

Krypton, Neon, Xenon

Rare Gas Application: Lighting



The invention of the incandescent light bulb in the 19th century revolutionized modern day life. Today, there are over ten thousand different light bulbs available to industry and consumers.

Rare gases, including krypton, neon and xenon, are used with other gases in incandescent filament, fluorescent, and discharge light bulbs to improve brightness, intensity, service life or color.

As the world leader in rare gas technology, Air Liquide provides high-purity krypton, neon and xenon rare gases that are ideally suited for all lighting applications.

Krypton, Neon, Xenon

Rare Gas Application: Lighting

Advantages of Rare Gases

FILAMENT LIGHT BULBS: Gas mixtures with krypton and xenon are used in incandescent filament light bulbs because they reduce thermal conductivity and diffusion rates of atoms. This allows the filament to operate at higher temperatures, which slows down the evaporation of the filament, thus extending light bulb life.

FLUORESCENT LIGHT BULBS: Gas mixtures with krypton, xenon and neon are used in fluorescent light bulbs because they offer the highest luminous efficiencies and impact color. Efficiency is important because fluorescent light bulbs operate at high voltages. Neon turns color to orange-red while krypton turns to silver-white.



HIGH INTENSITY DISCHARGE LIGHT BULBS: Xenon is a preferred filling gas in High Intensity Discharge (HID) light bulbs over traditional mercury or metal halides. Compared to conventional light bulbs, xenon HID lights are environmentally-friendly and offer advantages of higher intensity, longer lifetime and superior color.

World Leader in Rare Gas Technology

The first modern neon sign debuted in 1910 at the Grand Palais in Paris and was created by Georges Claude, founder of Air Liquide. Air Liquide's expertise in this field has continued since then, as we are now the world's largest supplier of rare gases to the lighting industry. Air Liquide has the largest sourcing capability as well as efficient supply chain configurations to ensure reliable and timely delivery of gases to meet the most stringent customer needs. Our facilities employ leading-edge technologies and state-of-the-art analytical instruments to guarantee production of gases ranging from "standard" quality to the most ultra-high-purity gases available on planet Earth.



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.

NOTE: This brochure is intended for general information purposes only and is not intended as a representation or warranty of any kind, or as a statement of any terms or condition of sale. The information herein is believed to be correct, but is not warranted for correctness or completeness or for applicability to any particular customer or situation.

MOLECULES THAT MATTER is a trademark of the Air Liquide Group. ©2010 Air Liquide America Specialty Gases LLC



Air Liquide Delaware Research and Technical Center

The Air Liquide Advantage

- Rare gases and handling equipment to meet the most demanding applications
- Research and technical centers on three continents
- World leadership in the supply of rare gases to lighting industry
- World leadership in supply chain excellence with operations in over 80 countries
- Gas Management Systems for rare gases and other pure and mixed gases
- Rare gas purification services are available



Air Liquide America Specialty Gases LLC
6141 Easton Road
Box 310
Plumsteadville, PA 18949

Phone: 800.217.2688
Fax: 215.766.2476
Email: solutions.center@airliquide.com
www.ALspecialtygases.com