

Engis Microtech Products for Planarization and Polishing High Quality Compound Semiconductor Substrates, MEMS and Optics



Engis Corporation
105 West Hintz Road, Wheeling, IL 60090
Toll-Free: 1-800-99ENGIS
Tel: 847-808-9400 Fax: 847-808-9430

Engis of Canada Ltd.
3465 Mainway, Unit 2, Burlington, Ontario L7M 1A9
Tel: 905-632-3016 Fax: 905-632-4250
engiscanada@engis.com

..... www.engismicrotech.com



031805-001GEN/EOC

Process Design Philosophy

- **RECOGNIZE THE PARTICULAR SITUATION OF EACH CUSTOMER**
 - Develop modular processes to fit each customer's unique requirements
 - Capital equipment
 - Reduction in waste management and disposal
 - Throughput and operation cost demands
- **RECOGNIZE THE UNIQUE CHEMICAL AND MECHANICAL PROPERTIES OF THE MATERIAL**
 - Choose/develop slurries to take advantage of these properties
 - Achieve the best and fastest results
- **ACHIEVE AS MUCH AS POSSIBLE WITHIN THE LESS EXPENSIVE EARLY STEPS TO SAVE TIME AND MONEY IN THE MORE EXPENSIVE LATER STEPS**
- **DELIVER COMPLETE SYSTEM**
 - Mounting
 - Machines
 - Slurries and plates
 - Texturing
 - Cleaning



Engis Corporation

105 West Hintz Road, Wheeling, IL 60090
Toll-Free: 1-800-99ENGIS
Tel: 847-808-9400 Fax: 847-808-9430

Engis of Canada Ltd.

3465 Mainway, Unit 2, Burlington, Ontario L7M 1A9
Tel: 905-632-3016 Fax: 905-632-4250
engiscanada@engis.com

..... www.engismicrotech.com



031805-001GEN/EOC

Introduction to Engis CMP-D

- **Concept**
 - Engis is pioneering the use of CMP-D slurries to replace or augment costly traditional CMP polishing with the efficiency of precisely graded micron diamond in specially formulated slurries
- **Rationale**
 - **Cost reduction**
 - Reduced slurry consumption and waste disposal
 - Elimination of expensive pads
 - Lower cycle times result in lower labor costs per piece
 - **Throughput improvement**
 - Shorter cycle times
 - Faster material removal rates
 - **Easier cleaning**
 - Slurries do not require acid cleaning steps like colloids
 - Do not set up on the wafers like colloids
 - Cleaning problems are the number one reason for wafer returns
 - **Effective on hard-to-polish materials**
 - Chemical resisting materials
 - Extremely hard materials



Engis Corporation

105 West Hintz Road, Wheeling, IL 60090
Toll-Free: 1-800-99ENGIS
Tel: 847-808-9400 Fax: 847-808-9430

Engis of Canada Ltd.

3465 Mainway, Unit 2, Burlington, Ontario L7M 1A9
Tel: 905-632-3016 Fax: 905-632-4250
engiscanada@engis.com

..... www.engismicrotech.com

www.engismicrotech.com



031805-001GEN/EOC

Advanced Materials

- Silicon Carbide
 - 4H and 6H substrates up to 100mm
 - CVD SiC Mirrors
 - Pressed and sintered material
- Sapphire
 - C, A and R-planes
 - Epitaxial finishing for substrates
 - Backfinishing to <50 um
- GaN
 - Epitaxial finishing
- GaAs
 - Backfinishing
- AlTiC
 - Disk head lapping
 - Backfinishing
- Silicon
 - 100 and 110 planes
 - Optics
 - Epitaxial finishing
 - Backfinishing
- Silicon Germanium
 - Planarization
 - Epitaxial finishing
- Indium Phosphide
 - Epitaxial finishing
 - Backfinishing
- Germanium
 - Epitaxial finishing
 - Backfinishing
- Zirconia
 - Thickness <50 um
 - TTV <3 um
- Titanium (MEMS)
 - Epitaxial finishing
 - Thickness <30 um
 - TTV <3 u
- Nickel (MEMS)
 - Planarization
- Calcium Fluoride
 - Optics
- Lithium Niobate
 - Optics
- KTiOPO4 or KTP
 - Polishing
- Diamond
 - Singal crystal
 - CVD coatings
 - Substrates



Engis Corporation

105 West Hintz Road, Wheeling, IL 60090
Toll-Free: 1-800-99ENGIS
Tel: 847-808-9400 Fax: 847-808-9430

Engis of Canada Ltd.

3465 Mainway, Unit 2, Burlington, Ontario L7M 1A9
Tel: 905-632-3016 Fax: 905-632-4250
engiscanada@engis.com

..... www.engismicrotech.com



031805-001GEN/EOC