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Industry Overview

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Overview Summary 2-3

Customer Concerns 2-4

Wafer Manufacturing Flow Chart 2-5

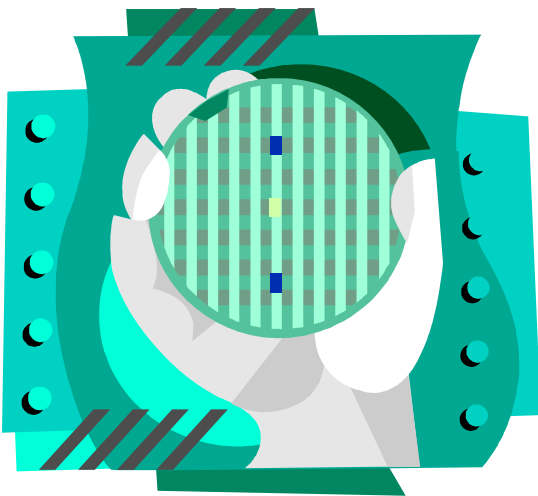
“The Incredible Shrinking Chip” 2-7

Overview Summary

*IDT, TI, Intel, AMD, IBM,
AT&T, NSC, etc.*

AMAT, LAM, GENUS, etc.

Military, DOE, National labs



Semiconductor Industry Segments

- Manufacturing
- OEM's
- Government
- Universities
- Flat panel display

Customer Concerns



- Safety
 - ◆ Always a primary focus
 - ◆ Strong influence on purchasing decisions



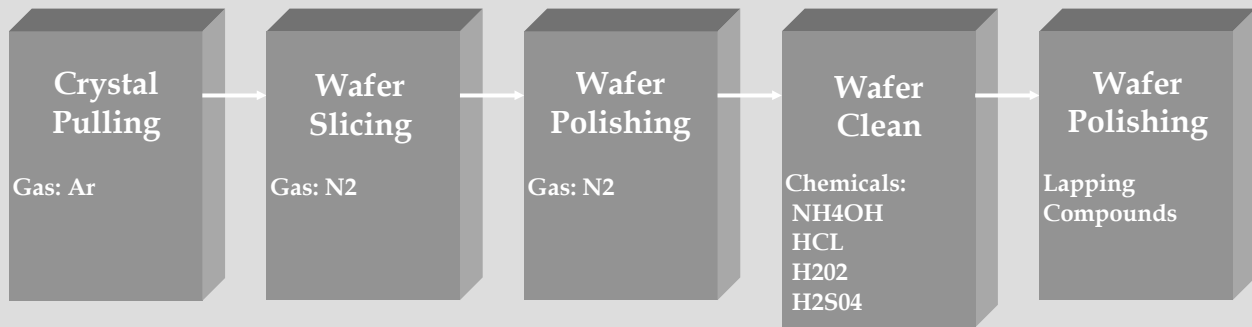
- Cost of ownership
 - ◆ Gaining popularity as a decision tool
 - ◆ SEMI has defined standards
 - ↳ focuses on tool makers
 - ↳ new version will include peripheral equipment



