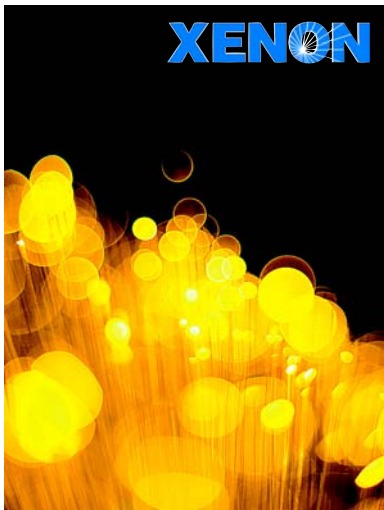


FOUR
DECADES
OF
BRINGING
NEW TECHNOLOGY
TO
LIGHT

XENON



FLASHLAMPS • PULSED UV CURING SYSTEMS • PULSED UV STERILIZATION SYSTEMS



FOUR
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NEW TECHNOLOGY
TO LIGHT

XENON
CORPORATION

XENON Corporation was founded in 1964 to develop and manufacture high performance flashlamps for pumping high energy laser systems. Since that first product introduction in 1964, scarcely a year has passed that Xenon Corporation has not announced another break-through in light technology. The first commercially available flash photolysis system for fast reaction photochemical and photobiological analysis...the first high voltage hold-off fast-extinguishing flash-tube...the world's first dye laser pump lamps...new, low temperature, pulsed UV curing processes...the list of Xenon Corporation-developed products grows each year.

Xenon Corporation is an innovative company. Its list of U.S. patents and its roster of new products attest to that. And Xenon Corporation is the established leader in the technology that will

own the twenty-first-century—pulsed light.

Xenon Corporation has a deserved reputation for creativity. The company works with customers to develop solutions that are completely new. Xenon Corporation engineers have solved low temperature UV curing problems for manufacturers of semiconductors, digital video discs, medical devices, cars and electronic products.

Dedication to the safety of the workplace and the quest for a superior curing technology led Xenon Corporation into the development of pulsed UV curing. Today, when one thinks of pulsed light, Xenon Corporation is first in the mind of the customer.

Xenon Corporation enjoys a reputation for superior customer service and sophisticated products that are rugged and reliable. Hundreds of end-users and O.E.M.s worldwide count on Xenon

Corporation products for longer life, greater reliability and less down time. At Xenon Corporation, quality is considered a standard; the light sources, components and systems are designed precisely to specification and are fully tested before being shipped. Answers to specific questions are always available and the company is always ready to listen to challenges, to entertain the hard questions and then to go to work on unique solutions.

In the twenty-first century—the Age of Light—Xenon Corporation will continue to pioneer light technology. In the Age of Light, Xenon Corporation will continue to lead.

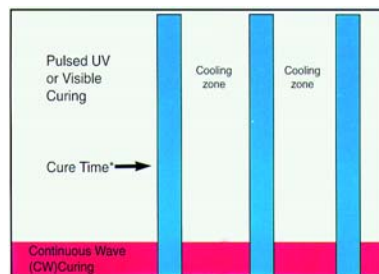
PULSED LIGHT
XENON DELIVERS
MORE

The benefits of pulsed light are easy to understand through the analogy of the hammer and nail. When you drive a nail into a wall with a hammer, is it more effective to strike the nail with a series of short, even hits or is it better to apply the hammer to the nail head and to press steadily?

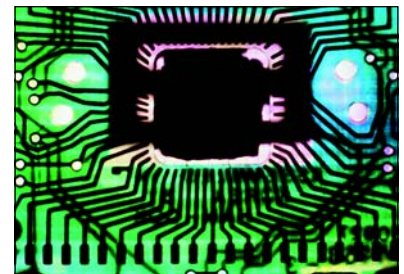
Obviously the series of strikes yields a more effective penetration. Pulsed light works on the same principle. In addition to superior penetration, it offers other benefits that CW (continuous wave) ultraviolet light cannot match: speed, safety, control, depth and quality of cure, reduction of substrate temperatures and an unprecedented degree of process control that makes possible such benefits as configuration flexibility, spectrum shifting and instant stop/start. In short, pulsed light opens possibilities for creative new solutions in a host of applications in many industries and technologies.

