

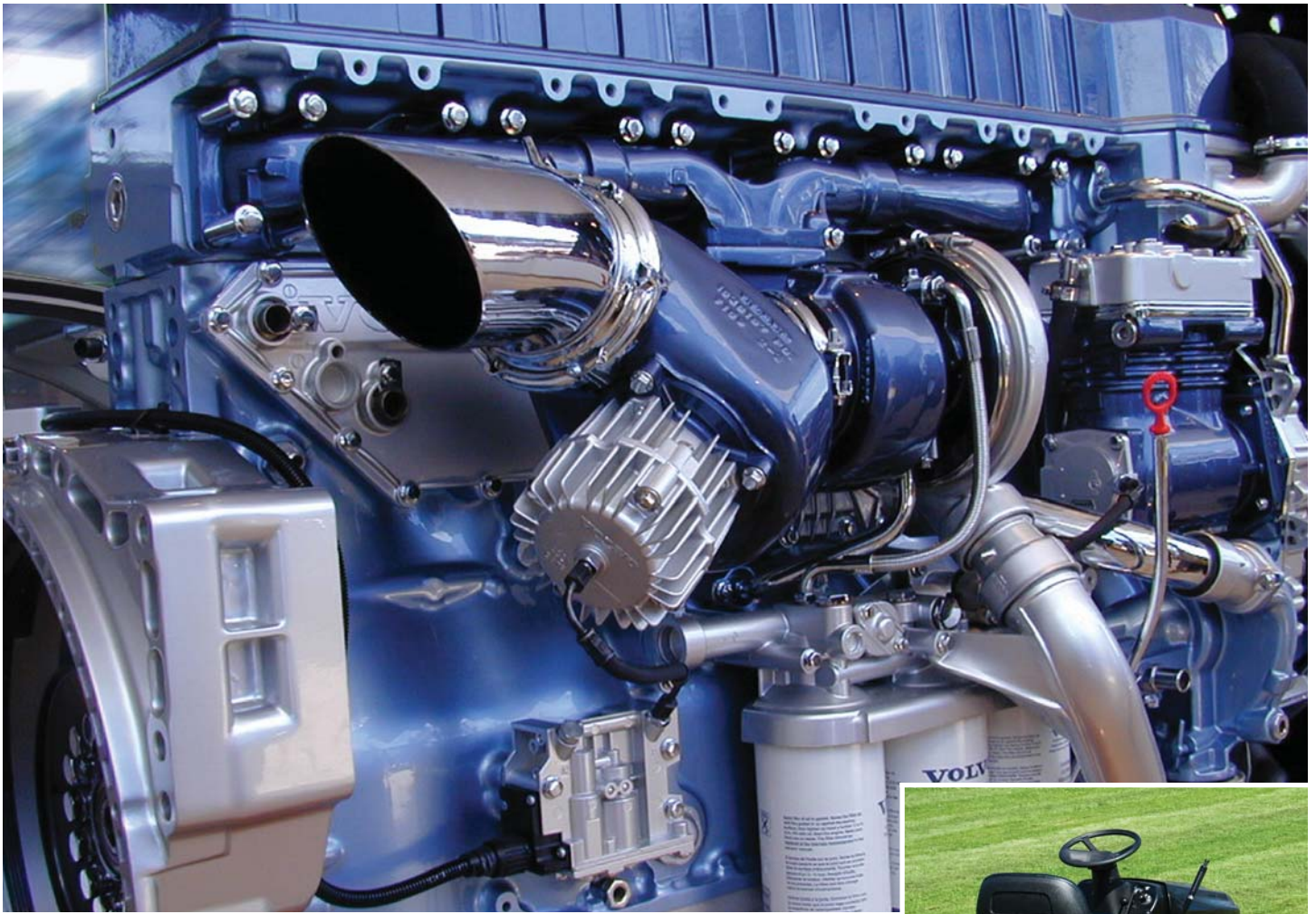
# CLASSIC

Compliance, accuracy and value in specialty gases for engine emissions testing



## Benefits and Features

- Guaranteed accuracy and purity improves calibration accuracy to prevent expensive downtime
- Cylinder-to-cylinder repeatability streamlines instrument calibration procedure
- NIST-traceability ensures  $\pm 1\%$  accuracy for most mixtures
- ISO 17025 laboratory accreditation provides added credibility and confidence
- Meets or exceeds all applicable EPA environmental codes to ensure regulatory compliance
- Transport by private fleet of trained Air Liquide drivers assures safe, on-time delivery
- Fastest lead time in the industry allows lower on-site inventory of specialty gases
- Exclusive individually bar coded cylinders and online cylinder management reduces administrative costs
- Single cylinders or multi-cylinder packs provide flexible gas quantities to meet any need
- Measurement Proficiency Testing available to monitor reliability of your laboratory's analysis



**Air Liquide** specialty testing gases deliver classic performance that is destined to become an industry benchmark for compliance and value in engine emissions testing. Their purity, accuracy and reliability actually improve analysis reliability for added compliance assurance. They also decrease operational costs by eliminating the likelihood of test cell downtime due to “bad” gases.

