



			He Helium
	O Oxygen	F Fluorine	Ne Neon
P Phosphorus	S Sulfur	Cl Chlorine	Ar Argon
As Arsenic	Se Selenium	Br Bromine	Kr Kryptonite
Sb Antimon	Te Tellurium	I Iodine	Xe Xenon



NITROSource NEWS 01

APRIL 2019

NITROSource News Issue # 1

A very warm welcome to the first edition of NITROSource News! This newsletter is published with the intention of sharing success and knowledge between our colleagues and trusted partners, aimed at supporting sales.

By providing information on how we have won, the customers who trust us with their critical nitrogen supply and by sharing intelligence on market trends we will build upon our already extensive knowledge to continually improve and grow.



In this issue:

Aer Lingus – Safe take-off and landings with Parker nitrogen



On stage receiving the awards (from left to right):
Donna Ross, Head of Operations Planning - Accolade, John Frankland - Maziak, Jeremy Cooke - Parker Hannifin
Tony Brown - Parker Hannifin, Ian Lloyd - General Manager European Operations - Accolade

Parker Hannifin wins Accolade Wines “Collaboration of the Year Award” for 2018.

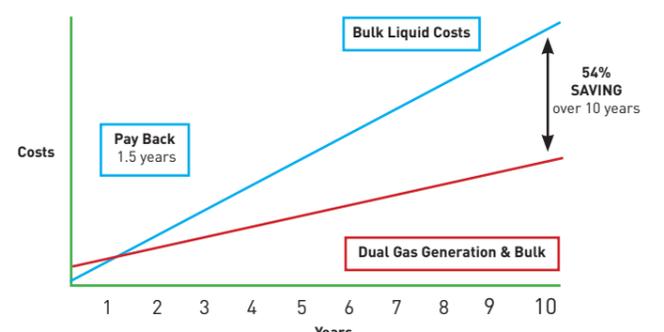
Accolade Wines is the UK’s number one wine company by volume and the 5th largest in the World with brands such as “Hardys” being at the centrepiece of an impressive portfolio of 51 brands sold in more than 140 countries.

Accolade Park is the UK production and distribution facility based in the South West of England near Bristol. The plant has 6 packaging lines filling 1200 bottles per minute providing an output of over 600,000 bottles per day!

The story begins in 2016 when one of Parker’s industrial gas generation distributors, Maziak Compressors, were exhibiting the NITROSource PSA at the PPMA food show in Birmingham, UK, supported by Parker’s UK nitrogen sales manager Tony Brown.

Discussions with Accolade during their visit to PPMA, created extreme interest in the cost saving potential and reduction in environmental impact, generated nitrogen gas can deliver. Accolade’s production, engineering and procurement team subsequently employed Maziak, fully supported by Parker, to carry out in depth analysis of their processes and existing nitrogen supply.

After a full system review along with risk, energy consumption and HACCP assessment it was confirmed that the Parker NITROSource PSA package proposed would return a payback on investment within 18 months and reduce energy costs, (nitrogen costs), and CO₂e by 54% over the next 10 years.



Their warehouse and distribution centre, the largest in Europe, occupies an area of 82,000m².

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3 x N2-80P NITROSource PSA generators fitted with EST, (energy saving technology), produce food grade nitrogen, fully compliant with European statute as a food additive E941, to blanket all aspects of the wine storage and production process including product transfer and bottling. The existing bulk liquid supply was retained to provide back-up and capacity for any intermittent peak flows but is now under consideration for replacement with additional nitrogen generation capacity, encouraged by the new system's performance and reliability.



The turn-key installation was managed and completed by Maziak's specialist engineering team using hundreds of metres of Parker Transair modular aluminium pipe work system too!

At a gala dinner to present the awards, Parker were also honoured with: **'Support Service Supplier of The Year'** for Process Filtration

For – “being a part of Accolade Park from the very beginning and never having a product return due to secondary fermentation in bottle - an excellent track record”

Star Performer - Jeremy Cook
PH Process Account Manager

This special recognition went to Jez for the extraordinary levels he goes to in his role as Accolade's Account Manager in support of the Process Filtration business.

How we won the Accolade project

Our main competitor already had oil-free compressors installed for the main site air supply.

Maziak and Parker were able to convince the Accolade project team that using oil injected compressors with Parker's advanced filtration technology would provide “true” oil-free air to the nitrogen generators and in doing so, provide much lower running costs. A full HACCP analysis was carried out to ensure all possibilities were considered.

In addition, Parker's EST technology played a significant part in the running cost reduction analysis and we were prepared to back the savings predicted, including Accolade monitoring and logging the VSD compressor electrical consumption to confirm this. Our competitor was not so confident in their flow-based energy saving system and were not prepared to stand behind their figures or published air to nitrogen ratios with any guarantees!

