

# LASER OPTICS AND FIRST CONTACT™

FIRST CONTACT™ Polymer Solution is the first strip coat cleaner in the world that safely cleans coated laser optics. FIRST CONTACT™ solution follows surface contours, dissolves organic contaminants and encapsulates particulates as it dries to a robust film. Peeling the polymer film renders the surface pristinely clean! The polymers in FIRST CONTACT™ have been tested and evaluated by independent laboratories using many techniques.



The Cleaning & Protection System

## FIRST CONTACT™ POLYMERS:

- ◆ Clean off contaminants and nano-particulates.
- ◆ Clean off fingerprints.
- ◆ Leave no residue.
- ◆ Remove residue from treatments using other products or chemicals.
- ◆ Leave optical thin films intact on optics, mirrors, and gratings.
- ◆ Physically protect optics from airborne contaminants and accidental contact.

## PRODUCT

FIRST CONTACT™ was developed from years of R&D and is available as a one-part solution that is ready to use right from the bottle. The product consists of designer polymers in a complex solvent system. FIRST CONTACT™ adheres strongly to itself and particulate contaminants, but has minimal adhesion to the optic's surface. It dries to a flexible film that peels off easily, leaving an amazingly clean surface.



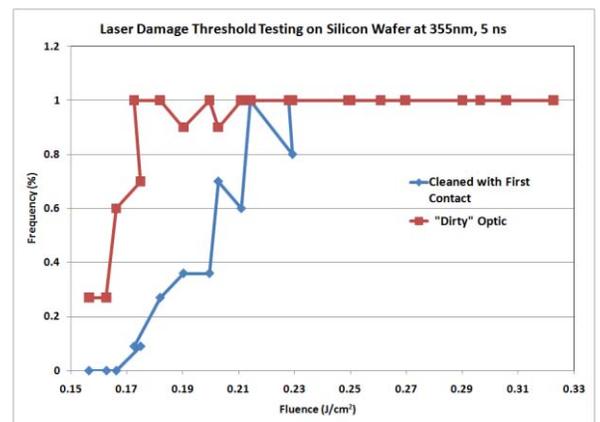
The solvent system has been carefully developed to work with high quality optics, mirrors, and diffraction gratings. The solvents have been selected to dry at a controlled rate, avoiding thermal coating stress which could ruin the optic. The system is quite safe, utilizing common solvents like ethanol and acetone.

FIRST CONTACT™ cleans optical glass, metals, Si, Ge, ZnSe, NaCl, KBr, KRS-5, first surface mirrors, thin films including AR and reflective coatings, crystals, and non-linear crystals like coated BBO – even diffraction gratings. Smooth or rough surfaces, flat or curved surfaces, continuous or non-continuous surfaces can all be cleaned safely, easily, and completely with FIRST CONTACT™ because the fluid solution conforms to any surface but the polymer film releases easily; removing all particulate and organic contaminants.

## LASER DAMAGE THRESHOLD DATA

A major laser optics manufacturer commissioned a testing laboratory to evaluate Photonic Cleaning Technologies' claims relating to FIRST CONTACT™. The results? Using FIRST CONTACT™ Polymer solution:

**"Nanosecond YAG Laser Damage Threshold levels statistically indistinguishable from the high power laser optic manufacturer's established cleaning processes." – It cleans and is safe!**



## CLEANING AND PROTECTION OF YOUR OPTICAL SURFACES

The polymers have been tested over and over again to show they remove contaminants but not optical thin films or metal substrates.

## APPLICATION MODES

FIRST CONTACT™ is a versatile cleaning tool. Its versatility extends to application techniques. FIRST CONTACT™ may be applied with a brush, from a pipette, by dipping, pouring, or spraying. See our website, [www.PhotonicCleaning.com](http://www.PhotonicCleaning.com), or contact us for more information about spray application.

Photonic Cleaning Technologies, LLC

PO Box 435, Platteville, WI 53818 USA

608 467-5396

[www.PhotonicCleaning.com](http://www.PhotonicCleaning.com)

[sales@PhotonicCleaning.com](mailto:sales@PhotonicCleaning.com)

# Photonic

## Cleaning Technologies

# LASER OPTICS AND FIRST CONTACT™

## NO SCRATCHES

In addition to leaving surfaces optically clean, FIRST CONTACT™ Polymer Solution cannot scratch your optics. The liquid solution can be sprayed on, poured on, dropped on, or brushed on the optic; nothing ever touches the surface except liquid FIRST CONTACT™ Polymer Solution. There is no way to scratch the substrate! Completely safe when properly applied regardless of the contaminants.



## COST EFFECTIVE

FIRST CONTACT™ Polymer Solution is a cost effective tool for cleaning laser optics. Simply apply the polymer, let it dry, and remove it when you want to use the optic. Cleaning can be done on your schedule because the polymer film protects optics while keeping them pristinely clean until it is peeled off. No need to coordinate cleaning and mounting optics at the last minute to minimize contamination! Your optics have never been cleaner or had fewer surface contaminants.



## SURFACE COVERAGE

Coverage depends on optic size, shape, and roughness. One (1) milliliter of FIRST CONTACT™ Polymer Solution can clean about 6 smooth, flat, 1" (2.5 cm) optics. Larger optics require a thicker coating to provide enough film strength for easy, complete peeling. Rough optics, like diffraction gratings or frosted surfaces, and certain optic thin films also require thicker, stronger film layers to peel off completely in a single piece.

## OPTIC SIZE LIMITATION

There is none! FIRST CONTACT™ has cleaned surfaces from fiber optics to 6 foot hexagonal mirrors and huge telescope mirrors. If you can apply the solution and remove the film, there is no optic too small or too large for cleaning with FIRST CONTACT™ Polymer Solution. First Contact will clean micro- and nano-structures on the substrate for you!

## PROTECTION

FIRST CONTACT™'s polymer film provides excellent protection to the coated surface! The inert polymers form a strong, flexible covering that is adhered intimately to the surface. The polymer film prevents airborne contaminants and accidental contact to eliminate fingerprints, particulate contamination and abrasion damage.

The FIRST CONTACT™ polymer film is also an excellent barrier to oxygen, sulfur compounds, water, and water vapor. This level of protection helps prevent oxidation and chemical attack that could damage the optic during storage or shipping.

XPS	C 1s %	O 1s %	Si 2p %
After	17.8	57.4	20.6
Before	48.1	33.3	16.0

The table above shows XPS data taken on a clean glass substrate before and after cleaning with Red First Contact Polymer. The amount of carbon decreases substantially after polymer removal-it is truly vacuum ready. Data taken at the Univ. of Iowa Central Microscopy Facility.

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