Our engine emissions testing gases are specifically engineered for tailpipe analysis and bench testing for all mobile engine applications. This includes automotive, off-road, locomotive, motorcycle, marine, aircraft and many other gasoline and diesel applications. Air and nitrogen support products feature low trace impurities that improve the reliability of your analytical results and extend the service life of lab instruments and detectors.



Two-component and multi-component SCOTT™ mixtures feature NIST-traceability for guaranteed concentration accuracy and are blended by *Team SCOTT*, the sole producer of candidate gaseous Standard Reference Materials for NIST. Together with our air and nitrogen, Air Liquide provides all calibration gases necessary to comply with Federal and state regulations.



*Ensure regulatory compliance for all types of engine emissions testing*



# ENGINE EMISSIONS TESTING

## AIR — Available Pure Gases

	ALPHAGAZ™ 1	1065	UZAM <sup>(2)</sup>	IM-DYNO <sup>(2)</sup>	VEHICLE EMISSION ZERO <sup>(4)</sup>	VOC FREE <sup>(3)</sup>	BAR 97
<b>PURITY</b>	<b>99.997%</b>						
CO <sub>2</sub>	***	< 10 ppm	315–385 ppm <sup>(1)</sup>	< 1 ppm	< 1 ppm	< 0.3 ppm	< 400 ppm
CO	***	< 1 ppm	< 0.1 ppm	< 0.5 ppm	< 1 ppm	< 0.1 ppm	< 1 ppm
H <sub>2</sub>							
Moisture	< 3 ppm		< 5 ppm	< 1 ppm		< 2 ppm	
NO <sub>x</sub>		< 0.02 ppm	< 0.02 ppm*	< 0.1 ppm	< 0.1 ppm		< 1 ppm
O <sub>2</sub>	20–22%	20.5–21.5%	20–21%	18–21%	20–21%	20–21%	20.9%
SO <sub>2</sub>			< 0.005 ppm*				
SF <sub>6</sub>			< 0.001 ppm*				
THC	< 0.1 ppm	< 0.05 ppm	< 0.05 ppm	< 0.1 ppm	< 1 ppm	< 0.01 ppm	< 1 ppm
Balance	Nitrogen	Nitrogen	Nitrogen	Nitrogen	Nitrogen	Nitrogen	Nitrogen

