To achieve the best results irradiation of plastic surfaces, USHIO provides customized VUV excimer solutions. Chemical bonds that cannot be broken using standard UV lamps can be dissolved using the VUV 172 nm wavelength produced by excimer lamps.
Applications:
- Surface activation
- Removal of contaminates from production processes
- Adhesion improvement
- Optical bonding

Advantages:
- Induced fast and efficient process
- No contamination
- No chemicals
- Instant on/off
- Narrow bandwidth radiation
- “Cold” radiation
- Environmentally friendly
- Easy to implement

The very unique VUV 172 nm excimer radiation can be used in a multitude of potential applications in which surface energy enhancement and a selective surface modification is needed. The enhanced surface energy leads to better attachment of inks, coatings and lacquers on surfaces and therefore increase product quality.

172 nm excimer lamps
The incorporated excimer lamps are a special source of highly energetic ultraviolet radiation: VUV radiation at 172nm. The spectrum is generated by their filling containing noble gases or noble-gas halogen compounds. Besides changing their filling the radiation spectrum can be adjusted by special phosphors. During their long lifetime lamps are highly efficient, up to 67%.

Instant on/off at full radiation output allows immediate processes. Our unique VUV excimer lamps are ‘cold’, which means there is no IR emission. For plastic surface treatment USHIO provides a broad range of various lamp lengths and outputs from 55mm and 9W up to 2200mm and 4kW.

ExciJet172: excimer modules for your complete solution
USHIO introduces a new range of portable VUV excimer modules called ExciJet172 – a superior combination of VUV excimer lamps and houses which offers you a complete radiation solution. Due to the instant on/off function preheating or cooling cycles are not necessary anymore. With the compact size of the ExciJet172 excimer modules, integration can be done easily. Modules can also be used in a modular “building block” format. Various sizes are available.

ExciJet172 20-85:
20W, 1 lamp, 20mW/cm², 85mm x 65mm irradiated area

ExciJet172 55-130:
55W, 2 lamps, 25mW/cm², 130mm x 90mm irradiated area

The enhanced surface energy leads to better attachment of inks, coatings and lacquers on surfaces and therefore increase product quality.

Modules can also be used in a modular “building block” format. Various sizes are available.
Application examples

Surface activation:
Treatment on PVC cards
The printed image on the untreated card is blurry and even cannot be read by scanner systems, while the image on the treated card is sharp and uniform.

- Extraordinary high-quality printing
- No damaging of the substrate also during the long-term treatment
- Safe and reproducible process

Optical bonding:
Treatment of two substrates
Due to the surface activation by VUV excimer radiation, two substrates can be permanently attached adhesive-free by pressing them together. Therefore optical quality as well as overall product reliability can be enhanced significantly.

- No modification of the substrate itself
- Chemical free
- High bonding strength even with low annealing time, temperature and pressure applied

Developing together with USHIO
Our unique VUV 172 nm irradiation has an enormous application potential for various materials and surfaces. USHIO is a partner that listens to your ideas and requirements. Let us optimize your processes according to your specifications and expectations. Use our expertise to develop together a tailor-made solution that matches your needs.