

Cryospeed.

Expert advice with every delivery.



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With Cryospeed, BOC has been designing and developing cryogenic gases, equipment and applications for over forty years. We're experts in their safe supply and efficient usage. What we know, we share every day with customers across many different markets. Whatever the size of your business, whether your requirements have outgrown cylinder supply or you require liquid for its cryogenic properties, Cryospeed has a reliable, safe, total gas and equipment supply solution for you.

When you turn to Cryospeed for your cryogenic gas needs, you choose a partner known for reliability, flexibility and expert customer service. Cryospeed customers have the piece of mind that comes from knowing supply is secure and help is always at hand.

Product range

Whether your business requires gas in large or small volumes, Cryospeed can meet your needs by providing a hands free delivery of liquid argon, carbon dioxide, nitrogen and oxygen. Our cryogenic liquids are stored in vacuum insulated vessels which are filled on site by the Cryospeed Sales and Service Operators. To complement the supply of gas Cryospeed offers a wide range of vessels and equipment to support their safe handling, usage and storage.

Delivery

Delivered by the largest mini-bulk fleet in the UK and Ireland, Cryospeed can be found in more places, more often than any other supplier. Our operators will deliver your product without assistance, and have the experience and flexibility to provide true security of supply.

Most Cryospeed customers rely on the simplicity and security of our scheduled delivery service. Our operators are experts in understanding customer usage patterns and adapting to changing requirements, so they'll look at your demand and schedule regular deliveries to ensure security of supply.

If you have sporadic demands which make scheduled delivery impractical, that's not a problem provided you give us sufficient notice we will fit you into our schedules. Sometimes, unforeseen circumstances can catch us all out leading to an emergency delivery being required. We'll make every effort to get your supply to you in good time and because we have the largest fleet and the widest coverage, Cryospeed takes some beating in keeping our customers' operations running at short-notice.

Service.



As a BOC customer, you'll have a dedicated Cryospeed operator who'll not only deliver your product when you need it, but will be a regular point of contact. You'll even get their mobile phone number.

Highly trained, they provide a truly personal service – practical answers to your product, technical and safety questions, guidance on best practice and advice when developing a service and supply package that works best for you. Through a wealth of experience they can offer advice on the most suitable storage options for you – together with a choice of maintenance packages to ensure you meet current legislation.

The Cryospeed Sales and Service Operators are with you every step of the way in helping you to manage your cryogenic equipment and safety requirements:

- Safely delivering your product when and where you need it
- Providing advice on product and equipment safe handling, usage and storage
- Performing detailed pre-delivery vessel inspections
- Carrying out planned preventative maintenance and repairs on vessels rented from BOC to give you peace of mind about operating safely
- Offering and fulfilling BOC Cryocare maintenance package for owners of cryogenic vessels (up to 500 litres)
- Offering BOC maintenance packages for owners of cryogenic vessels (over 500 litres) and pipe work systems

- Providing advice on Cryospeed's cryogenic equipment range, including suitable personal protective equipment
- Giving practical and workable answers to all your commercial, technical and safety questions

Account Management

Behind the Cryospeed Sales and Service Operators, you'll find the strong support of BOC's wider infrastructure. We have a large team of account managers who'll discuss all your process and application requirements – as well as answer a wide range of commercial, service and supply queries.

Applications.

Nitrogen N₂

- Produced by air separation
- Colourless
- Odourless
- Heavier than air
- Non-toxic
- Almost totally inert
- Boiling point of -196°C
- Increased nitrogen levels can lead to oxygen deficiency and cause asphyxiation

	Nitrogen liquid as a cryogen	Nitrogen gas used for its inert properties
Cryosurgery	•	
Shrink fitting	•	
Pipe freezing	•	
Scientific sample storage	•	
Food chilling and freezing	•	
Research and development	•	
Blanketing and inerting		•
Chemical processes*		•
Purging		•
Sparging		•
Modified food packaging and storage		•
Heat treatment		•
Laser cutting		•

* Nitrogen meets European Pharmacopoeia standards

Oxygen O₂

- Produced by air separation
- Colourless
- Odourless
- Heavier than air
- Boiling point of -183°C
- Supports combustion
- Strong oxidiser
- Oxygen enrichment can increase flammability of materials
- Oxygen deficiency can cause asphyxiation

	Oxygen gas to support life	Oxygen gas to support combustion	Oxygen gas as an oxidant
Healthcare	•		
Water treatment	•		
Aquaculture	•		
Fermentation	•		
Oxy-fuel cutting		•	
Blast furnaces		•	
Laser cutting of mild steel			•
Modified atmospheric packaging			•

Argon Ar

- Produced by air separation
- Colourless
- Heavier than air
- Boiling point of -186°C
- Very low thermal conductivity
- Increased argon levels can lead to oxygen deficiency and cause asphyxiation
- Industrial argon contains 2% oxygen

	Argon gas used for its total inertness	Argon gas used for its very low thermal conductivity
TIG welding*	•	
Scientific analysis spectrometry	•	
Semiconductor wafer manufacture	•	
Scientific sample storage	•	
Laser cutting	•	
Laser welding	•	
Furnace purging and blanketing	•	
Metal manufacturing processes	•	
Double glazing unit manufacture		•

* Argon is also used for MIG welding mixed with varying percentages of Carbon Dioxide depending on the thickness of material.