## NITROGEN — Available Pure Gases

	ALPHAGAZ™ 2	ALPHAGAZ™ 1	1065	UZAM	VEHICLE EMISSION ZERO <sup>(4)</sup>	VOC FREE <sup>(3)</sup>	EVAP	IM-DYNO <sup>(2)</sup>
<b>PURITY</b>	<b>99.9999%</b>	<b>99.999%</b>	<b>99.999%</b>	<b>99.999%</b>	<b>99.999%</b>	<b>99.999%</b>	<b>99.998%</b>	<b>99.997%</b>
CO <sub>2</sub>	< 0.5 ppm	***	< 10 ppm	< 1 ppm	< 1 ppm	< 0.3 ppm		< 1 ppm
CO	< 0.1 ppm	***	< 1 ppm	< 0.1 ppm	< 1 ppm	< 0.1 ppm		< 0.5 ppm
H <sub>2</sub>	< 0.1 ppm							
Moisture	< 0.5 ppm	< 3 ppm		< 4 ppm		< 2 ppm	< 4 ppm	< 1 ppm
NO <sub>x</sub>			< 0.02 ppm	< 0.02 ppm*	< 0.1 ppm			< 0.1 ppm
O <sub>2</sub>	< 0.5 ppm	< 2 ppm	< 2 ppm	< 2 ppm		< 2 ppm	< 5 ppm	< 0.5 ppm
SO <sub>2</sub>				< 0.005 ppm*				
SF <sub>6</sub>				< 0.001 ppm*				
THC	< 0.1 ppm	< 0.5 ppm	< 0.05 ppm	< 0.05 ppm	< 1 ppm	< 0.05 ppm		< 0.1 ppm

\* Typical purity; not analyzed.

\*\* Available with 315–385 ppm CO<sub>2</sub> on request

\*\*\* Typical purity; not analyzed: CO<sub>2</sub> < 1 ppm, CO < 1 ppm

<sup>(1)</sup> Available without CO<sub>2</sub> on request

<sup>(2)</sup> Meets standards for IM240 working zero and purge

<sup>(3)</sup> Individually analyzed for customer selected VOCs

<sup>(4)</sup> Meets Federal Register specifications Title 40, part 86.114-79



## FID Gases

	FID FUEL	FID FUEL 1065
CO <sub>2</sub>		
CO		
H <sub>2</sub>	39–41%	39.6–40.4%
Moisture		
NO <sub>x</sub>		
O <sub>2</sub>		
SO <sub>x</sub>		
SF <sub>6</sub>		
THC	< 0.1 ppm	< 0.05 ppm
Balance	He or N <sub>2</sub>	Helium

## SCOTT™ Two-Component Calibration Gas Mixtures

	Balance Gas	Concentration	NIST Traceable	Accuracy	ISO 17025 Accreditation
Ammonia	Nitrogen	5–5000 ppm	No	±3%	No
Carbon Monoxide	Air	1 ppm–3%	Yes	±1%	Yes
	Nitrogen	1 ppm–12%	Yes	±1%	Yes
Carbon Dioxide	Air	100 ppm–25%	Yes	±1%	Yes
	Nitrogen	100 ppm–25%	Yes	±1%	Yes
Ethanol	Air	10–500 ppm	Yes	±2%	No
	Nitrogen	1–500 ppm	Yes	±1%	No
Methane	Air	1 ppm–3%	1 ppm–0.5%	±1%	Yes
	Nitrogen	1 ppm–10%	1 ppm–0.5%	±1%	Yes
Nitric Oxide	Nitrogen	1 ppm–1%	Yes	±1%	Yes
Oxygen	Nitrogen	0.4%–25%	Yes	±1%	Yes
Propane	Air	1 ppm–1.1%	Yes	±1%	Yes
	Nitrogen	1 ppm–5%	Yes	±1%	Yes

\* Compliance certificate available as noted.

## SCOTT™ Multi-Component Calibration Gas Mixtures

	Carbon Dioxide	Carbon Monoxide	Propane	Nitric Oxide	Balance	Accuracy	NIST Traceable
	0.5%–20%	1 ppm–8.75%	1 ppm–1.1%		Air	±1%	Yes
	0.5%–20%	1 ppm–10%	1 ppm–2.9%		Nitrogen	±1%	Yes
	0.5%–20%	1 ppm–10%	1 ppm–2.9%	5–5000 ppm	Nitrogen	±1%	Yes
BAR 90 Mid	12%	4%	1200 ppm		Nitrogen	±1%	Yes
BAR 90 Low	6%	1%	300 ppm		Nitrogen	±1%	Yes
BAR 97 High	12%	8%	3200 ppm	3000 ppm	Nitrogen	±1%	Yes
BAR 97 Low	6%	0.5%	200 ppm	300 ppm	Nitrogen	±1%	Yes
BAR 97 Mid 1	3.6%	2.4%	960 ppm	900 ppm	Nitrogen	±1%	Yes
BAR 97 Mid 2	7.2%	4.8%	1920 ppm	1800 ppm	Nitrogen	±1%	Yes



