



Analysis Certificate

Version:V01

Project Number: PARKER – 0020
Sample Details: Nitrogen Gas Product

Client: Parker Hannifin Manufacturing Ltd
Subject: Compliance testing of Nitrogen gas purity generated by NITROSource PSA Nitrogen Generator

Introduction:

Analysis of product gas, Nitrogen (N₂), produced by Parker NITROSource PSA range of Nitrogen gas generators to demonstrate full compliance with food grade Nitrogen and "Food Additive – E941" purity criteria as detailed within:- Commission Regulation (EU) N° 231/2012 of 09th March 2012 laying down specifications for food additives listed in Annexes II and III to regulation (EC) N° 1333/2008 of the European Parliament.

Additional references:

- EIGA Document 126/18 Minimum Specification for Food Gas Applications.
- EIGA Document 194/15 Safe Design and Operations of On-Site Nitrogen generators for food use.

Regulation (EC) N°178/2002 of European Parliament of the Council of 28th January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety authority laying down procedures in matters of food safety.

COMPONENTIMPURITY	EC 231/2012 E941 N ₂ SPECIFICATION
Assay (v/v)	>99%
Moisture	<0.05% vol.
CO	<10 ppmV
NO/NO ₂ (combined)	<10 ppmV
Total Hydrocarbon inc. Methane CH ₄	<100 ppmV
Residual gases (O ₂)	<1% vol.

- EIGA Document 194/15:-

In the case where on-site generated Nitrogen is used as a food additive, such as in the Modified Atmosphere Packaging (MAP) application, Nitrogen should comply with the minimum purity criterion for E941 additive as described in EIGA Doc. 126/18.

Nitrogen* ≥99% Vol

Oxygen ≤1% Vol

Water ≤0.05% Vol

* 99% including other inert gases (Argon mainly)

Impurities:

Carbon Monoxide ≤10ppmV

Methane and other hydrocarbons (as Methane) ≤100ppmV

Nitrogen monoxide and Nitrogen dioxide ≤10ppmv

Methods of Analysis:

- EU 231/2012 of 09th March 2012
- EIGA Docs. 194/15 and 126/18

Certificate W S Cullen 09 Jan 2020

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Melbec Microbiology Limited contract laboratory is considered to comply with the principles of Good Manufacturing Practice as detailed in Directive 2003/94/EC.

CONTINUATION SHEET

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Results:

TEST	REGULATION & SPECIFICATION		RESULT	PASS / FAIL
	231/2012	EIGA 194/15		
Assay (Including trace inert gas, Argon mainly)	>99%	>99%	N2 (98.67%) Ar (1.07%) 99.74 % (combined)	PASS
Moisture	<0.05% vol.	<0.05% vol.	0.0006% Vol.	PASS
CO	<10 ppmV	<10 ppmV	ND (<1ppm)	PASS
NO/NO₂ (combined)	<10 ppmV	<10 ppmV	ND (<0.6ppm)	PASS
Total Hydrocarbon including Methane	<100 ppmV	<100 ppmV	11 ppmV	PASS
Residual gases (O₂)	<1% vol.	<1% vol.	0.75% vol.	PASS

ND – Not Detected

Conclusion:

The NITROSource PSA product's Nitrogen gas, as tested was found to meet the Assay and the Minimum Purity Specifications as laid out in EU 231/2012 of 09th March 2012 and EIGA Docs 194/15 and 126/18.