The Parker NITROSource has independent 3rd party Food Grade certification for gas quality and materials of construction to satisfy any legislation and audit requirements. This also gave peace of mind that there was nothing in the nitrogen gas produced that would jeopardise the quality or flavour of the wine.

Many references for wine production from Parker installations in France, Spain, Italy, Australia and the USA were also shared to demonstrate suitability of Parker nitrogen generators for this market sector and a wealth of experience and reliability.

Overall there were many factors influencing the final decision. Not least, the expertise, knowledge and confidence demonstrated by the Maziak/ Parker team and the technical excellence of the turn-key package proposed. This stood up robustly to all challenges from the Accolade project group, providing a zero-risk solution.



Aer Lingus – Safe take-off and landings with Parker nitrogen

Based at Dublin Airport, Ireland, Aer Lingus engineering operations recently purchased a complete turn-key high-pressure nitrogen package from one of Parker's longest established specialist nitrogen distributors – Dalco Nitrogen Systems.

The nitrogen generator package is designed to safely re-fill nitrogen cylinders at a huge cost saving compared to buying in nitrogen from a traditional gas company.

Civilian and military aircraft use nitrogen gas for tyre inflation and landing gear strut pressurisation. The reason nitrogen is used in preference to air is to prevent deflation of the tyres due to oxygen permeation and for safety in the landing gear struts.

The main landing gear struts on an A320 Airbus for example, are filled with nitrogen and oil. The compressible nitrogen acts like a spring and the oil as a damper. The struts are filled to 98 barg from cylinders during overhaul or regular maintenance. The pressures and heat created in the damper during

landing means that nitrogen is an ideal gas used in combination with the oil as it is inert.

The space saving nitrogen system fully designed and engineered by Dalco is used to fill cylinder carts and nitrogen cylinders installed in Aer Lingus's aircraft wheel and brake maintenance trucks @ 0.5% maximum remaining oxygen content.

It comprises of a NITROSource N2-45P, OFAS oil-free compressed air pre-treatment package and 300 barg booster compressor mounted on a horizontal cylinder storage pack protected by Parker AO, AA and AC, 350 barg high pressure filtration.



Undercarriage jack along with wheels and tyres ready to fit on an A320 main landing gear, with top up from the internal nitrogen pack using Parker generated gas!

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How we won the Aer Lingus project

Dalco were competing with several other nitrogen generator suppliers as well as the incumbent gas company.

The main competitor was offering a generic skid based high pressure system rather than a custom package to fit where Aer Lingus needed it to be sited.

John Daly the MD of Dalco has 25+ years of gas generation experience and immediately sensed that the system parameters the main competitor was specifying were significantly undersized for the projected cylinder replenishment cycles required. Regardless of what a prospect advises, it is always a very useful exercise to double check the flows and pressures required based on yours and Parker's experience and not a competitor's mistake or guess!.

Once any doubt is created about the suitability of a solution it really reduces the confidence in the competitor's proposal and is an area where Parker and our distributors' experience and knowledge is invaluable.

Dalco also insist on fitting OFAS pre-treatment to ensure maximum generator protection and service life, backed up by hundreds of John's installations operational in Ireland exceeding 10 years completely trouble-free life.

John was able to demonstrate previous high-pressure capability with existing laser type high-pressure installations locally in Ireland. This combined with Parker application articles for Emirates, Vietnam Airways and British Airways gave them the confidence that the NITROSource based package proposed and engineered by Dalco with a full 5-year warranty and life time support, would be the best tried and trusted solution for their critical aircraft maintenance operation.



How pure do you believe cylinder nitrogen is?



Most people when asked about nitrogen gas purity, look at the label on the cylinder and reference 99,998% nitrogen as the standard they want and expect, regardless of application.

Exactly how pure though is cylinder gas? Excepting the maximum remaining oxygen content held as the reference benchmark, the answer might be not what you would expect.

Although for years traditional gas companies have specified cylinder nitrogen as typically 99,998% (20ppm O₂), now they are having to state that the specification includes Argon, generally in the region of 0.5%.

Atmospheric argon also passes through the NITROSource and any other PSA or membrane technology generation system but at least now it is acknowledged that they are equivalent in this regard.

Nitrogen (Oxygen Free)

- **99,998% minimum nitrogen (Specification includes argon (Ar))**
- **Conforms to BS 4366**

In addition, standard industrial gas cylinders can desorb water and organic materials, mainly oil, at pressures below 34 barg.

This is confirmed by a gas company promoting a special high purity cylinder with a built-in purifier (BIP).

They typically state –

“Analytical equipment operators dislike emptying a gas cylinder because impurity concentrations rise dramatically as the pressure drops below 34 barg. Emptying a cylinder decreases the life time of the in-line traps and increases the probability of coating the regulators, gas lines, down-stream equipment and instruments with organic impurities, such as oils, that evaporate with water from the cylinder wall as the pressure decreases”

What are the possible implications of this?

