

# knowhow

Magazine for Customers and Business Associates


Linde Gas

A photograph of a fishing boat on the ocean, viewed from a distance. The boat is white with a dark hull and has a complex rigging system. The sea is a deep blue, and the sky is a lighter blue with some white clouds. The overall tone of the image is blue and serene.

## Taste of the Atlantic

Abba Seafood relies on leading technologies from Linde Gas to capture the sea's bounty

- Latest recycling technology: say hello to your old tires
- Jan Hamrefors: the "cool" dry cleaning option



“We close the rubber loop, using the tires that wear down the roads to resurface the very same roads.”

Vasco Pampulim, Managing Director of Recipneu  
in Sines, Portugal (Page 08)



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## EDITORIAL

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### Exploring new possibilities for industrial gases

In recent years, Linde Gas has been consistently moving closer to you, the customer; looking at new and fascinating ways that industrial gases can add value to your business.

We are constantly asking ourselves how we can help you operate more efficiently, productively and profitably. You'll find the answers in our "new" knowhow.

We have redesigned knowhow to bring you the latest innovations and trends in a more appealing format. Reinforcing Linde's international identity, the new knowhow will be featuring articles, newflashes and case studies from the four corners of the globe.

This edition of knowhow looks at how Linde is helping to bring the Atlantic's riches to your table. You will also see how Linde is making a real difference to the Portuguese environment, helping to convert unwanted piles of old tires into high-quality road surfacing in a perfect, closed-loop cycle. And you may be curious to read how Linde is helping to drive the latest innovations in hydrogen power.

**Dr. Aldo Belloni**  
Member of the Executive Board Linde AG

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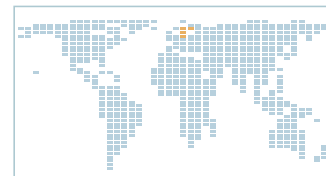
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# TASTE OF THE ATLANTIC

Abba Seafood relies on leading technologies from Linde Gas to capture the sea's bounty

COPY\_DR.-ING. RUDOLF BERGHOFF  
MARKET DEVELOPMENT, FOOD, LINDE GAS





Lining up for a fast blast in the power freezer.



**You know the feeling. Just home from a long day at work, frazzled and starving. Too tired to cook and yet you couldn't face another cheese and ham sandwich ... maybe it's time for something new? Like a seafood snack? Rich in Omega 3 oils, vitamin B12 and selenium, seafood spreads present a healthy, instant and tasty alternative to the "ham and cheese" rut.**

Manufacturing food is no easy job these days. Consumers are demanding more diversity, convenience and wholesome nutrition. At the same time, manufacturing processes, ingredients and impact on health and the environment are under closer scrutiny than ever before. It's not always easy to be all things to all people. But Abba Seafood has found an interesting, innovative way of doing just that.

#### **Harnessing the ocean's goodness ...**

Based in Sweden, Abba Seafood AB is one of the biggest producers of seafood in Europe. With over 150 years' experience on the Scandinavian seafood market, it looks back on a long-standing tradition of success. Operating revenues in 2002 totaled SEK 1,869 million (over 203 million euros). To meet rising consumer demands for convenient, healthy snack food, Abba decided to rejuvenate the sandwich culture. The result is

an exciting new sandwich spread available in tuna, mackerel, shellfish and salmon flavors. "Essentially, many consumers are keen to eat more seafood. All of the research indicates that fish and fish oils are an essential part of a healthy diet. Our mission is to bring fresh food from the sea to our customers' tables as quickly and effortlessly as possible," says Joel Oresten, Technical Director at Abba Seafood. In keeping with Abba Seafood's commitment to protecting the environment through conscientious, sustainable fishing, the fish for the new spread range is sourced from the plentiful cold waters of the North Atlantic. Given the short shelf life and sensitive nature of the spreads, fast, effective refrigeration is essential to maintain product integrity and minimize the chances of bacteria formation.