In semiconductor processing, in UV curing, in plastic surface treatments and in the critical area of sterilization, Xenon Corporation is pioneering the application of pulsed light.

As concerns for safety mount, pulsed light is offering newer and safer ways to ensure purity in food packaging



CURING CIRCUIT BOARD COATINGS





and beverage bottling. Very brief, intense pulses of UV white light can efficiently and effectively sterilize packaging, medical devices, pharmaceuticals, water and air. Although each pulse lasts only a few hundred millionths of a second, the light is about 50,000 times brighter than sunlight and has the power to kill high levels of all microorganisms including bacteria, fungi, spores, viruses and protozoa.

Innovations for the semiconductor industry offer other examples of pulsed light creativity and effectiveness.

The pulsed UV technology developed by Xenon Corporation overcame the photore-sist cure limitation for ion implantation. Proven success with the pre-ion implantation hard bake process, as well as with surface cleaning and treatment has secured a valued niche in the semiconductor industry for Xenon Corporation's pulsed light technology.

Safety may be the driving force that makes pulsed light the prime technology of the new century for science, industry, medicine and transportation. Pulsed light technology makes both the lamps and the applications they serve, safer. The lamps contain no mercury, or other toxins. They do not require microwaves to provide power to the lamp. The applications are safety-sensitive too: from environmentally non-polluting toxin-free UV curing to ease of visibility collision avoidance to sterilization processes that are worker-friendly even as they ensure product purity. Xenon Corporation is proud to have pioneered the technology of pulsed light.

PULSED UV PROVIDES
PRECISE CURING OF
HYDROGEL ELECTRODES,
CATHETERS AND SYRINGES.
IT ALSO PROVIDES OUT-
STANDING INTEGRITY IN THE
CURING OF LUBRICOUS COAT-
INGS ON GUIDEWIRES AND
BALLOON CATHETERS.

RING LAMPS FOR CATHETER
CURING



PULSED LIGHT STERILIZATION



PULSED
UV
SYSTEMS

When the semiconductor industry had a serious pre-ion implantation problems with photoresist stabilization, Xenon Corporation showed how to manipulate the spectral output of a single pulse of light to generate the right combination of light and heat to produce a super-hard photoresist. Xenon Corporation's ability to shift the spectrum during a single pulse created new possibilities in semiconductor curing and processing. Flexible light—it's just one of the attributes of Xenon Corporation's pulsed UV technology.

Beyond flexibility, pulsed UV light has the ability to deliver high energy photons uniformly. It penetrates without heat and it penetrates deeper. It is toxin free. It is easily controllable; on/off is instantaneous. And it cures faster, using a much lower average temperature.

Xenon Corporation has harnessed pulsed light technology into an array of systems for the industrial and research markets. Moreover the company has proved its willingness to custom design and engineer systems to meet specific customer challenges. The twenty inch linear housing to cure lubricious coatings on venous catheters is one example. To cure cladding on almost microscopically thin wires, Xenon Corporation designed an optical system for their pulsed UV curing unit; the system's unique V-shaped reflector made a uniform 360 degree, low temperature cure possible.

Flexible pulsed light adapts to a variety of UV curing applications including bonding, sealing, coating, potting, marking, repairing and research. A growing host of industries continues to look to Xenon Corporation's pulsed UV and visible systems for curing, sterilization, semiconductor processing, surface treatments and hazardous waste clean-up.

The medical device industry:

Catheters • Syringes • Hydrogel • Guide wires

The electronics industry:

PC board coatings • Potting • Wire tacking • Circuit protection • PC board mask repair
• ECO wiring • LCD Bonding

The semiconductor industry:

Hardbake • Deep UV curing • Vacuum UV cleaning • Surface preparation • Liquid crystal display • Rapid thermal annealing

The optics industry:

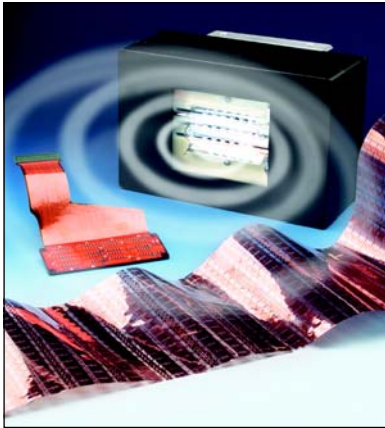
Fiber optic cladding • Fiber optic connections • Lens processing
• Lens coatings • Lens alignment

The printing industry:

Integrated circuits • Printed circuit boards • Wire • Medical devices
• Printing plates • Litho inks • Varnish coating

Information storage:

D.V.D. Bonding • CD Label curing • Disc drive (read-write) head bonding



PULSED UV/VISIBLE LIGHT IS USED TO CURE MULTI-FILM FLEXIBLE CIRCUIT BOARDS WITHOUT DAMAGING THIN, HEAT SENSITIVE INSULATING MATERIALS.



A COMPACT, BENCHTOP PULSED UV LIGHT SYSTEM HAS PROVEN TO BE AN EFFECTIVE RESEARCH TOOL FOR THE STUDY OF KILLING MICROORGANISMS.

Since 1964, Xenon Corporation has manufactured all the elements of their curing systems in the U.S.A. including the pulsed lamps, housings, optics and power supplies. Systems include handheld spot units for field repair, portable units from spot to very large areas,



XENON CORPORATION PLAYS A KEY ROLE IN DVD TECHNOLOGY; TWO DISKS ARE BONDED WITHOUT EXCESSIVE HEAT USING XENON CORPORATION'S PULSED UV CURING SYSTEMS. FOR STANDARD COMPACT DISKS, XENON CORPORATION CURES INKS ON SURFACES WITH SIGNIFICANT HEAT REDUCTION TO ELIMINATE WARPING.

for fixed position or for conveyORIZED applications. And now, with the development of sapphire lamps, Xenon Corporation's pulsed UV/visible curing technology extends into the vacuum ultraviolet.

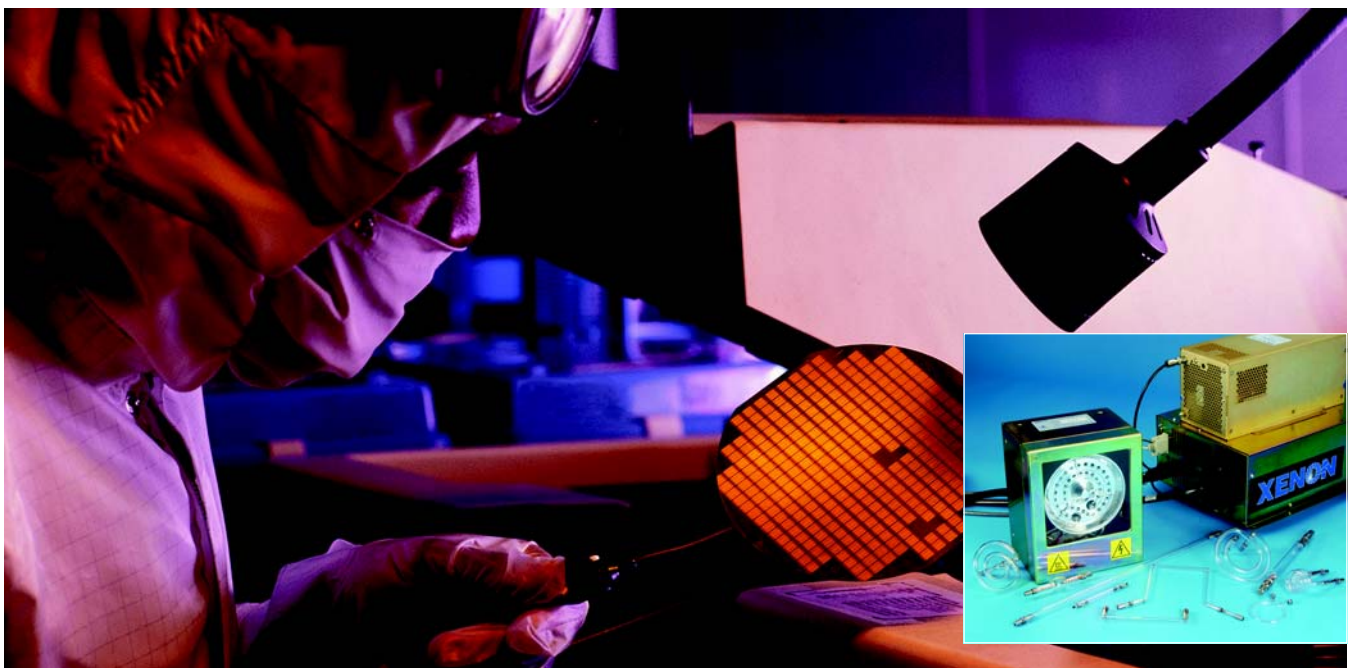
Xenon Corporation is always interested in working with customers to realize creative solutions for applications problems and new product challenges.