Carbon Dioxide CO₂

- Obtained industrially by cracking hydrocarbon gases or as a by-product of ammonia production
- Colourless
- Virtually odourless gas but can cause the nose to sting
- Toxic at high concentrations
- Heavier than air
- Does not support life
- Increased carbon dioxide levels can lead to oxygen deficiency and cause asphyxiation



Common applications for carbon dioxide

pH control of swimming pools
 Carbonation of drinks
 Fire extinguishers
 Food chilling and freezing
 Foamed plastics
 Chemical solvents
 Water treatment
 Horticulture
 Mixed with argon as a MIG welding shielding gas
 Scientific sample incubation
 Modified food packaging

Safe Storage.



Cryospeed provides a wide range of cryogenic storage options. All are designed to meet the highest safety and quality standards including the Pressure Systems Safety Regulations 2000 and Pressure Equipment Regulations.

Non-pressurised dewars and pressurised stainless steel cryogenic vessels are available for rental – **the rental charge includes all the required maintenance activities.**

Open flasks, non-pressurised dewars, a range of suitable personal protective equipment, gas monitors and accessories are also available for purchase.

We offer a comprehensive service tailored to your storage requirements including:

- Advice on the most suitable storage solution – factoring in capacity, flow rate and pressure requirements
- Supply, safe siting, installation and commissioning of the vessel including emergency shutdown procedure and safety precautions. All this information is provided in the handover documentation
- Ongoing maintenance support either as part of the rental agreement or through the Cryocare service and other maintenance packages
- Advice on safe handling, correct selection and use of required personal protective equipment.

Storage type	Capacity	Typical users
Open flasks	0.6 – 66 litres	Laboratory or industrial applications using liquid nitrogen – only short term storage required
Dewars	2 – 50 litres	Laboratory, clinic or industrial applications using liquid nitrogen – mid term storage required. Usually used with accessories for mobility or decanting product
Low Pressure Vessels (up to 3 bar max. working pressure)	30 – 2,000 litres	Laboratory or industrial application using liquid nitrogen – longer term storage and larger volumes are required
Medium Pressure Vessels (16 bar max. working pressure)	200 – 2,000 litres	All products requiring gas for the application
High Pressure Vessels (24 bar max. working pressure)	200 – 2,000 litres	All products requiring gas for the application
Ultra High Pressure (35 bar max. working pressure)	Up to 2,000 litres	Laser applications requiring nitrogen at higher pressure

Safe maintenance.



Whether you rent or own your storage vessel, BOC provides maintenance packages that help you operate safely and within the law. **If you rent your storage vessels from BOC, all necessary maintenance is included in the rental (including any parts and labour), and is carried out by BOC trained experts.** If you own your vessel, BOC can maintain it for you – providing the peace of mind that comes with expert assistance.

For vessels up to and including 500 litres, BOC offers a maintenance package – Cryocare.

This includes Planned Preventative Maintenance inspections in line with the appropriate Written Scheme of Examination as well as providing and fitting any necessary replacement parts to ensure conformance with the Pressure Systems Safety Regulations 2000.

For larger customer owned vessels (500 litres and above) and pipeline distribution systems, BOC offers a maintenance package – OnStream.

This service provides maintenance tailored to your individual requirements including Planned Preventative Maintenance schemes, the management of any remedial work, preparing or updating the Written Scheme of Examination as well as advice and technical support to ensure legislative compliance.

Safety and risks

BOC has a range of literature to help users safely handle, store and move cryogenic gases. These include:

- Care with cryogenics
- Controlling the risks of inert gases
- Controlling the risks of Oxygen
- Liquid Argon, Carbon Dioxide, Nitrogen and Oxygen safety data sheets

BOC – turning ideas into solutions.

BOC is a member of The Linde Group, the leading global gases and engineering company. BOC is the UK's largest provider of industrial, specialist and medical gases, as well as related products and services. As a leader in the application of technology, we are constantly looking for new ways to provide our customers with high quality products and innovative solutions.

At BOC we help our customers to create added value, clearly discernible competitive advantage and hence greater profitability. To achieve this we have a comprehensive range of products and services, and technical support which can be customised to meet the individual requirements of our clients.

To keep ahead of the competition in today's market, you need a partner for whom quality, service, process and productivity optimisation are an integral part of customer support. We are there for you and with you, helping to build your success.

BOC's reputation has been forged through partnerships – with customers, with relevant regulatory authorities and with key suppliers. In this way, we deliver comprehensive and consistent benefits to you.

BOC – world-leading knowledge and resources adapted to local requirements.

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