#### **... and bringing it to your table**

In its quest to deliver nothing but the very best to its customers, Abba Seafood was convinced that cryogenic cooling was the most effective way of quickly chilling its spreads without dehydration or quality impairment. It turned to Linde Gas for a high-power cryogenic refrigeration solution. Abba Seafood uses a Linde CRYOLINE® CS spiral freezer and liquid nitrogen to rapidly chill the spreads from +70°C down to +8°C



**Dodging the “danger zone” with cryogenic cooling power from Linde.**

for transport and distribution. Linde’s CRYOLINE® CS is a new generation of spiral freezers that leverage state-of-the-art technology and the cryogenic power of liquid nitrogen for faster, more effective freezing with maximum product integrity.

#### **Premium quality**

Cryogenic freezer systems are ideal for cooling and freezing the widest range of products in small and large volumes, including meat patties, sausages, whole fish or fish fillets, fish spreads, cakes, ice cream, pastries, pizza and ready-made dishes. In cryogenic systems, the refrigerant (liquid nitrogen in this case) is sprayed directly onto the product at a temperature of minus 196°C. The effectiveness of the cold gas is accentuated by circulation fans that drive the gas around the food, thus extracting more heat. This specially designed cold gas circulation system ensures maximum cooling power. As liquid nitrogen is inert, it does not affect the flavor or appearance of the spread. The liquid gas evaporates as soon as it touches the food. Thanks to the direct contact between the food and the coolant, this process extracts 20 to 30 times more heat than fans alone (although fans are also used for pre-cooling).

“When refrigerating, there is a ‘danger zone’ between 20°C and 50°C in which bacteria grows fastest. Linde’s freezer

allows us to pass through this zone extremely rapidly, thus minimizing exposure to harmful bacteria and ensuring the highest levels of hygiene and quality for our customers,” continues Joel Oresten.

#### **Compact design**

A spiral freezer also presented Abba Seafood with compelling space advantages. Compared with the tunnel freezer previously in use, a spiral design enabled the company to expand capacity, at the same time reducing its space requirements. Thanks to its small footprint (3.5 m long, 2.5 m wide, 3.1 m high), the CRYOLINE® CS is more compact than competitor models. A patented, self-stacking conveyor belt eliminates the need for a support structure. The spiral coils upwards, creating a stable structure around a rotating drum which also drives the belt. It also needs only one fan (situated in the center of the drum), compared with as many as 12 with other cryogenic spiral freezers.

#### **Highest standards of hygiene and safety**

To ensure compliance with the stringent hygiene regulations in the food industry, the freezer is fitted with Linde’s automatic Cleaning-In-Place (CIP) system. This means the freezer can be thoroughly and easily cleaned between production

“Essentially, many consumers are keen to eat more seafood. All of the research indicates that fish and fish oils are an essential part of a healthy diet. Our mission is to bring fresh food from the sea to our customers’ tables as quickly and effortlessly as possible.”

Joel Oresten, Technical Director at Abba Seafood



Abba Seafood goes about its daily business.

runs without dismantling or entering it. By getting at even the most inaccessible areas, the CIP system enables consistently high hygiene standards. On-site safety is another important issue for Abba Seafood. Pneumatic door seals keep the freezer doors securely locked for maximum safety and protection against gas leakages, thus ensuring uniform, predictable cooling results. And the freezer enclosure is insulated for optimum cooling efficiency and economical operation. Automatic control devices also contribute to safe, easy operation.

#### Casting a wider net

Abba Seafood is fully aware that a sound fishing and processing policy has to be backed by state-of-the-art technology to preserve the nutritional value and freshness of the raw products fished from the Atlantic.

“Our customers are looking for two things,” summarizes Joel Oresten. “They want to know that we sourced our fish from plentiful, clean waters. But they also want to know that we use the very latest technologies and processes to preserve that freshness and goodness. Our cryogenic refrigeration solution from Linde is precisely the kind of technology that inspires the highest levels of consumer

confidence.” In total, Abba Seafood fish spreads have a shelf-life of about 12 weeks. They must be kept refrigerated and consumed within a few days of opening. Many consumers see them as a highly attractive and welcome alternative to traditional sandwich fillings. Based on the initial market response in Sweden, the new pastes are set to enjoy widespread success. The company plans to launch the spreads on other markets in the near future. □

Dr.-Ing. Rudolf Berghoff, Market Development, Food, Linde Gas  
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#### FISHING WITH LINDE

- Maximum retention of freshness and nutritional value thanks to cryogenic refrigeration
- Maximum product integrity through reduced exposure to bacteria
- Excellent standards of hygiene with CIP (Cleaning-In-Place)

# SAY HELLO TO YOUR OLD TIRES

**Closing the loop with Linde Gas**

**COPY\_JORGE DE SOUSA, GAS APPLICATION MANAGER,  
LINDE SOGÁS, PORTUGAL**



Portugal produces some 52,000 tons of scrap tires each year.