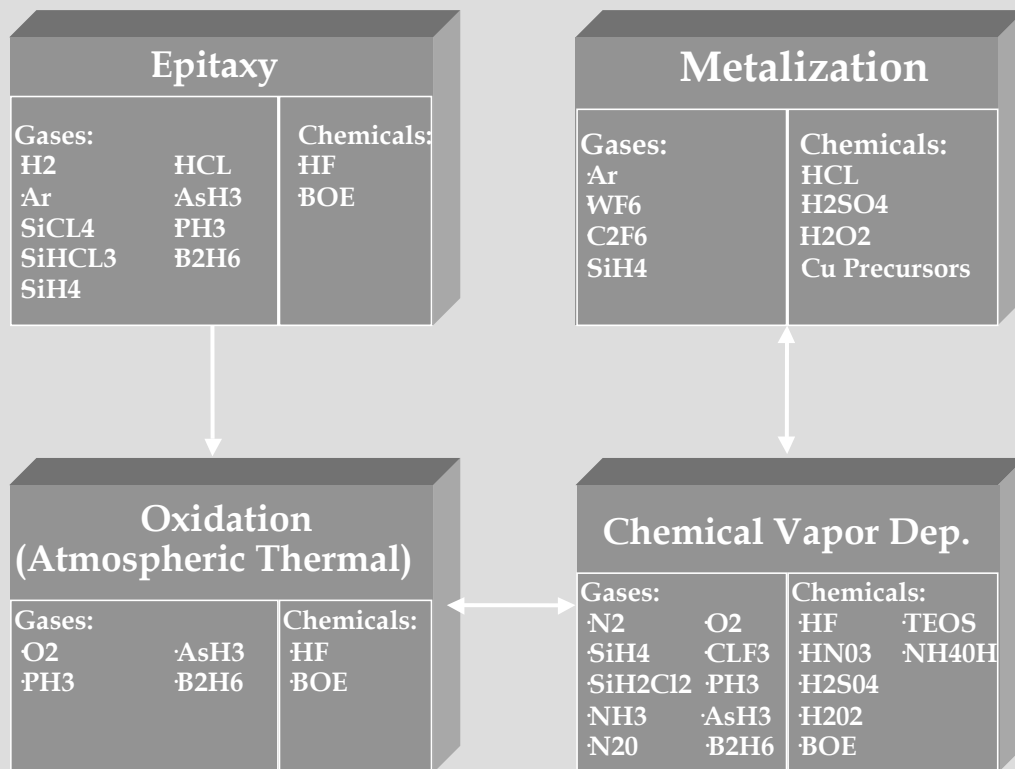
- Yield--Directly related to purity and contamination
 - ◆ Moisture
 - ◆ Particles
 - ◆ Hydrocarbons
 - ◆ Oxygen
- Internal volume
 - ◆ Less is more
 - ◆ Minimize dead spaces
- Materials
 - ◆ Application compatibility
 - ◆ Smooth internal surface finishes

Wafer Manufacturing

Wafer Manufacture

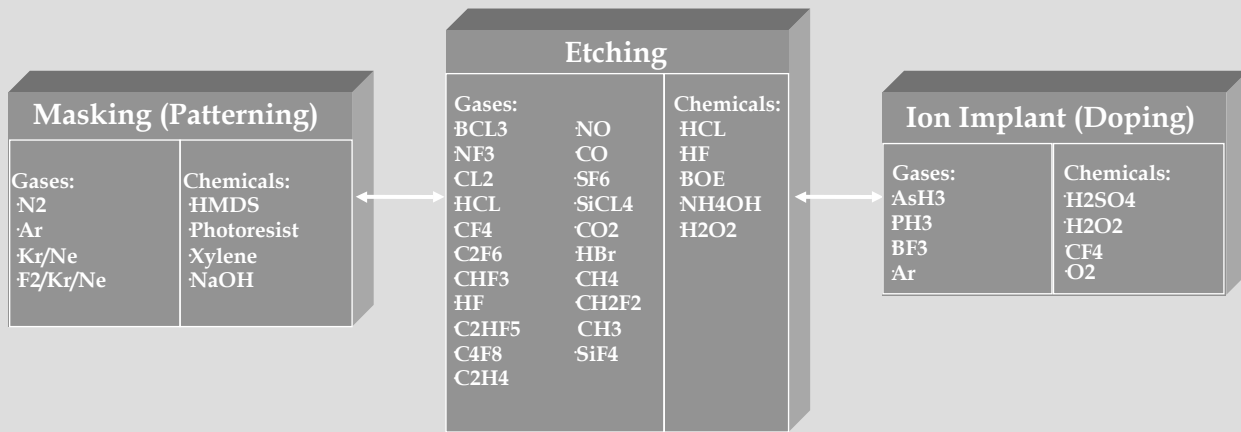


Thin Film Layers



Wafer Manufacturing, cont'd

Masking, Etching, Doping



Assembly, Package and Test