GENERAL
LIGHT SYSTEMS
FOR INDUSTRY
AND
RESEARCH

Flash photolysis was a radical new concept in 1964 and Xenon Corporation was still a young flashlamp manufacturing company when M.I.T. scientists, experimenting with fast reaction chemistry, turned to Xenon Corporation with one of the company's first customer challenges. M.I.T. needed equipment to explore a new technology called fast reaction chemistry. By shining continuous wave light through a chemical sample and then hitting the sample with pulsed light, Xenon Corporation engineers and M.I.T. scientists were able to obtain measurements down to a millionth of a second. This first commercially available flash photolysis system helped transform the fields of photochemistry and photobiology. Xenon Corporation expanded its product line beyond lamps and began manufacturing the first of its pulsed light systems—a flash photolysis system that provided the worldwide research community with a valuable tool for fast reaction photochemistry and photobiology. In addition to lamp manufacturing, Xenon Corporation became a supplier of complete light systems: lamps, lamp housings and controllers. Today, general light systems from Xenon Corporation are operating in these critical applications:

- Non-invasive surgery
- ESR/NMR
- Laser photolysis
- Flash photolysis
- Machine vision strobe
- Solar cell testing
- Vacuum UV absorption
- Laser pumping
- Photoconductivity studies
- Photochemical & biological research

BELOW: XENON CORPORATION LIGHT SYSTEMS
AID IN THE MANUFACTURE OF SEMICONDUCTORS.
BOTTOM RIGHT: A MODULAR PULSED UV/VISIBLE
SYSTEM OFFERS FAST CURING WITH COOLER
SUBSTRATE TEMPERATURES.





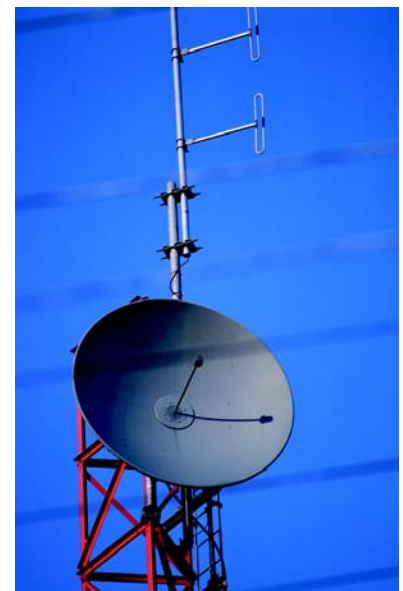
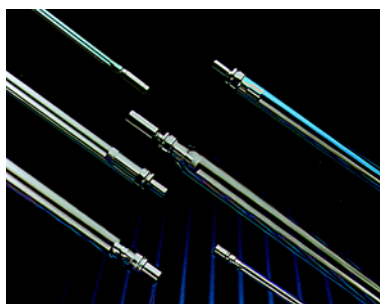
In the coming Age of Light, Xenon Corporation's lamps are in the vanguard. Pulsed lamps are firing alarm systems to alert the deaf to danger and beaming from emergency vehicles to make rescue efforts faster and safer. Where the light absolutely must not fail, Xenon Corporation's lamps are serving as stable fail-safe light sources.