**Have you ever wondered where your old tires end up? They may be closer than you think. In fact, you may even be standing on them. Keen to tackle the ever-mounting piles of old tires, the Portuguese company Recipneu, with the help of Linde Gas, found an innovative way of turning an environmental challenge into a business opportunity.**

#### Window of opportunity

Portugal alone produces some 52,000 tons of scrap tires each year, and the trend is rising. Disposing of these tires presents a daunting challenge. Landfill sites are often already overburdened. And abandoning piles of tires around the countryside is unsightly to say the least, not to mention a fire hazard. Let's face it, who wants to live beside a mountain of old rubber tires? The other option is incineration – again problematic due to environmental and health concerns.

Vasco Pampulim, founder and inspiration behind Recipneu, decided to look at the problem from a different angle. A chemical engineer with a background in polymers, he investigated ways of converting useless rubber scrap into a valuable commodity and creating a new business opportunity.

Pampulim drafted his business plan in 1996, secured financing and received the all-important approval from the Portuguese road administration authorities in 1998. He built the high-tech Recipneu plant in Sines in 2000 and kicked off operations in 2001. In 1999, Pampulim and two of his colleagues also

created Recipneu's sister company, Recipav, a leading-edge, specialized supplier of asphalt rubber to road contractors.

#### Closed loop

Pampulim's idea is ingenious and simple. Together with its sister company, Recipav, Recipneu closes the rubber loop, using the tires that wear down the roads to resurface the very same roads.

To achieve the best grinding results, Recipneu decided to use cryogenic rather than ambient grinding. It turned to Linde Gas to deliver the gas, technical support and service. "Ambient grinding is based on old, established procedures using electrical motors, granulators, blades etc. It results in significant heat and chemical-related degradation of polymer chains," adds Pampulim. "We were looking for a more dynamic, innovative solution. Even allowing for the extra cost of liquid nitrogen, our feasibility studies showed that cryogrinding had huge competitive potential, with significant cost efficiencies on both the operational and disposal side. In addition, the huge prospective market for asphalt rubber made for a sound business case." Cryogrinding is particularly well suited to plastic, elastic and heat-sensitive materials requiring minimum particle sizes. The benefits of cryogrinding include lower grinding costs, finer particle sizes and the absence of heat degradation. Since rubber embrittles when exposed to cold temperatures, cryogrinding decreases the energy required to shatter the rubber, thus also increasing



**"To ensure smooth operations, a reliable, competitive and consistent gas supply is essential. Particularly when we ramp up to 24x7, supply interruptions are simply not an option. That's why we rely on Linde for our gas and service needs."**  
Vasco Pampulim

## CASE STUDY

High-impact hammer mills make light work of the embrittled rubber at Recipneu.



production rates. More importantly, cryo-grinding gives Recipneu the flexibility to cover the broadest possible application spectrum by enabling production of fine particles and very fine powders.

“People are realizing that recycled rubber is actually a valuable and versatile resource that can be used in many new applications, from road surfacing to sports and play facilities,” continues Pampulim. “Although most of our rubber is supplied to Recipav for road surfacing, we also deliver a significant volume of rubber granulates for projects such as synthetic football fields. The virtually odorless cryorubber in our rubber infills is ideal for these applications, maximizing drainage properties and ensuring optimum playing conditions.”

With the cryogenic process, the tire is pre-cut into small-sized chips, cooled down to minus 80°C, fed into high-impact hammer mills and ground into tiny pellets. Following removal of other substances (such as steel by means of magnets and textiles through suction power), the pellets are then classified with special screens. The resulting rubber powders and granulates are sold to Recipav, where they are blended in a special facility, reacting with bitumen to create asphalt rubber. This is then supplied to road contractors for road surfacing.