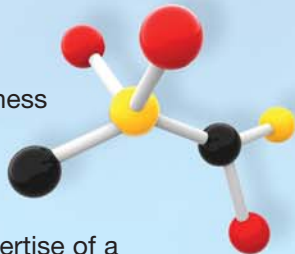
# MOLECULES that matter™

You might say that as a leading world supplier of specialty gases, we're all about molecules that matter. Our technology and production processes are carefully engineered to provide accurate measures of certain gas molecules that in turn facilitate the reliable emissions testing necessary to reduce the presence of harmful molecules in our atmosphere. Supplying industrial and specialty gases since 1902, our innovative solutions improve our customers' performance while helping to protect the environment. In fact, about a third of Air Liquide's product sales can be linked directly to applications that are helping to preserve our environment and ensure human safety.

Adding SCOTT™ products to our portfolio greatly broadens our expertise in environmental monitoring and emissions testing. Scott has been the sole-source producer of candidate gaseous standard reference materials (SRMs) for the National Institute of Standards and Technology (NIST) and built the world's largest inventory of NIST-traceable reference materials (NTRMs). SCOTT brand EPA protocol gases are easily the world's best known and largest selling CEM calibration gases.

Air Liquide's focus is to go beyond simply selling molecules of gases. Due to a rapidly changing global economy, as well as legislation directed toward protecting our environment, standard business formulas are becoming increasingly inadequate. The business of engine emissions testing is no exception. At Air Liquide, we are committed to providing measurable value to customers concerned with engine emissions testing—by leveraging our resources to help them improve their efficiency and raise product quality, while enhancing safety and environmental compliance.

Commitment to technology and innovation has kept Air Liquide at the forefront of the high-tech business of industrial and specialty gases for more than 100 years. Our global presence empowers us to combine the resources and expertise of a worldwide enterprise with powerful, personalized service from local, customer-focused teams. It's a formula that transforms molecules that matter into greater customer efficiency, growth and success as well as a safer, cleaner environment for us all.



# SCOTT™ Equipment— not just calibration gases



## ALPHAGAZ™ Pure Gases

ALPHAGAZ 2 high grade pure gases are engineered for the most critical lab and analytic applications.

ALPHAGAZ 1 pure gases exceed purity recommendations of laboratory instrument manufacturers and are the clear choice for all-around laboratory, analytical and process applications.

Make Air Liquide your one-stop source for all of your gas distribution needs. SCOTT brand high-performance gas handling equipment and accessories are the perfect compliment to our engine emissions testing gases and are guaranteed to be compatible for all compliance applications.

- Top quality materials of construction protect gas purity and integrity
- Low maintenance and long service life provide trouble-free service
- Convenient online purchasing of most items at [scottgas.com](http://scottgas.com)
- Most items in stock for fast, same-day shipping
- All SCOTT equipment meets or exceeds applicable safety regulations
- Custom gas delivery systems for all types of engine testing applications

- Guaranteed low impurity levels protect instrument sensitivity and ensure peak performance
- Cylinder-to-cylinder consistency with a lot number on each cylinder that is traceable to our analytical records ensures added performance reliability
- Exclusive SCANDINA™ cap provides added safety during transport and while cylinder is in service
- Introducing our exclusive SMARTOP™ with easy ON/OFF lever and built-in gas level gauge and residual pressure valve (RVP) that prevents atmospheric contamination

### Need assistance selecting gas equipment?

Stainless or brass... single-stage or two-stage? Not sure what equipment you need to safely and effectively deliver gas to your point of use? Call us today for expert recommendations. We can also use our CAD system to custom design your cylinder room and complete gas distribution system.



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Founded in 1902, Air Liquide is a world leader in industrial and medical specialty gases and related services, providing innovative solutions for the manufacture of everyday products and for the protection of life.

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