Xenon Corporation lamps in tall towers are warning aircraft from dangerous obstacles. In surgical theaters, pulsed lamps are aiding in the performance of delicate, non-invasive surgery. And Xenon Corporation's lamps

have been included in some of the most interesting and important points of history such as the testing of mirrors in the second, successful, Hubble Space Telescope effort.

From the deep UV through the visible to the infrared, high performance lamps of all types and configurations manufactured by Xenon Corporation are specified in both the OEM and replacement markets.

- Surface treatment
- Pulsed light for sterilization
- Industrial machine vision strobe lamps
- Industrial ultraviolet curing lamps
- Semiconductor photostabilization
- Solar simulation lamps for scientific systems
- Aircraft and airport signal lights
- Medical illumination lamps
- Lamps for copying machines
- Tall tower aviation obstruction lamps
- Commercial signal lights
- Fiber optics
- Chromatography
- Chemical & biological research

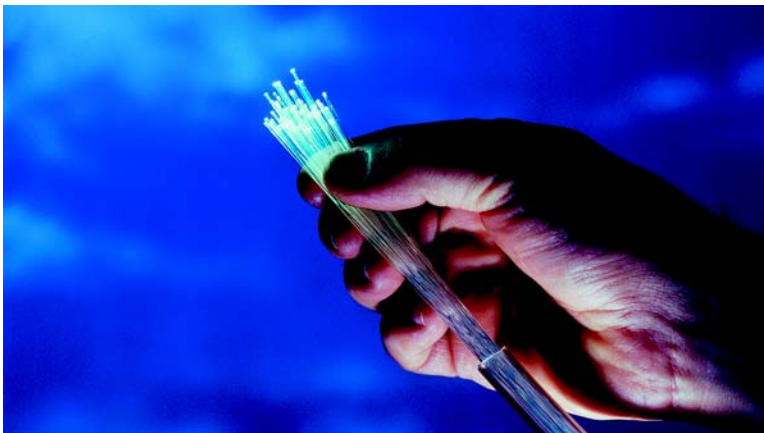


TOP: LAMP FOR TALL TOWER.
 BELOW: AN ARRAY OF LINEAR
 FLASHLAMPS. RIGHT: TALL
 TOWER WITH BEACON LAMP.

LAMPS AND RELATED ELECTRONICS

FOUR DECADES
OF
BRINGING
NEW TECHNOLOGY
TO LIGHT

- * CoolCureXL-DVD® system sets industry benchmark for rapid, high yield, DVD bonding.
- * Introduced SteriPulse-XL® benchtop and inline bio-reduction systems.
- * Introduced dual flashlamp, high intensity and modular pulsed UV system.
- * Introduced spiral shaped flashlamp, eliminating CD and DVD edge curing problems.
- * Developed exclusive Flash Initialization Technology for formatting CDs and DVDs.
- * Introduced “zero” residue dicing tape removal process for semiconductor industry
- * Introduced low temperature pulsed UV/Visible curing system for liquid crystal displays.
- * Developed ring lamp pulsed UV/Visible curing system for heat sensitive medical devices.
- * Successfully cured coating on heat sensitive credit card using pulsed UV system, eliminating damage to the internal hologram.
- * Pulsed UV curing equipment applied to bond fiber optic connectors for the first transatlantic fiber optic cable.
- * Introduced small area pulsed UV curing system for fiber optic connectors.
- * Patent issued on pulsed light process for semiconductor pre-ion implant stabilization.
- * Achieved reduced curing times of composites from hours to minutes, reducing energy used in the manufacturing process by 80 to 90%.
- * Demonstrated preproduction curing of composite materials for aircraft parts using Xenon Corp. developed flash polymerization process.
- * Developed multilayered pre-prep pulsed UV resin curing systems for mobile pipe production.
- * Successfully conducted first pulsed UV/Visible light sterilization tests on bottled milk.
- * Introduced robust flashlamps for tall tower obstruction lighting.
- * Introduced industry first flashtubes and related micropulsers for dye laser pumping.
- * Developed first high voltage hold-off, fast-extinguishing flashtube.
- * Flash photolysis equipment released for photochemical and photobiology research.
- * Developed first commercially available flash photolysis system for M.I.T.



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