### Reliable partner

Operations at the Recipneu plant commenced in 2001 and will ultimately be ramped up to full capacity. Thanks to its SECCURA® gas delivery service, Linde monitors gas levels

at Recipneu remotely, automatically ordering and delivering more gas when supplies run low. Non-stop operations give Recipneu an added competitive advantage. In addition, Recipneu appreciates Linde’s expert technical support and service. It enjoys maximum safety and operating efficiency thanks to Linde’s regular and thorough maintenance checks.

### Promising future

Recipav is currently the only company in Europe to produce and deliver in-situ asphalt rubber. It has already laid more than 300 km of roads. Although most of this work has been carried out in Portugal, the first projects in Germany and Spain were completed in 2002. Thanks to the efficiency of the bitumen/rubber blending and reaction process, the asphalt rubber road surfaces are of extremely high quality. This was confirmed by extensive tests carried out by the Portuguese road authorities.

Based on a total tire recycling capacity of 22,000 tons per year, Recipneu will ultimately be relieving the Portuguese environment of almost 50 percent of all scrap tires generated annually. Not a bad achievement by anyone’s reckoning! And one that has generated a lively level of coverage and interest in the Portuguese press and media. Let’s hope more European countries will soon follow suit. □

Jorge de Sousa, Gas Application Manager, Linde Sogás  
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“Essentially, the polymers and fine chemicals in scrap tire rubber are too valuable to simply burn or dump. I was looking for a cost-effective, environmentally sound, non-destructive, non-degrading way of recovering the polymers and chemicals and putting them to good use.”

Vasco Pampulim, Managing Director at Recipneu



## “I’M ADDICTED!”

**Jan Hamrefors, General Manager  
of the WashPoint™ Program at  
Linde Gas**

**Linde Gas recently joined forces with the British chemicals company ICI and dry cleaning equipment manufacturers to deliver an environmentally sound dry-cleaning solution to the world. We spoke to Jan Hamrefors to see what all the WashPoint™ hype was about.**

What is so special about WashPoint™?

WashPoint™ is a revolutionary step in dry cleaning. For the first time ever, we have a viable alternative to traditional dry-cleaning solvents that is both effective and environmentally sound. It’s such a compelling and exciting area to work in, you end up addicted.

How exactly does WashPoint™ work?

WashPoint™ is a combination of CO<sub>2</sub> and a revolutionary cleaning booster. This means that dry-cleaning workers and the general public can now avoid all contact with chlorinated solvents such as perchloroethylene.

Surely CO<sub>2</sub> is associated with global warming? Are you not contributing to environmental problems?

On the contrary. The WashPoint™ detergent recovers CO<sub>2</sub> generated by industrial processes. There is no need to generate any additional CO<sub>2</sub>. No hazardous waste is produced by the CO<sub>2</sub> cleaning cycle.

Can WashPoint™ be used to clean all types of clothing?

It can be used for just about anything – wool, silk, leather, suede, furs – with less risk of color bleeding due to lower temperatures and a less aggressive solvent.

What inspired Linde to partner with ICI?

Linde is very much in tune with consumer demands and priorities. Understandably, dry-cleaning customers are increasingly concerned about the health and environmental

hazards of chlorinated solvents. WashPoint™ is a perfect example of how different companies can pool their strengths and visions to meet evolving customer needs, creating a cleaner, safer world.

What sort of incentives do you see for dry-cleaning operators to change over to WashPoint™?

One of the most compelling arguments in favor of WashPoint™ is its strong customer “pull” effect. Most consumers would jump at the prospect of an environmentally sound dry-cleaning alternative. WashPoint™ gives dry-cleaning operators a competitive advantage at several levels. Not only do they have an opportunity to benefit from a first-mover advantage, taking proactive rather than reactive measures as the legislative landscape changes, they will also see decreased operating costs over time thanks to the elimination of disposal costs.

What sort of a future do you see for CO<sub>2</sub>-based cleaning?

