

 <b>PGNiG</b> <b>GRUPA ORLEN</b>	<b>PGNiG SA w Warszawie Oddział w Odolanowie</b>			<b>Edition: 06</b>
	<b>ISO 9001</b>	<b>ISO 14001</b>	<b>ISO 45001</b>	<b>Valid from: 16.08.2023</b>
	<b>SPECIFICATION OF GASEOUS HELIUM 5.0</b>			<b>Document No: SP-Z-4-3</b>

### 1. PURITY:

Min. 99,999 % of helium

### 2. IMPURITIES:

O <sub>2</sub>	max 2 ppm	H <sub>2</sub> O	max 2 ppm
N <sub>2</sub>	max 3 ppm	C <sub>n</sub> H <sub>m</sub>	max 0,5 ppm
H <sub>2</sub>	max 1 ppm	Ne	max 0,5 ppm
CO, CO <sub>2</sub>	max 1 ppm		

### 3. CYLINDERS AND BUNDLES TYPES WITH QUANTITY OF HELIUM FILLED:

Vessel:	Volume (l):	Nominal working pressure 150 bar	Nominal working pressure 200 bar	Nominal working pressure 300 bar
		Quantity filled (m <sup>3</sup> )		
Steel cylinder	50	6,9	9,0	13,0
Steel cylinder	40	5,6	7,2	10,4
Steel cylinder	27	3,8	4,9	7,0
Steel cylinder	20	2,8	3,6	5,2
Steel cylinder	15	2,1	2,7	3,9
Steel cylinder	10	1,4	1,8	2,6
Steel cylinder	8	1,1	1,4	2,1
Steel cylinder	5	0,7	0,9	1,3
Bundle	15x50	104,2	135,7	195,1
Bundle	12x50	83,4	108,6	156

\* Quantity of helium in m<sup>3</sup> calculated taking into account compressibility factory conditions.  
Pressure of filling helium into cylinder is corrected to temperature 15 °C.  
Based on the CGA P-77-2018 Standard (Standard for the Filling of Non-flammable Compressed Gas Cylinders), a cylinder filling tolerance range of ±3% of the nominal working pressure is assumed.

### 4. MARKING:

#### Cylinder:

Cylindrical part of the cylinder:	grey
Cylinder cap:	brown RAL 8008
Letter "N":	white, black or blue on double cylinder cap
Label:	"Gaseous Helium 5.0"

#### Bundle:

Colour:	grey
Label:	"Gaseous Helium 5.0"

### 5. CONNECTIONS:

For nominal pressure 150/200 bar:	W21,8 x 1/14" by DIN 477-1 No 6
For nominal pressure 300 bar:	W30 x 2 by DIN 477-5 No 54

### 6. SAFETY DATA:

UN No:	1046
Shipping name:	HELIUM COMPRESSED
Hazard Class:	2 (Classification code 1A, label 2.2, hazard identification number 20)

### 7. CERTIFICATES:

Certificates of analysis issued for cylinders/bundles filled at one time from one collector.

