

THE EXICOR DUV BIREFRINGENCE MEASUREMENT SYSTEM AND ITS APPLICATIONS TO THE OPTICAL LITHOGRAPHY INDUSTRY

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INTRODUCTION

The Exicor DUV Birefringence Measurement System developed at Hinds Instruments, Inc. can measure residual birefringence, stress birefringence and intrinsic birefringence at all three DUV lithography wavelengths (157 nm, 193 nm and 248 nm).

The Exicor DUV system can be used as a quality control (QC) tool for fused silica and calcium fluoride suppliers to monitor birefringence levels in their products. It can also be used by engineers and researchers to study birefringence related effects.

INSTRUMENTS



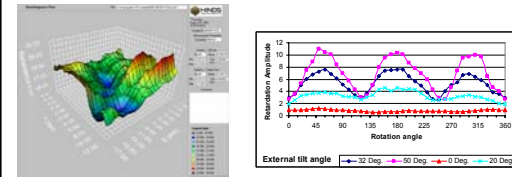
EXICOR DUV SYSTEM
(157nm/193nm/248nm)
With Nitrogen Purging



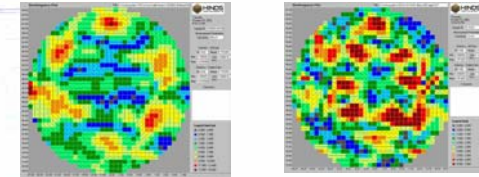
EXICOR DUV SYSTEM
(193nm/248nm)

RESULTS

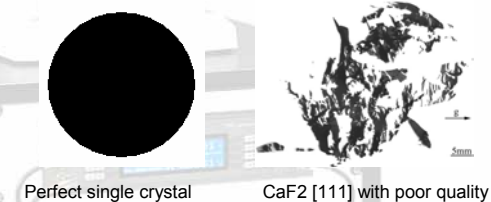
Intrinsic birefringence in [110] CaF₂ at 157 nm



Difference in birefringence measured at 157 nm and 633 nm in a poor quality CaF₂ [111] crystal



X-ray topography for CaF₂ [111] crystal



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