We see a very bright future indeed. As statutory regulations get tougher – and we have already seen some signs of this with substances such as perchloroethylene banned in some states in America – more and more dry-cleaning operators will be looking for environmentally friendly alternatives to existing processes. However, we are also looking at new applications for CO<sub>2</sub>-based precision cleaning in industries such as medicine and engineering. □

**Jan Hamrefors, Project Manager WashPoint™, Linde Gas**  
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Uncovering the desert's hidden treasures.



The hydrogen fueling station at Munich Airport gives a sneak preview of the new station planned for Berlin. Linde will supply the liquid hydrogen (LH<sub>2</sub>), cryogenic fuel tank, pump, compressor station and peripheral fueling equipment. Both liquid and gaseous re-fueling equipment will be installed.

## Partnering for a cleaner future

The Clean Energy Partnership (CEP) is just another example of the concrete measures Linde is taking to bring us closer to a cleaner, hydrogen future. Kicked off in summer 2002, the project is driven by Linde, Aral, BMW, BVG, DaimlerChrysler, Ford, GHW, MAN and Opel. Its primary objective is to assess and promote the viability of hydrogen for daily transport purposes.

Practical examples of initiatives covered under the partnership include plans to open a second hydrogen fueling station in Berlin. The car manufacturers party to the agreement have also under-

## Linde and Sonatrach team up

Linde has extended its core competence in the production of industrial gases through a recent joint venture with Sonatrach, Algiers. Linde holds a 51% stake in the joint venture (referred to as HELISON). This is a strategic move for Linde, adding helium to the range of industrial gases directly produced and distributed by Linde. The company is now ideally positioned to capitalize on the five to ten percent annual increase in demand for helium worldwide.

Under the terms of the agreement, Linde will build a helium liquefaction plant in Skikda on the east coast of

Algeria. Scheduled to commence operation in 2005, the new plant will have a total investment value of 84 million euros and produce 17 million cubic meters of helium a year. This corresponds to ten percent of the annual global production volume. The gas produced in Algeria will be marketed worldwide through the joint venture.

Helium is used for the widest range of industrial and medical applications, including temperature control (in the region of absolute zero), superconduction (for MRIs for example), fiber glass technology and electronic circuit printing. □

taken to launch a test fleet with up to 30 hydrogen-powered vehicles during the course of the project.

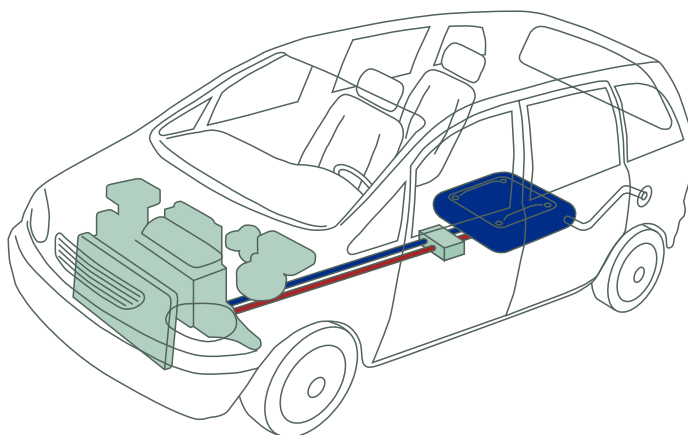
The partnership plans to investigate the viability and general acceptance of new hydrogen fueling technologies. It is sponsored by the German government as part of the national strategy to promote the use of renewable fuels. This aims to develop next-generation technologies, at the same time exploring the technical and economic success factors of alternative fuels in daily use. □



Third hydrogen fueling station in Germany will be used initially by fuel-cell public buses.

