

## When it comes to high purity gas, the cost is about more than just the price of the cylinder.

Every gas chromatographer tries to minimise impurities in their carrier gas, impurities can increase column degradation and impact their results.

Typically, after purchasing a high purity gas there are still a host of additional costs associated with minimising impurities, inline purifiers; purchase, maintenance and disposal, frequent column changes, the cost of leaving unused gas in the cylinder, the list goes on, but not if you choose BIP® technology gases.

When you take all these costs into consideration, you might be surprised to see how BIP® technology gases measure up against other high purity gases. Below are comparison tables of the total costs associated with high purity gases for GCs with examples for small, medium, and large labs.

	Small Lab, 3 GCs	
	Helium BIP®	Helium Brand X 6.0 Grade
Gas cost	£700.00	£650.00
Gas volume, m <sup>3</sup> , 47 litre cylinder (200 bar)	8.1	8.1
Usage volume <sup>1</sup>	92%	80%
Usable gas per cylinder (m <sup>3</sup> )	7.45	6.48

### GCs and Gas Consumption

	Helium BIP®	Helium Brand X 6.0 Grade
Number of GCs	3	3
Flow rate, ml/min <sup>2</sup>	35	35
Cylinder consumption, over a 24-month period <sup>5</sup>	3	4
<b>Cost of Gas, 24-month period</b>	<b>£2,100</b>	<b>£2,600</b>

### Purifier costs over a 24-month period

(Assuming that purifiers require changing every 8 cylinders)

	Helium BIP®	Helium Brand X 6.0 Grade
Number of sets required, over 24-month period	-	1
Disposal (£40 per disposal), 1 disposal	-	£40.00
Ongoing maintenance of purifier line	-	£300.00
Overall spend on in-line purifiers <sup>4</sup>	-	£750.00
<b>Total</b>	<b>£0</b>	<b>£1,090.00</b>

### GC Column costs

	Helium BIP®	Helium Brand X 6.0 Grade
Expected column life <sup>3</sup> (months)	6	5
Number columns, over 24-month period	4	5
Average column cost	£500	£500
Column cost, per GC, over 24-month period	£2,000	£2,500
Column cost lab for 3x GCs, over a 24-month period	£6,000	£7,500
<b>Total 24 month running cost:</b>	<b>£8,100.00</b>	<b>£11,190.00</b>
<b>Annual gas running cost:</b>	<b>£4,050.00</b>	<b>£5,595.00</b>
<b>Saving, per year using BIP®</b>	<b>£1,545.00</b>	

	Medium Lab, 10 GCs		Large Lab, 20 GCs	
	Helium BIP®	Helium Brand X 6.0 Grade	Helium BIP®	Helium Brand X 6.0 Grade
Gas cost	£700.00	£650.00	£700.00	£650.00
Gas volume, m <sup>3</sup> , 47 litre cylinder (200 bar)	8.1	8.1	8.1	8.1
Usage volume <sup>1</sup>	92%	80%	92%	80%
Usable gas per cylinder (m <sup>3</sup> )	7.45	6.48	7.45	6.48

## GCs and Gas Consumption

Number of GCs	10	10	20	20
Flow rate, ml/min <sup>2</sup>	35	35	35	35
Cylinder consumption, over a 24-month period <sup>5</sup>	11	13	22	27
<b>Cost of Gas, 24-month period</b>	<b>£7,700</b>	<b>£8,450</b>	<b>£15,400</b>	<b>£17,550</b>

## Purifier costs over a 24-month period

(Assuming that purifiers require changing every 8 cylinders)

Number of sets required, over 24-month period	-	2	-	3
Disposal (£40 per disposal)	-	£80.00	-	£120.00
Ongoing maintenance of purifier line	-	£300.00	-	£300.00
Overall spend on in-line purifiers <sup>4</sup>	-	£1,500.00	-	£2,250.00
<b>Total</b>	<b>£0</b>	<b>£1,880.00</b>	<b>£0</b>	<b>£2,670.00</b>

## GC Column costs

Expected column life <sup>3</sup> (months)	6	5	6	5
Number columns, over 24-month period	4	5	4	5
Average column cost	£500	£500	£500	£500
Column cost, per GC, over 24-month period	£2,000	£2,500	£2,000	£2,500
Column cost lab for all GCs over a 24-month period	£20,000	£25,000	£40,000	£50,000
<b>Total 24 month running cost:</b>	<b>£27,700.00</b>	<b>£35,330.00</b>	<b>£55,400.00</b>	<b>£70,220.00</b>
<b>Annual gas running cost:</b>	<b>£13,850.00</b>	<b>£17,665.00</b>	<b>£27,700.00</b>	<b>£35,110.00</b>
<b>Saving, per year using BIP®</b>	<b>£3,815.00</b>		<b>£7,410.00</b>	

Switching to BIP® gases is easy, simply order BIP® technology cylinders instead of your normal high purity gas cylinders, contact us today for more information.

<sup>1</sup>Most users will leave 15-25% of gas in the cylinder to avoid moisture contamination

<sup>2</sup>Use varies, between manufacturers and GC analysis (20-50ml/min)

<sup>3</sup>Dependent upon a number of variables, value is an estimated average, based upon:

- Laboratory carrying out headspace for VOC column could last >12 months.
- Laboratory carrying out TPH (Total Petroleum Hydrocarbons) in soil, column could last <1 month.
- BIP product range, with its low level of key impurities lengthens the lifespan of an average GC column.

<sup>4</sup>Average cost of Oxygen, Moisture and Total Hydrocarbon purifiers is £250 each.

<sup>5</sup>A fifty-week year has been assumed, operating 8 hours per day, 5 days a week

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