father got the car out of the garage. No, no, cried the children, not the dentist, dopy dentist! The father turned the engine off again and looked at the mother helplessly. But she barely hesitated before saying: Alright then, we won't go to the dentist's. Instead we'll go to the big city and visit the magic rooms at Kopfzeit. And a fairy will make your toothache disappear. Hurray, that'll be fun, cried the little ones as they made a dash for the child seats. How their eyes shone when they met Mickey Mouse, SpongeBob and the friendly Dino at Kopfzeit, and the fairy made the annoying toothache go away.

Carmen Baragan, Messer Romania Gaz

* "Kopfzeit" is the name of a dental and orthodontic practice in the Romanian capital Bucharest that specialises in the treatment of children. The medical gases used for this are supplied by Messer.