- Accumulative build-up of oil
- Moisture in the nitrogen stream
- Contamination of the process or product
- Non-compliance through THC limits exceeded
- Down-stream equipment contamination and cleaning required regularly
- Sending back part-used cylinders with gas that has been paid for
- For a 230 barg cylinder this means that 34/230 = 15% gas paid for but wasted!

What would your prospects or target accounts that are considering nitrogen generation as an alternative to cylinder gas reaction be to this information?

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NITROSource/MIDIGAS

feature focus – “Off-Gas By-Pass”

As most of you probably know, the Parker NITROSource and MIDIGAS generators incorporate a feature that automatically prevents out of specification gas from entering the process or application. The off-gas by-pass system shuts off the outlet gas stream and vents out of specification gas to atmosphere at approximately 2 thirds of the generators maximum flow. This is a very useful feature especially on initial commissioning, starting the generator from longer periods of in-operation or if there is an issue with the purity. The buffer vessel and pipe-work automatically purge until the correct purity is achieved.

Recently a university in the UK was operating a competitor’s modular nitrogen generator that wasn’t equipped with an off-gas by-pass feature. They were using gas @ 100ppm for an intermittent process and every time they wanted to use the generator they had to contact a local service company to visit site and purge the buffer and pipe-work manually until it came into specification. This was costing them between £500 to £1000 per time depending on how long the whole process took. Needless to say, it wasn’t long before a local Parker distributor convinced them to change to a MIDIGAS based on some very significant cost savings.

It’s surprising how many of our competitors omit simple but effective features that are designed into Parker generators as standard. When their value is explained fully, they can be an easily quantifiable benefit that saves £1000s.



The off-gas by-pass incorporated into the outlet valve block with vent silencer

Pharmaceutical grade nitrogen

Did you know that European Pharmacopoeia states that for analytical confirmation of the oxygen content of the nitrogen gas that an Oxygen analyser with an electrochemical cell must be used? This is exactly the technology for measuring oxygen Parker use in the MIDIGAS and NITROSource PSA nitrogen generators. If a competitor is using any other technology, Zirconia for example, then it would appear not be compliant.

Nitrogen		
Monograph	Ph Eur	USP
Name	Nitrogen	Nitrogen
Reference	1247	7727-37-9
Chemical Formula	N ₂	N ₂
Definition	Nitrogen contains not less than 99.5% V/V of N ₂ .	Nitrogen contains not less than 99.0% by volume of N ₂
Identification	Retention time of peak with Gas Chromatography or Place a glowing splinter of wood in the substance to be examined. The splinter is extinguished. or Test with magnesium turnings	Extinguishing of burning wood splinter in a Nitrogen test tube.
Production		
Assay	Assay	≥ 99.5% V/V N ₂
	Analytical Method	Gas Chromatography
CO	Limit	≤ 5 ppm V/V
	Analytical Method	Infrared analyser
CO ₂	Limit	≤ 300 ppm V/V
	Analytical Method	Infrared analyser
O ₂	Limit	≤ 50 ppm V/V
	Analytical Method	Oxygen Analyser with electrochemical cell
H ₂ O	Limit	≤ 67 ppm V/V
	Analytical Method	Electrolytic hygrometer
Odour	Limit	Not specified
	Analytical Method	Not specified
Tests		
CO	Limit	≤ 5 ppm V/V
	Analytical Method	Detector Tube
CO ₂	Limit	≤ 300 ppm V/V
	Analytical Method	Detector Tube
H ₂ O	Limit	≤ 67 ppm V/V
	Analytical Method	Detector Tube

Image courtesy of EIGA (European Industrial Gases Association).

Call for material

I hope you have found the information in this edition of interest? I would like to publish a copy bi-monthly and share as much knowledge as possible.

One thing that I am constantly asked for is reference details for all types of applications. As you can see in the stories above, reference information for similar applications played a big part in reducing the prospects fear of risk and closing the order.

Reference lists are vital to our continued success, please if you have them, let me know and we can build a really useful central knowledge bank.

If you have any successes, facts or applications you would like to share to help Parker and our trusted partners, please send as many details as you can with photographs and any other supporting information to phil.r.green@parker.com and I will make sure they are included in future editions.

Thanks for reading

Phil



New white paper available

Frequent questions concerning the installation and operation of nitrogen generators are often centred around “where does the oxygen go when it comes out of the generator?” or “what happens if there is a nitrogen leak?”

In reality, Parker nitrogen generators are a very safe alternative to traditional methods of supply but sometimes answering these questions can be quite daunting. To help users or potential prospects of Parker nitrogen generator systems to fully assess and understand how take some simple steps to make sure the installation is worry free, I have produced a white paper entitled “Breathe safely when generating nitrogen”

It contains information on all aspects of ensuring oxygen depletion, or enrichment, doesn’t occur. Including formulae to calculate potential oxygen levels.



[Download it here](#)

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