## Liquid hydrogen goes automotive

Hydrogen-fueled vehicles present serious alternatives to today's gasoline-powered vehicles. Liquid hydrogen (LH<sub>2</sub>) reduces environmental emissions, at the same time matching the range and performance of today's gasoline vehicles. However, on-board storage remains one of the most significant hurdles to the widespread deployment of hydrogen vehicles. Linde is rapidly changing that. Let's face it – who would buy a hydrogen car if the fuel tank took up most of the trunk space? Thanks to Linde's new optimized tanks, you can now have it all – space and energy efficiency. Linde has been building liquid hydrogen



Maximizing passenger space with Linde's new optimized LH<sub>2</sub> tanks.

tank systems to meet the rapidly changing prototype and pre-series needs of the automotive industry since 1989. These custom-designed systems are now successfully employed all over the world. Our rectangular flat tank is one of the best examples. Broader and flatter than conventional cylindrical tanks, this solution is installed in the underfloor area, thus maxi-

mizing available space. Flat tanks are also of interest to buses, where they can be mounted on the roof. Linde is currently negotiating with various car manufacturers to define individual tank space and form requirements (packaging space). Regardless of individual needs, Linde is ideally positioned to deliver the perfect fit. □

## Gasoline or hydrogen?

The question may not be as far-fetched as it seems. Widely acknowledged as an essential part of a carbon-free future, hydrogen faces a daunting infrastructural journey before it can compete with the existing gasoline infrastructure. But that future may not be as far away as it seems, and Linde is certainly helping to get us there.

The most recent significant development was the official opening of a new hydrogen fueling station in Berlin, the third station of its kind on German soil. It was opened to the public on October 23, 2002. Linde now supplies

liquid hydrogen for 18 of the 19 fueling stations currently in operation worldwide. Sponsored by the European Union and run by the Berlin public transport authority (BVG) and TotalFinaElf in cooperation with Linde, MAN and Opel, the new station is an important milestone in the move towards pollution-free public transport. Linde will be responsible for supplying the liquid hydrogen right up to the fuel pump. Linde plans to deliver the hydrogen in 50,000-liter tankers about once a month. Three fuel-cell public buses will start using the station next year and these will rapidly



be joined by others. A full tank of liquid hydrogen in a fuel-cell vehicle offers about the same range as a full tank of gasoline in a conventional vehicle. □

Dr. Joachim Wolf, Executive Director Hydrogen Solutions of Linde AG, shows just how easy, rapid and safe it is to fill up on hydrogen at the new refueling station in Berlin.



Linde installs largest air separation unit in Austria.

## Strategic move for Linde

Linde recently constructed and commissioned Austria's largest air separation unit. Valued at 65 million euro, the plant was installed by Linde at the headquarters of the voestalpine Group in Linz. The voestalpine Group is a prominent player in the international metallurgical industry, specializing in steel production, processing and refining to create products and end-to-end solutions for applications as diverse as cars, domestic appliances and railway tracks.

Voestalpine relies on a wide range of gases to support its varied application spectrum. The air separation unit produces oxygen, nitrogen and argon in gas form for use at voestalpine. The unit also produces liquid oxygen, liquid nitrogen, liquid argon

and, a first in Austria, raw krypton/xenon. The liquid products are supplied to a broad customer base in Austria – ranging from food specialists to electronics companies, giving Linde a strategic foothold in the sizeable Austrian market for liquid products.

Linde has been working with voestalpine since the 1950s, when the first air separation unit was installed. Building on their successful partnership over the years, voestalpine entrusted management of all gas production facilities at Linz to Linde in 1993. □



Official opening of new air separation unit for voestalpine on September 27, 2002 was a big day for Linde Gas. From the left: Dr. Hans-Hermann Kremer, Managing Director of Linde Gas Austria,

Olaf Reckenhofer, Managing Director of Linde Gas Germany, Dr. Rainer Goedel, Member of the Operational Board Linde AG, Business Segment Gas and Engineering.

## The expert touch

Corporate philosophy at Linde demands the highest standards of quality, safety and environmental awareness in the production, transport and use of industrial gases. And this commitment doesn't end with the delivery of a gas cylinder.

To maximize personal and environmental safety at our customers' premises, Linde Gas Germany recently introduced a new training seminar for customers or third parties involved in handling industrial gases and pressure equipment. The seminar trains and certifies "Gas experts". These professionals are ideally equipped to ensure that industrial gases are always handled in an appropriate, safe manner. Due to the popularity of our first two seminars, we will be offering

this course a third time on October 15 and 16, 2003. The course gives the attendees a thorough understanding of gases, their properties and hazards. It also covers the assembly, equipment and safe operation of gas installations (cylinders, bundles and tanks) as well as the importance of regular maintenance and safety checks. Contact Klaus Tech at [Klaus.Tech@de.linde-gas.com](mailto:Klaus.Tech@de.linde-gas.com) for more details on the seminars available in Germany. Hoek Loos, our Dutch subsidiary, offers similar safety-related training courses. Please contact Ben Valk at [bvalk@hoekloos.nl](mailto:bvalk@hoekloos.nl) for information on the Dutch seminars. □

**Working with our customers to raise awareness and safety standards.**



**Linde's new production facilities in Aldershot for on-site CRYOSS® plants reduce the cost-effective on-site production ceiling for cryogenic nitrogen from 2,000 m<sup>3</sup>/h to less than 200 m<sup>3</sup>/h.**

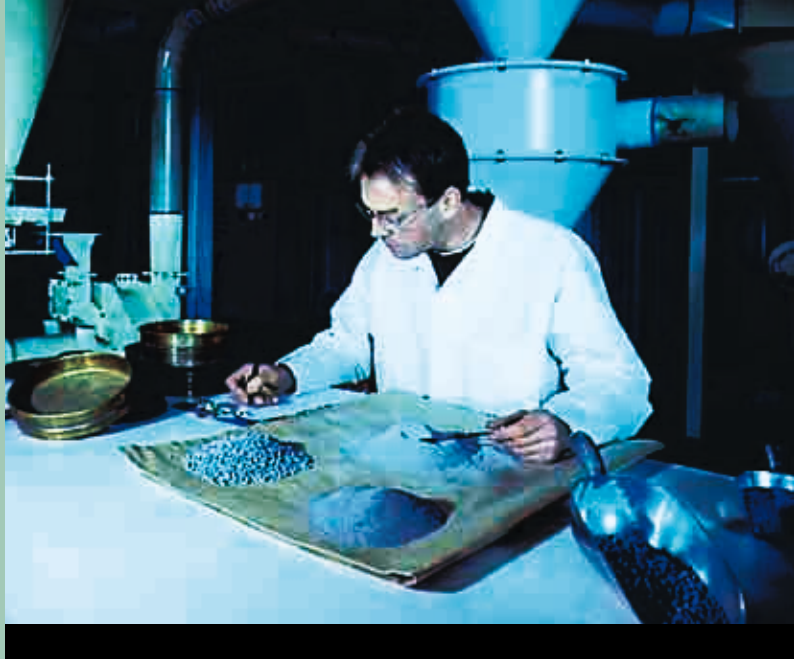


## Bringing the benefits of on-site supply to more customers

September 20, 2002 was an important installment in Linde's commitment to giving its customers more flexibility in their choice of gas supply systems. On that day, Linde CryoPlants Ltd., the British subsidiary of Linde Engineering, opened new production facilities for on-site cryogenic plants in Aldershot, England. The new facilities are designed to meet growing customer demands for standard on-site gas supply solutions. Com-

bing robust, standard building blocks with sufficient customization headroom, the resulting CRYOSS® plants are a welcome addition to the Linde Gas ECOVAR® portfolio, bringing the benefits of on-site supply to a much wider potential customer base. Shipped ready to install, CRYOSS® plants are also equipped with a remote control and diagnosis system to further maximize efficiencies. □

Cryogrinding specialist checks particle sizes at new demo center in France.



### New proof-of-concept center in France

In keeping with its commitment to supporting all stages of the solution lifecycle, Linde Gas has partnered with French company MICRONIS to run a cryogrinding demo center in Agen, France.

One of the leading suppliers of gas for cryogenic grinding applications, Linde has almost 35 years' experience in the business. MICRONIS

has over 30 years' experience in the production of grinding equipment. This new partnership leverages both fields of expertise to bring valuable insights and application know-how to prospective and existing customers.

The new center provides proof-of-concept and consulting services for the widest range of materials, from spices to composite materials and

textiles (such as polyamide). Customers can verify and quantify the suitability of cryogrinding for a new application or optimize existing applications. The new center thus gives customers an opportunity to realistically evaluate the advantages of cryogrinding before investing in production equipment. □



New cryogrinding facilities in France give customers concrete insights into the benefits of cryogrinding.

## PUBLISHING DETAILS

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